



PSYCHOLOGY DISCOVERY CONFERENCE 2022

April 5, 2022
ONLINE



UNIVERSITY OF
WATERLOO

Department
of Psychology

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The University of Waterloo acknowledges that much of our work takes place on the traditional territory of the Neutral, Anishinaabeg and Haudenosaunee peoples. Our main campus is situated on the Haldimand Tract, the land granted to the Six Nations that includes six miles on each side of the Grand River. Our active work toward reconciliation takes place across our campuses through research, learning, teaching, and community building, and is centralized within the Office of Indigenous Relations.

Questions? Contact us at psychology.discovery.conference@uwaterloo.ca.

SCHEDULE

	TIME	EVENT	LOCATION
April 5	9:00 am – 10:00 am	Morning Poster Session	See General Info below
	10:00 am – 11:30 am	Talk Session	https://uwaterloo.zoom.us/j/92134144246?pwd=OFZSK3pYVW9kYkpQS1NVenJuVmIqdz09
	12:00 pm – 1:00 pm	Career Flashtalks	https://uwaterloo.zoom.us/j/92425772406?pwd=OVlkSzdvSjBHTW1qS1dod3RjSU5yUT09
	1:00 pm – 2:00 pm	Afternoon Poster Session	See General Info below

Note. Links in the schedule above are **case-sensitive**.

GENERAL INFORMATION

Poster Session

All attendees are free to browse posters before the conference on the PDC website. Please refer to the abstracts below to see when individual presenters are available to chat live.

Morning Poster Session (9:00am – 10:00am)

Clinical:

<https://uwaterloo.zoom.us/j/92669623991?pwd=ZTBQK0tDbm1YNWdYN0VqWEE5L3VsQT09>

Developmental / Social / IO:

<https://uwaterloo.zoom.us/j/91223214275?pwd=Nk85NE5pOXZGVXVKbXpvRG5VZ3ltZz09>

Cognition & Cognitive Neuroscience:

<https://uwaterloo.zoom.us/j/91418368574?pwd=cXlkeHppb3JvT2pzZEJaQmxxTWI2QT09>

Afternoon Poster Session (1:00pm – 2:00pm)

Clinical:

<https://uwaterloo.zoom.us/j/96052757987?pwd=NXg5U0h3WnVXSCsxSDB2eIVCUGtJdz09>

Developmental / Social / IO:

<https://uwaterloo.zoom.us/j/91061365132?pwd=MHB0UWd2R0ZiV2QwU2JUUGxMekdIQOT09>

Cognition & Cognitive Neuroscience:

<https://uwaterloo.zoom.us/j/94134775270?pwd=V0EvSnY0a05tcGIFNXRKTzJoS282Zz09>

Talk Session

Talks will be presented through video conferencing on **Tuesday April 5**, from **10:00 am – 11:30 am**. Each talk will be 10 minutes with 5 minutes for Q&A. See the above schedule for the link.

Career Flashtalks

Join us for career flashtalks by alumni from our graduate program. Bring your questions about transition to industry!

Lauren Holt, *Consultant, People & Change at KPMG Canada*

David Kille, *Product Research and Research Manager at Instagram*

Sherif Soliman, *Applied Scientist at Amazon*

Julia Van de Vondervoort, *Associate at BEworks*

TALK SESSION

10:00 am – 10:15 am

Family well-being during the COVID-19 pandemic: An analysis of the dynamic interplay between positive coping and mental health problems

Jackson A. Smith, Jennifer Jenkins, and Dillon T. Browne

The COVID-19 pandemic has taken a tremendous toll on the physical, psychological, and financial well-being of individuals and families globally. Yet, despite the multitude of stressors, some individuals and families have remained resilient, and their functioning remains relatively unscathed. Individual- and family-level resilience research has largely evolved in parallel, and there have been recent calls for resilience research to move toward a relational developmental systems framework, integrating multiple levels of interdependent aspects of resilience. The goal of this study is to address this gap by examining the directional associations between caregiver- and child-specific positive coping and psychopathology over time during the COVID-19 pandemic in a multinational, longitudinal sample of 549 families with at least two children (ages 5 to 18 years) who completed caregiver-reported measures on four occasions between May and November 2020. Using network analysis and cross-lagged panel modeling, this study explores (1) within-time associations of child and caregiver positive coping and psychopathology, (2) how caregiver and child positive coping and psychopathology relate to each other over time, and (3) how patterns of positive coping and psychopathology differ across families. By examining the relationality of resilience and how individual resilience permeates across individuals within family units to foster family-wide resilience, this research will provide important prevention and treatment directives to support the well-being of families and children and adolescents.

Presenter: Jackson A. Smith;
jackson.smith@uwaterloo.ca

10:15 am – 10:30 am

How exposure to personal distress with and without self-compassion affects distress intolerance: A brief randomized controlled trial

Jenessa L. Shaw and Allison C. Kelly

Distress intolerance, defined as the perceived inability to tolerate negative emotions, is a transdiagnostic marker of psychopathology (Kiselica et al., 2015). CBT suggests that to overcome distress intolerance, individuals need to learn that experiencing negative emotions is more tolerable than they expected. However, those with difficulty tolerating distress interpret pure exposures as unbearable and terminate early (Belleau et al., 2017). Self-compassion involves relating to one's distress in the same caring way one might relate to a child's (Gilbert, 2014) and has soothing physiological effects (Kim et al., 2020) which may make the experience of feeling distress more bearable. We therefore hypothesized that exposure to distress with self-compassion, as compared to without, would lead to lower distress intolerance via greater soothing affect. We conducted a randomized control trial in a sample composed of international adults and Canadian undergraduates ($n=350$) with high distress intolerance. Following a prompt to think of a distressing situation, participants were randomly assigned to 1) pure exposure, 2) exposure with self-compassion or 3) control. ANOVAs revealed that controlling for trait levels of distress intolerance, condition significantly predicted distress intolerance immediately following the intervention and 1 week later, $n_2p = .027-.031$. At both timepoints, pairwise comparisons revealed that the self-compassion condition yielded lower post-task distress intolerance than the pure exposure condition ($d=0.41-0.42$) and control condition ($d=0.25-0.31$). Soothing affect during the intervention significantly mediated the effect of condition on distress intolerance at both timepoints. Results highlight the potential role that insufficient access to soothing affect plays in perpetuating distress intolerance.

Presenter: Jenessa L. Shaw; J28shaw@uwaterloo.ca

10:30 am – 10:45 am

Enhancing memory using enactment: Does meaning matter when producing or observing an action?

Yadurshana Sivashankar, Ciel Liu, & Myra Fernandes

Physically performing an action depicting a word enhances its memorability, relative to simply reading it. This is known as the enactment effect. We examined whether the performed action needed to be semantically relevant, and whether it needed to be performed by the subject, to confer a memory benefit. To-be-remembered words were presented visually one at a time. Participants enacted them, performed an unrelated gesture, or read them, depending on the cue (within-subjects), or watched videos of the experimenter carrying out these tasks (between-subjects). Performing or observing semantically related actions, but not gesturing, enhanced memory significantly relative to reading. The magnitude of benefit was greater when participants performed rather than watched enactment, contrary to past findings. Results suggest a social presence may contribute to the magnitude of past reported effects. Regardless, our results show that the semantic relatedness of an action to the target is critical for the memory benefit.

Presenter: Yadurshana Sivashankar;
ysivasha@uwaterloo.ca

10:45 am – 11:00 am

Symbol superiority: Why \$ is better remembered than ‘dollar’

Brady R.T. Roberts, Myra A. Fernandes, and Colin M. MacLeod

Dual-coding theory (Paivio, 1969) proposes that we remember much of the world around us by encoding verbal and imagery representational codes. Words, for example, are thought to be encoded primarily with a verbal label. Pictures, and possibly symbols, on the other hand can be represented with dual codes: both verbal and imagery. As a consequence, memory is often better for pictures relative to words because pictures lead to imagery plus spontaneous verbal labelling, taking advantage of both codes, whereas words only provide a single, verbal, representation in memory. Our current research investigated whether common symbols (e.g., !@#\$\$%&) are processed like words or like pictures: Are symbols afforded only verbal coding, akin to words, or do they also invoke visual imagery as do pictures? Across four experiments, participants were presented with either symbols or their word counterparts (i.e., \$ or ‘dollar’), and subsequent memory was assessed. We hypothesized that if symbols are indeed processed using imagery, then they should be better recalled than words. In Experiment 1 memory was assessed using recall, and in Experiment 2 using recognition. In both, memory was higher for symbols than words. This benefit was maintained even when the word set was limited to a single category in Experiment 3. Our final experiment showed the memory benefit for symbols was like that of pictures, and both were superior to words. Across four experiments, memory was better for symbols than words, suggesting that symbols, like pictures, benefit memory by eliciting two distinct representations.

Presenter: Brady R.T. Roberts;
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POSTER SESSION

CLINICAL

Associations between parental COVID stress and adolescent emotional well-being

Charlotte Aitken, Elizabeth Nilsen, and Kate Van Kessel

Rationale: Relative to pre-pandemic levels, there has been an increase in adolescent psychological distress (De France et al., 2021). As well, COVID-19 disruption has increased parental stress which negatively affects adolescents by disrupting the parent-child relationship (Westrupp et al., 2021). The present work evaluates associations between COVID-19 related parental stress (COVID stress), a parent's capacity to evaluate mental states in their child (parental reflective functioning; PRF) and adolescents' emotional functioning.

Method: 91 parents completed online measures that assessed PRF (PRFQ; Luyten et al., 2017), COVID-19 disruption (CoFaSS; Prime et al., 2021), and their adolescents' emotional problems (SDQ; Goodman, 1997). Data collection is ongoing until N=100.

Results: Preliminary results suggest a positive association between a parents' COVID stress and youth emotional difficulties. Moreover, hierarchical regression modeling indicates that PRF moderates the relation between COVID stress and adolescent emotional functioning, such that COVID stress is only associated with worse youth emotional outcomes when parents have weak reflective functioning.

Conclusions: These findings suggest that when parents are better able to consider the mental states underlying their child's behaviour, the impact of familial COVID stress on adolescents' emotional functioning is mitigated. **Presenter:** Kate Van Kessel; krvankes@uwaterloo.ca

Available during morning poster session

Clinician perspectives of online versus in-person psychotherapy

Carla Rumeo, Sarena Daljeet, Jonathan Oakman, Alex Milovanov, and Katie Finch

Research suggests that teletherapy is effective for treating a range of mental health disorders (Poletti et al., 2020). Moreover, clients have rated the therapist-

client relationship more positively (Watts et al., 2020) or equivalent during teletherapy (Germain et al., 2010) than in-person psychotherapy. However, therapists have reported challenges with facilitating a strong therapeutic relationship in teletherapy due to the limitations on nonverbal communication (Békés et al., 2021). Given the recent proliferation of teletherapy, it is imperative that clinicians and researchers elucidate qualitative differences between online and conventional, in-person psychotherapy.

In the current study, student therapists and faculty members (N = 22) from the UW Clinical Psychology program were asked to directly compare their experiences delivering therapy across both modalities through answering various slider style questions. The majority of respondents were negatively predisposed to teletherapy prior to their first session and indicated that they were better able to facilitate important therapeutic processes (e.g., communication, emotional connectedness, etc.) during in-person psychotherapy. No differences were reported in other elements, such as client absences. Some aspects of the therapist-client relationship were facilitated with equal effectiveness across modalities. However, the bond element was rated more strongly for in-person psychotherapy.

Despite empirical evidence supporting the efficacy of teletherapy and clients' positive ratings of the alliance, many therapists remain dubious of the utility of this modality. Moreover, the results of this work may imply that therapists' negative assumptions about online therapy influence their willingness and capacity to foster important therapeutic elements and the therapeutic bond on a virtual platform. **Presenter:** Carla Rumeo; crumeo@uwaterloo.ca

Available during morning and afternoon poster sessions

Do racial identity and distress levels interact to predict mental health treatment seeking behaviours in undergraduate women?

Katie E. Martin, Jenessa L. Shaw, and Allison C. Kelly

Many undergraduate students who identify as BIPOC women face unique experiences of distress resulting from their gender and race (Jones & Cross, 2007). BIPOC women face numerous barriers to treatment seeking such as personal stigma, public stigma, and

mistrust (Hingwe, 2021). According to Nelson et al. (2020), BIPOC women are less likely to seek or receive adequate mental health treatment and they often delay seeking treatment until their symptoms are more severe. Indeed, Matthews et al. (2006), found that cultural messages of self-reliance negatively influenced mental health treatment seeking in BIPOC women. Given the harmful effects of delayed treatment-seeking, including increased symptom severity and mortality rates (Sickel et al., 2014), it is important to understand the barriers that individuals face and how these may differ as a function of race (Nelson et al., 2020). In the present study, we examined a sample of 543 female-identified undergraduate students who self-reported moderate to high distress to determine whether and how mental health treatment seeking varied as a function of racial identity. Participants completed self-report measures on their demographics, distress, and treatment seeking. Our first goal was to replicate the finding that distressed BIPOC women would be less likely to have sought treatment than White women. Our second hypothesis was that distress levels and racial identity would interact to predict treatment-seeking. Specifically, we expected that the effect of racial identity on treatment seeking would be stronger at moderate levels of distress than high levels of distress. Results and their implications will be presented. **Presenter:** Katie E. Martin; k35marti@uwaterloo.ca.

Available during afternoon poster session

Exploring classroom effects in trajectories of student strengths and physical literacy in early childhood education

Dillon T. Browne, Jasmine Zhang, Ben Brown, Michaela Young

Background: Previous research supports the benefits of high-quality early childhood education (ECE) for children's socioemotional functioning and physical literacy. However, the relations between these two outcomes remain underexplored, and little is known regarding their systematic variation across classrooms in ECE settings.

Methods: This study assessed the predictive role of physical literacy in three-month individual- and classroom-level trajectories of socioemotional strengths in children enrolled in a licensed ECE service. Educators (n=37) in classrooms (n=22) completed monthly assessments of children's

(n=235) socioemotional strengths and physical literacy.

Results: Three-level random intercept growth curve models revealed that socioemotional strengths improved throughout the study period, with significant between-classroom differences in both the intercept (starting value) and slope (rate of change). Strength scores were also higher when classroom-average and child-specific physical literacy scores were higher.

Conclusion: Physical literacy is an important predictor of positive socioemotional outcomes in ECE settings. It is important to consider classroom-level differences in these outcomes, as well.

Action: Resource and program improvements for children's socioemotional functioning in ECE contexts must account for unique child- and classroom-level variation in outcomes.

Presenter: Benjamin Brown; brjbrown@uwaterloo.ca

Available during morning poster session

How does economic pressure relate to family processes? A systemic test of the family stress model

Laura Colucci, Nina Sokolovic, Jennifer M. Jenkins, and Dillon T. Browne

Background: When evaluating family well-being, it is important to disentangle dyadic, individual, and family-wide variability. Presently, few studies have considered the role of social disadvantage and mental health across different levels of family analysis.

Methods: Canadian families (N = 224, including 55% Canadian-born and 45% immigrant mothers) were observed interacting in a round-robin design.

Families included mothers, fathers, and two children, aged 5-9 (younger sibling) and 9-13 years (older sibling). Each family dyad (6 total) completed a cooperative building task for 5 minutes and both members were coded for expressed positivity (12 directed dyadic scores per family). Mothers self-reported depressive symptoms and both parents reported children's emotional problems. The social relations model was fit and tested in association with socioeconomic status and individual mental health.

Results: Significant variance in family positivity across dyadic, individual, and whole-family levels was observed. Socioeconomic status was primarily related to family variations in positivity, while individual mental health was related to positivity for

mothers and older children. When individual and family variance components were dropped from the model, certain family relationships were most strongly related to individual mental health, though the pattern of results is less interpretable.

Conclusions: This study provides support for multilevel conceptualizations of family life. Socioeconomic status is a family-wide risk factor that relates to whole-family differences in positivity and individual-specific mental health symptoms.

Individual mental health is associated with individual differences in expressed positivity during family interactions. Implications for clinical landscapes, theory, and methodology in developmental and family science are discussed. **Presenter:** Laura Colucci; lcolucci@uwaterloo.ca

Available during morning poster session

Parent mentalization and youth social functioning

Charlotte Aitken and Elizabeth Nilsen

Rationale: Parental reflective functioning (PRF), the ability to reason about the mental states of one's child, is an important element of attachment and predicts social-emotional outcomes in young children. Less is known about the role of PRF for adolescent outcomes, despite the continued growth in perspective-taking and increased salience of social relationships during this developmental period.

Method: Parent and youth (ages 12-15; current N=89 pairs, anticipated N=100 pairs) independently completed online measures. Parents completed the parental reflective functioning questionnaire (PRFQ; Luyten et al., 2017) and youth completed task-based (TASIT-S; McDonald et al., 2017) and self-report (RFQY; Sharp et al., 2009) measures of mentalizing; both parents and youth reported on youth social functioning (SDQ; Goodman, 1997). Results:

Controlling for youth age/gender, both PRF and the adolescent's own mentalizing ability (task-based and self-report formats) uniquely predicted youth-reported social functioning. Conclusions: Preliminary results find that youth with parents who show greater interest in and understanding of their child's mental states, and who themselves possess better mentalizing abilities, experience more social success and fewer peer problems. Impact: This work has theoretical implications for the construct of PRF and practical implications for supporting the social functioning of

adolescents. **Presenter:** Charlotte Aitken; c5aitken@uwaterloo.ca

Available during morning and afternoon poster session

Relational and executive functions predict subjective well-being across the high school transition

Fatima Wasif and Tara McAuley

One feature of middle adolescence is the transition to high school, with teenagers typically facing increased demands of independent academic work coupled with the need to establish new social networks. Students who successfully navigate this change have higher positive affect. Conversely, those who struggle experience increased negative affect and more mental health concerns – all of which are markers of subjective well-being (SWB). In this study, we examine changes in adolescent SWB coinciding with the transition to high school. Additionally, we explore the extent that individual differences in adolescents' executive functions (EFs) and positive relations with others predict SWB. To do so, we collected self-report survey data from a community sample of 13-to-15-year-old adolescents (N = 106). Results showed that post-transition, youth reported significantly lower SWB, with declining satisfaction with life and higher psychological distress.

Psychological distress was predicted by gender, executive dysfunction, and weak social relationships. Also, increasing EF difficulties were significantly associated with decreased life satisfaction for teens with average or low positive relations with others. Strong social relationships seem to buffer the impact of poorly developed EF skills on teenage SWB. We discuss how mechanisms accounting for the protective effect of positive social relationships for youth with EF challenges will be crucial to explore in future research. **Presenter:** Fatima Wasif; fwasif@uwaterloo.ca

Available during morning poster session

Relations between caregivers' media use patterns and family functioning: A person-centered approach

Jasmine Zhang and Dillon Browne

In recent decades, rapid technological advances have led screen-based devices (e.g., computers, smartphones, tablets, etc.) to become integrated with

nearly every aspect of family life. While most research in digital media use has focused on children and youth, emerging work has recognized that devices also support parents in a wide range of social, recreational, and occupational functions. Studies suggest that caregivers' media use is a multidimensional activity, such that each purpose of use is differentially associated with individual well-being and parent-child relationships. However, the implications of caregivers' digital media use for other fundamental aspects of family well-being are presently unclear. Thus, this study will explore caregivers' media use patterns in relation to family functioning. Caregivers (N = 549, 68% female) with at least two children aged 5–18 participated in the Child Resilience and Managing Pandemic Emotional Distress in Families (CRAMPED) study, a multinational project examining the well-being of families during the COVID-19 pandemic. Parents completed questionnaires assessing their media use habits, relationship satisfaction, and family functioning. Latent profile analysis will be conducted to extract person-centered media use profiles, which will be examined as a function of caregiver age, gender, and family socioeconomic status. Subsequently, media use profiles will be compared on relationship satisfaction and used to predict family functioning. Findings will offer insight into the implications of caregivers' media use patterns for family processes. This knowledge will inform policies and guidelines to encourage healthy media habits from a family-wide perspective.

Presenter: Jasmine Zhang;
jasmine.zhang@uwaterloo.ca

Available during morning and afternoon poster session

COGNITIVE

Failing to explain one phenomenon reduces self-reported understanding of other phenomena: An illusion of explanatory breadth?

Joshua R. C. Budge, Ethan Meyers, Jeremy Gretton, Jonathan Fugelsang, Derek Koehler
Attempting to explain how something (e.g., a speedometer) works often makes us aware of the gaps in our knowledge about that thing. This is the Illusion of Explanatory Depth (IOED). Across three preregistered studies we provide evidence that

puncturing an IOED has broad consequences for judgments of self-understanding. We found that participants reported knowing less about how an item works regardless of whether they had explained that item or a different one (Studies 1 – 3). This remained the case when compared to a control condition (Studies 2 – 3) and across items from entirely different domains (Study 3). Our results suggest that the IOED may be more broad than it is deep.

Presenter: Joshua R. C. Budge;
jrcbudge@uwaterloo.ca

Available during morning poster session

Multiple paths toward other-focused compassion? Examining the relative effects of two compassion enhancements on motivation

Bobby J. W. McHardy and Allison C. Kelly
Compassion for others, which requires both a motivation to attend to others' suffering and a motivation to prevent that suffering, is cognitively expensive. People therefore tend to be conservative in, or even fearful of, offering compassion. Our modern problems of inequality and social disconnection make compassion—associated with social understanding, kindness, and helping—an important tool. We therefore seek to understand how to best induce a compassionate motivation as one method to reduce these social ills. Social Learning Theory suggests that, in addition to directly engaging in and experiencing the rewards of a behaviour, the observation of the behaviour being rewarded is enough to indirectly induce that behaviour in the observer. One commonplace direct compassion exercise is the practice of Lovingkindness meditation, a practice theorized to benefit both oneself, through increased positive affect, and others, through an increased receipt of compassion. We alternatively draw a novel indirect compassion enhancement from Social Learning Theory. In a between-persons experiment of 494 undergraduates, we compared the momentary effects of listening to an ostensible peer engage in, and be rewarded by, Lovingkindness mediation (indirect) to the effects of engaging in, and experiencing the rewards of, Lovingkindness meditation oneself (direct). Relative to a control, we examine how these two conditions differentially affect outcomes of positive affect, motivation to be compassionate, and readiness to engage in compassion practice. We simultaneously examine how being fearful of compassion may moderate the

effect of condition on outcomes. Results carry implications for understanding how to foster compassionate motivation and uptake. **Presenter:** Bobby J. W. McHardy; rjmchard@uwaterloo.ca
Available during morning and afternoon poster session

Slow and steady or fast and furious? Lecture playback speed on typed note-taking quality effects and open-book performance

Kitty Lamarr, Laura Bianchi, and Evan Risko
Increasing lecture speed or typing out notes can be time savers for online learners with little sacrifice to test performance. However, these two practices used in tandem, especially the effect of lecture speed on note-taking, a common and beneficial activity learners often engage in, is not well understood. This study aims to clarify the effects of speeding lectures on note-taking quality and downstream performance. In this experiment, we asked one hundred and eighty-one undergraduate-student volunteers to take typed notes while watching a lecture video at speeds of 1.0x, 1.5x, or 2.0x. Participants watched a lecture while taking notes. They were told these notes could be used on the test later since it was open-book. After the video, they answered questions about their affect (i.e., PANAS scale) and load (i.e., effort ratings) towards the learning environment and metacognitive judgements about how they think they did/would do on the open-book test. We found speed effects on comprehension and note-taking and limited effects on our measures of affect, metacognition, and load. These results inform online learners on best practices for students and instructors looking to speed up their videos. **Presenter:** Kitty Lamarr; kskukkol@uwaterloo.ca

Available during morning and afternoon poster session

The effect of individual differences in theory of mind on bullshit receptivity and frequency

Nusrat Khan, Martin H. Turpin, Jonathan A. Fugelsang

Bullshit is a shade of deception that uses vague statements and superfluous language to sound impressive and meaningful while it, arguably, conveys no real meaning. Yet, bullshit is pervasive in most aspects of daily life. Are abilities related to

Theory of Mind such as perspective-taking and empathy involved in detecting bullshit? Does possessing these abilities predict how often people bullshit? This research investigated the link between bullshitting (frequency, detection, receptivity) and mental faculties associated with Theory of Mind. **Presenter:** Nusrat Khan; n96khan@uwaterloo.ca
Available during morning and afternoon poster session

The influence of response modes on testing in an asynchronous setting

Zayn Dhillon, Laura Bianchi, and Evan F. Risko
Active learning is a form of engagement in the classroom where students involve themselves in their learning through various activities such as group work and discussion, rather than passive listening (e.g., to a lecture). There is a strong peer interaction element present in active learning. As asynchronous (remote) learning increases in use due to the COVID-19 pandemic, the peer interaction in learning (and by extension active learning) may become less prevalent. This may be of concern because active learning is shown to benefit learning. One potential reason that active learning is beneficial is that when face-to-face there is social pressure to engage deeply in the learning activity. To explore this idea in an asynchronous learning environment I focused on simulating this kind of “face-to-face” interaction through the use of video based answers to questions. Specifically, participants viewed a video lecture and we manipulated the response mode of the tests—participants either responded through typing their answers or video recording their answers—to observe whether a response mode more akin to peer interaction (video recorded response) improved learning and/or influenced other aspects of the learning experience. There was no effect of response mode on learning, affect, attention, metacognition, or effort. The research in this project can be applied to fields like instructional design. **Presenter:** Zayn Dhillon; zdhillon@uwaterloo.ca
Available during afternoon poster session

A Reanalysis of Face Processing Research

James Siklos-Whillans*, Roxane Itier

Recent Event Related Potentials (ERPs) studies using eye-tracking and a gaze contingent approach to control gaze fixation location have shown that the face-sensitive N170 ERP component was modulated when participants' gaze was fixated on the different facial features of upright or inverted faces (Nemrodov, et al. 2014; Itier & Preston, 2018). In the first experiment we re-analyzed these data sets with Mass-Univariate statistics using the LIMO toolbox. These statistics are more resistant to Type I & II errors and allow the investigation of all time points and electrodes (Pernet, et al. 2011). The results revealed a significant effect of fixation location, orientation, as well as their interaction. These significant differences were widespread across the scalp and were maximal before and after the N170 ERP component. For example, the orientation effect showed the largest differences with 3 short clusters of significant activity while the fixation effect spanned one large cluster with lower F values. Some of the earliest differences seen here are around 50ms to 80ms earlier than the N170 ERP component reported in previous papers. In the second experiment (unpublished) the exact same experimental paradigm was used, except the images were of upright and inverted houses. The results showed a fixation and orientation effect of houses as well as a small interaction between the two. However, these effects occurred over a much smaller time window and were considerably smaller in magnitude with F values much lower than those seen with faces. These results suggest that face and house processing are differentially impacted by orientation and fixation location. Critically, most of these processes occurred outside of the N170 peak, emphasizing the need to move towards robust statistics to unravel face and object processing similarities and differences. **Presenter:** James Siklos-Whillans; jsiklosw@uwaterloo.ca
Available during afternoon poster session

Perception of probabilities that are subject to change

Julia Schirmeister and Britt Anderson

To navigate stochastic and changing environments, people need to keep track of ongoing probabilities as those probabilities are subject to change. Perception of changing probabilities could be achieved either by constant updating of mental models, or infrequent updating of those models only after substantial changes in probabilities is detected. In other words, new information could be always immediately integrated to alter a working mental model, or incoming information could be accumulated to test whether a more persistent model should be replaced. In past research, response-maintenance (rather than constant updating) has been observed, but it has been difficult to disentangle whether this is due to true maintenance of a mental model, or whether it is due to an increase in the effort it would take to physically change one's response. To address this question, in this study, participants were separated into two groups. Participants either were or were not given their last response as their default estimates of observed probabilities. If participants were given no default response, on every trial, they needed to indicate their estimate anew. This was intended to equalize the effort it would take to maintain or update a response and thus remove physical effort as a confound. It was found that at least some of the variance in participant response strategy was determined by the extra effort it took to change one's estimate. Participants who were not given their old response as default more often updated their estimates of the probability to accommodate the most recent events. **Presenter:** Julia Schirmeister; jschirme@uwaterloo.ca

Available during morning and afternoon poster session

Probability matching and antimatching in hide-and-seek

Peter DiBerardino and Britt Anderson

What is an "opposite" probability distribution? Such a notion would be useful for decision making under uncertainty when the goal is to avoid, rather than pursue some outcome. Here, we utilize an inversion of probability matching that we call "probability antimatching" to derive a formal definition of opposite probabilistic representations in humans. The children's game of hide-and-seek is a natural way to

test both traditional probability matching when seeking, and probability antimatching when hiding. Participants are informed of a simulated child's tendencies for hiding and seeking in rooms of a house presented graphically on a computer screen. Participants' room-choice frequencies are predicted by a probability vector reflection across the uniform distribution. Participants are also more likely to use an optimal strategy when hiding than when seeking. With this work, we establish a formal definition of probability antimatching and opposites for models of probabilistic belief. **Presenter:** Peter DiBerardino; pavdiber@uwaterloo.ca

Available during afternoon poster session

Updating local and global probability events during maze navigation

Sixuan Chen and Britt Anderson

Our mental models consist of relational knowledge. We apply this knowledge about whether something is near to or far from something else to solve tasks. As a specific example, when we navigate in our environment, we have global (far) location goals that we navigate to using local (near) landmarks. The question for the present study is whether relational knowledge can be probabilistically and differentially represented at global and local levels. To test this, we had participants navigate a maze in which the structure was hidden, but in which participants were given global and local cues. We manipulated the reliability of the global and local cues across an experimental session and across experiments. Our results demonstrated separable effects for global and local cues. Participants made good estimates of global and local cues' reliability, however, their estimates of global cue reliability were less accurate than their estimates of local ones. Their use of local cues roughly matched to ground truth local cue reliability whereas their use of global cues did not match to ground truth global cue reliability. In addition, participants relied on both local and global cues when they navigate in the mazes but with local cues dominant. Altogether, this study characterizes the mental representations of uncertain global and local cues and suggests that people negotiate between different probabilistic information when making decisions in maze navigation.

Presenter: Sixuan Chen; s743chen@uwaterloo.ca

Available during morning poster session

DEVELOPMENTAL

Children's guesses under uncertainty are sensitive to number

Julianna Lu, Emily Stonehouse, Stephanie Denison, and Ori Friedman

Imagine that you are presented with two different sized jars filled with pennies and are asked which jar contains a penny from 1909. Adults would likely say that the larger jar has it, since the probability of finding it is greater when there are more pennies. In this study, we examined whether children make similar inferences. Previous research has found that infants and children have intuitions about probability. For example, when presented with a distribution of items in a population, they expect that a randomly drawn sample should resemble the larger distribution (Denison et al., 2013; Kayhan et al., 2017; Xu & Garcia., 2008). To our knowledge, this study is the first to investigate whether children understand that, all else being equal, specific outcomes (e.g., a 1909 penny) are more likely in larger populations than smaller ones. To test this, 3- to 7-year-olds (N=71, data collection still underway; 30 per age in years planned) are presented with two boxes with differing number of marbles. In counterbalanced order, children are asked to choose which box has the marble with the novel property (e.g., blickety marble) and which box does not have the marble with the novel property. Preliminary results suggest that children tend to select the box with more marbles when asked which box has the marble with the novel property, but tend to select the box with fewer marbles when asked which box does not have the marble with the novel property. **Presenter:** Julianna Lu; j337lu@uwaterloo.ca

Available during morning and afternoon poster session

Children's perceived social competence influences social performance in initial interaction with unfamiliar peer

Jillian Rioux, Linda Sosa-Hernandez, Claudia Labahn, and Heather Henderson

Seeking and sharing information with an unfamiliar peer is imperative for friendship formation and social skill development (Rose-Krasnor et al., 2009). Given its relation to both the quantitative and qualitative aspects of social interactions (Lee et al., 2010),

children's perceived social competence (i.e., judgement of their own social skills; Bedard et al., 2019) may influence their own, and their partner's behaviours during an initial encounter. Accordingly, we adopted an actor-partner model to investigate the influence of both the child's and peer's perceived social competence on the child's social performance. Participants included 62 children (31 dyads, 40 female, Mage = 10.17) who self-reported on their perceived social competence (Harter, 2012), and were randomly paired with an age- and gender-matched unfamiliar peer to 'get to know each other' in a 5-minute unstructured interaction (Usher et al., 2015). The frequency of both children's seeking (ICC = .99) and sharing behaviours (ICC = .89) were coded. Multilevel models indicated that children higher in social competence displayed greater seeking ($p = .008$) and sharing behaviours ($p = .049$), but their peer's perceived social competence did not influence how often the child displayed seeking ($p = .593$) or sharing behaviours ($p = .150$). Findings suggest that children's social performance with an unfamiliar peer is influenced by their own, but not their partner's, judgements of their social skills.

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Available during morning poster session

Children's social preferences diminish when learning about others

Claudia G. Sehl, Ori Friedman, and Stephanie Denison

When choosing who to befriend, children often prefer people similar to them, such as those who share the same language, accent, and preferences, over those who differ from them on those dimensions (e.g., Fawcett & Markson, 2010; Kinzler et al., 2007). However, we examined whether this social preference persists when making a different judgment: who to learn about. Learning about others provides an opportunity to gain new information, so children may instead prefer people who are different from them.

In three experiments, 4-6-year-olds ($N=160$) saw pairs of characters and were asked who they liked better and who they would want to learn more about. In Experiment 1, one character was described as living nearby in a place with familiar characteristics (e.g., maple trees), while the other character was described as living far away in a place with unfamiliar characteristics (e.g., Joshua trees). In

Experiment 2, these characteristics were omitted, so characters were only described as living close or far away. In Experiment 3, this procedure was replicated, though comprehension questions were also omitted. In all experiments, children were relatively more likely to prefer foreign characters when judging who they wanted to learn about than when judging who they liked better, and these preferences generally diverged with age. Together, our results show that children do not always prefer people who are similar to them—their preferences diminish when their choices fulfill other goals, such as learning about others.

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Available during morning and afternoon poster session

INDUSTRIAL/ORGANIZATIONAL

Understanding and mitigating variability in leaders' procedural fairness

Taylor A. Carroll and Ramona Bobocel

Leaders are encouraged to be fair to promote their employees' well-being and productivity. However, research suggests that inconsistency in fairness ("fairness variability") amplifies employee stress and adverse outcomes. Whereas much is known about fairness variability from employees' perspective, little is known about why variability occurs from the leader's perspective. We propose that engaging in certain fairness behaviours can deplete leaders of their self-control and subsequently limit their capacity for fairness. In particular, procedural fairness is likely to deplete leaders because it involves conforming decision making to a strict set of rules. Affirming core values, namely, self-affirmation, holds great promise as an intervention that can restore leaders' self-control. Thus, we expect the relationship between procedural fairness and depletion to be weaker among leaders who have self-affirmed, which in turn will attenuate fairness variability. We test these predictions using a daily diary study of managers and a between-participants self-affirmation manipulation. Preliminary analyses show that leaders who self-affirmed experienced less depletion. However, this reduction did not affect leaders' procedural fairness the following day. A complete analysis of the data will be presented at the conference. Implications for theory and practice will

also be discussed. **Presenter:** Taylor A. Carroll;
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Available during afternoon poster session

SOCIAL

Assessing Interventions Programs

Richard Eibach and Jaishish Gurbaksh

This study will assess the reliability and validity of a new checklist measure that is being developed to assess the degree of upstream focus in social/clinical intervention programs. To test the psychometric properties of this tool a sample of participants from UW's Psychology participant pool will read short descriptions of actual intervention programs that experts have categorized as having at universal, selective, or indicated population targets. Participants will rate the programs on the upstream checklist items as well as several other dimensions of evaluation.

Participants' responses to the checklist items will be tested for internal reliability and factor analyzed to assess the measure's factor structure.

The validity of the checklist will be tested by examining whether the checklist scores differ for programs that expert practitioners classified into universal, selective, and indicated categories. We predict that if the checklist is a valid measure of upstream focus then the overall upstream score will be highest for universal programs, intermediate for selective programs, and lowest for indicated programs.

This study is testing the feasibility of using a new evaluation tool to assess the degree to which social and clinical intervention programs have an upstream focus on preventing harms from happening versus a downstream focus on remedying the consequences of those harms. A sample of participants will read short descriptions of actual intervention programs and then use the checklist to assess various indicators of upstream focus.

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Available during morning poster session

Revisiting the old me: The effect of temporal self-appraisal theory on learning

Claire Jordan and Richard Eibach

The accuracy of future predictions in relationship to optimism has been heavily studied and has huge implications for daily life. For example, being overly optimistic is a relevant problem when setting and working towards goals because it can lead to an inaccurate estimate of the time or effort needed to complete them (Konowalczyk et al., 2019).

Unfortunately, people seem unable to learn from times when they were too hopeful about their performance and consistently overestimate the quick and efficient achievement of goals (Buehler et al., 1994). This presents a problem, since there are many scenarios in everyday life that involve planning for the future. In this paper, the lens of temporal self-appraisal (TSA) theory is used, which posits that people perceive negative memories to feel farther away in order to eliminate threats towards the current self-concept (Peetz & Wilson, 2008). Participants will be asked to recall their worst final grade in the last 12 months and the event will be manipulated to feel subjectively closer or farther away from the present self. There is no manipulation for the baseline condition. They will then be asked to rate how hopeful they feel in completing a similar course in the future. I hypothesize that people are more hopeful in the context of goal setting because they distance times that they failed at a goal and consider these times to be irrelevant to the current self.

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Available during morning and afternoon poster session

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Thank you for joining us for our annual departmental Psychology Discovery Conference. A special thank you to those who contributed their research. We received 36 submissions, 24 of which were accepted as posters and 4 of which were accepted as talks. In addition to our presenters, over 200 people across the University of Waterloo community registered to attend. Overall, our presenters and attendees included undergraduate students, graduate students, postdoctoral fellows, faculty, staff, and more.

We would also like to thank our career flashtalk panelists, **Julia Van de Vondervoort, Sherif Soliman, Lauren Holt, and David Kille**, for sharing their insights and advice.

Thank you to **Bill Eickmeier** and **Jasmine Zhang** for building and maintaining our website.

Thank you all again for making this conference a success. Here's to discovery!

Sarah English & Claudia Sehl,
PDC 2022 Organizing Committee