Dealing with Distractions across the Lifespan

Abstract
The ability to ignore distractions is essential to effective information processing and goal-directed behaviour at every stage of life. Given the complex nature of our environment, distraction is also often a multisensory phenomenon, in which relevant and irrelevant information is presented across the senses. Despite this, most of what we understand about this executive function stems from tasks presenting stimuli to a single sensory modality, usually vision. In this seminar I will present a series of experiments in which we explored the lifespan trajectory of unimodal and crossmodal distractibility. Whilst unimodal distraction followed a classic U-shape trajectory (peaking in childhood and older age), the ability to ignore cross-modal distraction appeared maintained in ageing, even when controlling for individual sensory function. These findings pose a challenge for current models of interference control, suggesting a need to understand executive functions in realistic and multisensory contexts.

Biography
Rebecca completed a BSc, MSc and PhD all at the University of Nottingham before starting her first post-doctoral role at Trinity College Dublin in January 2019. During her PhD she investigated audio-visual interference control across the lifespan using behavioural tasks, psychophysics and EEG. During this time Rebecca also worked at Macquarie University in Sydney to investigate the use of portable EEG for studying multisensory distraction. Rebecca currently works in Prof. Fiona Newell’s lab and with The Irish Longitudinal Study on Ageing (TILDA) to investigate multisensory processing in the largest cohort of older adults to date.
Jamie Murphy  
Professor of Psychology, Ulster University

Thursday 6th February, 1-2pm, LB08, Lloyd Building

Externalising the threat from within: Reconsidering the association between suicide and psychosis

Abstract

Associations between psychosis and self-injurious/suicidal behaviour (SIB) have been repeatedly evidenced in the psychiatric research literature and continue to be a primary focus for many researchers. From 2018 to date there have been at least nine systematic reviews/meta-analyses, exploring the co-occurrence of these phenomena. Major studies in the area have included large prospective cohort data analyses, analyses of clinically high risk and ultra-high risk psychosis sample data, and analyses of general population epidemiological data. Furthermore, all have considered SIB risk and occurrence in the context of psychotic experiences (i.e. all have attempted to explain or interpret risk for and occurrence of SIB based on the presence, severity, duration or context of psychosis). However, it seems that the association between psychosis and SIB has only ever been investigated in a unidirectional framework; where SIB has always been an outcome of, but never an antecedent to, psychosis. A recent hypothesis has offered an alternative perspective and has suggested that psychosis, for some, may be consequential to SIB. Given a) the significant co-occurrence of both phenomena and the early presence of SIB among those in receipt of care for first episode psychosis, b) the overlooked ‘internal threat’ status of SIB, and c) the commonly reported and recorded threat-laden content and phenomenology of psychosis symptomology, proponents of a new Suicidal Drive Hypothesis have suggested that psychosis (particularly threat-informed positive symptomology) might meaningfully reflect an individual’s psychology in the context of internal threat exposure such as SIB. Recognising the substantial extant research literature evidencing the diversity and complexity of defensive psychological reactions to external sources of threat, the Suicidal Drive Hypothesis suggests that internal threat, too, may evoke unique psychological reactions that have the potential to optimise an individual’s defence and survival. In this talk Jamie will introduce and describe the Suicidal Drive Hypothesis and report on the findings of the empirical tests the have begun to justify its exploration.
Biography
Jamie Murphy is a Professor of Psychology at Ulster University. Funded by e.g. the European Commission’s Horizon 2020 initiative and the UK Economic and Social Research Council, Jamie collaborates with some of the world’s leading authorities in the area of mental health and psychopathology. Core branches of his research include: psychosis conceptualisation and measurement, general psychopathology, psychotraumatology and secondary data analyses of large scale population based mental health and administrative data. Jamie is also the training coordinator for The Collaborative Network for Training and Excellence in Psychotraumatology (CONTEXT), an EU funded international, interdisciplinary doctoral training programme involving nine European partner organisations spanning the academic, non-governmental, voluntary, and public sectors.

Claire Hughes
Professor in Developmental Psychology, Newnham College, University of Cambridge

Thursday 19th March, 1-2pm, LB08, Lloyd Building

Family Life and Mentalizing – A Whistle-stop Tour of Seven Questions.

Abstract
In the early 1990s, Judy Dunn’s seminal work on sibling relationships set the scene for research into family influences on children’s acquisition of a Theory of Mind (ToM), which has also drawn on attachment theory, especially as redefined to focus on parental Mind-Mindedness (MM) (e.g. Meins, Fernyhough, Fradley & Tucker, 2001). Using these two measures of mentalizing, my talk provides a rainbow overview that spans seven different questions regarding the links between family life and mentalizing:

1) Does MM differ in new mothers and fathers? Building on work that highlights the relation-specific nature of MM (Meins, Fernyhough & Harris-Waller, 2014), I report on the first study to examine changes in MM across the transition to parenthood (Foley, Devine, Pintar & Hughes, 2020). This analysis draws on data from a recent international study (UK, USA, Netherlands), the ‘New Fathers and Mothers Study’ (NewFAMS).

2) Does MM vary across birth-order? Focusing on a subsample of UK NewFAMS families who had a second child within the grant period, I will present novel
analyses that indicate both ‘resource dilution’ and ‘learning from experience’ effects of birth order on MM in mothers and fathers (Foley, Grimmel and Hughes, in prep).

3) *Does MM vary across cultures?* Building on previous studies that indicate that Asian children lag behind their Western peers in acquiring a ToM (e.g., Hughes, Lecce et al, I present findings that indicate a similar cultural contrast in maternal MM REF; Fujita & Hughes (2020), but a cultural universality in the importance of MM for child ToM (Hughes, Devine & Wang, 2018).

4) *Does MM or Mental StateTalk (MST) matter most for ToM?* Building on evidence for overlapping environmental influences on verbal ability and ToM (Hughes et al, 2005) I review meta-analytic findings that MM and MST show associations with ToM that are each similar in magnitude to effects of family size and socio-economic status (Devine & Hughes, 2018). I will also report on the first study to assess both MM and MST, which showed that developmental gains in pre-schoolers’ ToM are related to it MST rather than MM (Hughes & Devine, 2019).

5) *Do social consequences of ToM differ across children?* Here I report findings from a study of preschool twins in which the social correlates of ToM differ by child gender (Hughes et al, 1999) and by mother-child relationship quality (Cahill et al REF). Further support for this view comes from longitudinal research in the USA, which showed that attachment security strengthens associations between ToM and child-friend interactions (McElwain et al, 2019).

6) *Do family influences on ToM extend into middle childhood?* As evident in a recent systematic review (Foley & Hughes, forthcoming) family influences on ToM are persistent, such that effects of both MST and siblings appear significant for school-aged samples.

7) *Does MM buffers children at risk for disruptive behaviour?* Alongside the extended developmental course of family influences on ToM, our findings from at risk pre-adolescents indicates that buffering effects of MM on children’s disruptive behaviour, previously reported for the preschool years (Meins et al REF) extends into pre-adolescence (Hughes, Aldercotte & Foley, 2018).
Biography
Claire Hughes is a Fellow and Director of Studies at Newnham College, Cambridge, Deputy HoD for the Psychology Department (Wellbeing, Equality and Diversity) and Deputy Director of the University’s Centre for Family Research. Both her first degree (in Natural Sciences) and her PhD (Executive Dysfunction in Autism) were also at the University of Cambridge, where Claire captained the University Women’s Rugby team for one year. Between these and her current post Claire worked for two years in Paris, funded by the Fyssen Foundation and for six years at the Institute of Psychiatry, funded by the MRC. At the Institute of Psychiatry (now the Institute of Psychiatry, Psychology and Neuroscience) Claire collaborated with Professor Judy Dunn in two parallel longitudinal studies of ‘hard to manage’ pre-schoolers and typically developing preschool friends. In 2011, Claire was nominated as a ‘Women of the Year’ by the WoTY organization, founded by Baroness Helena Kennedy to recognize inspiring women. For the past decade, she has conducted a series of ESRC-funded studies following up socially diverse samples of children in order to examine the social origins and consequences of individual differences in children’s socio-cognitive development. Many of the findings from these studies are reported in her book ‘Social Understanding, Social Lives: From Toddlerhood to the Transition to School’, which in 2013 was awarded the BPS book of the year (academic monograph category). In 2016, Claire was highly commended for outstanding student support by the Cambridge University Students Union. Her current work includes cross-cultural studies of theory of mind and executive function, an international study of new mothers’ and fathers’ influences on infant and toddler development and an applied study developing questionnaire measures to identify young children who are likely to need extra support during the transition to school.
Sabine Hunnius  
Professor of Developmental Cognitive Neuroscience, Radboud University, Nijmegen (The Netherlands).

Thursday 26th March, 1-2pm, LB08, Lloyd Building

How Young Children Learn About and From Others

Abstract
Infants come into this world equipped with advanced learning mechanisms. Moreover, from early on they show an elaborate pattern of allocating attention to stimuli in a way that allows them to learn optimally from their environment. I will present a series of behavioral and neurophysiological experiments demonstrating how these mechanisms support infants’ social learning. In addition, I will discuss recent research from my lab on adults’ infant-directed behaviors that shows how adults skillfully adapt their teaching behaviors to the attentional preferences and learning capabilities of their infant interaction partners to optimize learning. Together, my research demonstrates how the intricate interaction of infants’ basic learning mechanisms and a well-matched social environment brings about the astonishing developmental changes of early childhood.

Biography
Sabine Hunnius is Professor of Developmental Cognitive Neuroscience at Radboud University, Nijmegen (The Netherlands). She studied Psychology at the Freie Universität Berlin (Germany) and obtained her PhD from the University of Groningen (The Netherlands) for a longitudinal study into attention and looking behavior in infants. After conducting research at Tilburg University (The Netherlands) and Uppsala University (Sweden), she joined Radboud University in 2007 as director of the Baby and Child Research Center. Her research examines the developmental mechanisms and neurocognitive changes underlying early cognitive and social-cognitive development.
Christa McIntyre
Associate Professor, School of Behavioural and Brain Sciences, University of Texas, Dallas

Thursday, 9th April, 1-2pm, LB08, Lloyd Building

Preclinical studies of vagus nerve stimulation as a potential adjunct to exposure-based therapies

Abstract
Emotionally traumatic experiences can lead to maladaptive memories that are enduring and intrusive. The goal of exposure-based therapies is to extinguish conditioned fears through repeated, unreinforced exposures to reminders of traumatic events. The extinction of conditioned fear depends upon the consolidation of new memories made during exposure to reminders. An impairment in extinction recall, observed in certain patient populations, can interfere with progress in exposure-based therapies, and the drive to avoid thoughts and reminders of the trauma can undermine compliance and increase dropout rate. Development of an effective adjunctive therapy would ideally improve the tolerability of therapy and/or improve the consolidation and maintenance of the extinction memory. We have recently demonstrated in rats that, compared to exposure alone, exposure paired with vagus nerve stimulation (VNS) enhances the extinction of fear-based memories. Under stressful conditions, the vagus nerve responds to elevations in adrenaline and signals the brain to facilitate the storage of new memories while, as part of the parasympathetic nervous system, it slows the sympathetic “fight-or-flight” response. We propose that stimulation of the left cervical vagus nerve during exposure to conditioned cues signals the brain to store new memories just as adrenaline or emotional arousal would do, but bypasses the peripheral sympathetic response. In support of this hypothesis, we have found that VNS accelerates extinction, reverses extinction impairments, promotes generalization of extinction, and prevents reinstatement of conditioned fear in rats.

Biography
Christa McIntyre earned a PhD in Psychobiology in 2000, at the University of Virginia, where she worked with Dr. Paul Gold on studies using in vivo microdialysis to investigate the interactions of multiple memory systems. She went on to do a postdoctoral fellowship in the laboratory of Dr. James McGaugh, at the University of California, Irvine, where she used microdialysis and molecular techniques to examine the role of noradrenaline release in the amygdala as a modulator of memory consolidation. She joined the faculty in the School of Behavioral and Brain Sciences
at the University of Texas at Dallas in 2006. Her current research falls into two separate but complementary lines; one is rooted in basic research and the other is more translational. The basic research question is, “Why do we instantly store lasting memories for events that are stressful or emotionally arousing when other memories require rehearsal?”. The more translational side of her research uses what is known about the systems of the brain that are involved in the enhancement of memory storage during emotional arousal to drive plasticity in those systems for the purpose of treating memory and anxiety disorders. One target for manipulation is the vagus nerve, which serves as a bridge between the peripheral nervous system and the brain. The vagus nerve responds to memory enhancing doses of the stress hormone adrenaline, and vagus nerve stimulation (VNS) increases levels of noradrenaline in the amygdala and enhances memory consolidation. Dr. McIntyre’s research indicates that VNS also enhances the consolidation of extinction of conditioned fear in rat models for PTSD and autism. Based on these preclinical findings, a pilot study of VNS effects on exposure therapy outcomes is currently enrolling PTSD patients.