Signing up for Projects
This list is designed to help you match your interests with a potential supervisor. You do not need to register your choices formally until Friday 26th April, but it is helpful to have this list now, to enable you to talk to potential supervisors and agree on a project choice before the start of the next academic year. Contact details of each supervisor are given to allow you to email or arrange meetings.

Students may work together in pairs on any project, and are encouraged to do so, but only in exceptional circumstances should this number be exceeded. In recent years, almost 40% of projects have been based on the student's own idea rather than a staff member. However, as with literature reviews, make sure you are choosing a topic which a staff member is willing to supervise. If the supervisor is out of the department, e.g. a clinical or educational psychologist, then you must have a member of staff agreeing to act as internal supervisor when you register the project at the beginning of semester 1. You should submit your choices by ranking your preference of supervisors from 1-8, by 5pm on Friday 26th April using a dedicated webform (the link will be distributed after the dissertation information meeting).

Dr Alex Weiss
Psychology 4 Course Organiser
March 2019
In my research, I explore how social identities (e.g. gender, national identity, student identity) are related to health behaviours. For example, do men drink alcohol to prove their masculinity? Are women more likely to be vegetarian because it fits with femininity norms?

If you come to work with me, expect challenging and exciting applied projects: I like to explore how we can apply social psychological theorising to change people's lives. I am committed to Open Science practices, so be prepared to pre-register your study and document your process in a way that makes it reproducible in the future. I am also quite structured in my supervision style, so be ready for regular meetings and early drafts.

**Masculinity and alcohol**

There is a growing body of research showing that traditional or hegemonic masculinity is associated with more unhealthy behaviour, including higher consumption of alcohol (Levant et al., 2019; Mahalik, Burns, & Syzdek, 2007). One of the mechanisms at play here could be that men see drinking alcohol as boosting their masculine identity. In this project, we will use a novel technique called the property generation task (Keesman et al., 2018), where participants are asked about the features, behaviours or situations that they associate with particular products. We will look at how men perceive different alcoholic and non-alcoholic beverages, and whether the types of perceptions listed are associated with (a) aspects of the men's masculinity; (b) stereotypically masculine/feminine character of the beverages.

**References**


**How can we encourage people to choose more vegetarian foods?**

In the developed world, there is an increasing trend for people to limit their meat consumption, as the vegetarian lifestyle has both environmental and health benefits. One way to reduce meat intake is by replacing the meat in popular dishes with plant-based alternatives. Preliminary work by my students shows that there are gender differences in how willing people would be to buy these plant-based products, and this also depends on whether the name of the dish invokes associations with meat or not (e.g. 'vegetarian meatballs' vs 'vegetarian bites'). This fits into the wider body of work on the acceptability of meat substitutes (Graça, Oliveira, & Calheiros, 2015; Hoek et al., 2011). In this project, we will look at the characteristics that people associate with vegetarian dishes, and we will explore individual differences that might make some people more likely to try these foods.

**References**


Replication project of your choice

I would be happy to supervise replication projects in social psychology proposed by you. If you have an idea, it’s best to contact me with a specific study that you’d like to replicate (and potentially extend).

The study you propose needs to be feasible, which means:

1) The sample size needed cannot be too large for a short project. As a rule of thumb, you can probably recruit about 100 people for a lab study, or 200 for an online study (assuming you’re recruiting from the general population).

2) The equipment needed needs to be available in the department, and you need to know how to use it. For example, we cannot conduct studies requiring laboratory analyses (such as measuring cortisol level).

If you’ve got an idea, let’s discuss!

References


Dr Tom Booth

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I am happy to supervise projects in the areas of quantitative methods, psychometrics, individual differences and health. I am especially keen to supervise projects looking at stress and mental health using experience sampling methodologies in the context of university and the workplace. Broader areas of interest include healthy ageing, impact of retirement on health, and organisational psychology topics more generally. I am also interested in group differences in personality, particularly how the magnitudes of these differences change, their relation to within group differences, and ultimately within person variation.

I am also willing to discuss supervising replication studies, especially as collaborative efforts.

All projects I supervise will be pre-registered and open access, as far as is possible (e.g. if secondary data is involved making data available may not be possible). Building on your learning in R, if students would like to learn, we can also run our projects using version control software (e.g. Github) as additional transferable skills.
I am happy to supervise projects related to learning, decision making and problem solving either across development or in adults. I am also happy to discuss projects proposed by students, as long as they can be explored using quantitative methodology. That said, here are a few more specific project ideas:

1. **Balancing learning by imitation and from experience**
   When we don’t know much about something, it is often sensible to copy others until we get the hang of it. For example, you might copy your friend’s order at their favourite cafe if you have never been there before. However, this strategy is only useful if (a) they have more domain expertise than you (i.e. know the cafe better), (b) have the same goals (i.e. like the same foods), and (c) the time horizon is short (i.e. if you do not expect to visit the café many more times). No one has yet studied how people balance these factors in choosing when to rely on imitation of another vs. selecting an option oneself. One project could thus explore whether children are better or worse than adults at detecting poor ‘teachers’? I.e. detecting whether someone should not be copied because they do not know what they are doing or have different objectives. This project will utilise a bandit task methodology (https://en.wikipedia.org/wiki/Multi-armed_bandit) in which participants repeatedly choose one of several doors to open. The doors may contain prizes (i.e. stickers or money) and the participants’ goal is to win as many prizes as possible. The twist is that participants get to first observe a virtual “teacher” select a door and can choose to either copy the teacher or choose their own door to open. We can manipulate many factors such as the success rate, number of doors, the goals and success rate of the “teacher” to explore in what ways decision patterns change across age groups.

2. **Generating explanations and hypotheses**
   A major part of learning and development is constructing a mental model of the world that captures why it behaves the way it does, a process which involves an ongoing process of generating hypotheses to explain surprising occurrences. A recent theory suggests that children may be more “open minded” learners than adults (Lucas et al, 2014), tending to generate a broader set of hypotheses and ideas about unfamiliar situations than adults. It is therefore informative to study how hypothesis generation changes across development. One project will explore this using visual stimuli involving scenes containing objects of different sizes and colours (cf. Bramley et al, 2018). Participants will be shown that certain stimuli have some property (i.e. emit colourful stars) while others do not. We will then invite them to guess what the rule is that determines which scenes have the property, and judge whether some other new scenes also follow the rule.

3. **Active learning through play**
   One of the key ways we learn about the world is by interacting with it. For example, children spend a lot of their time “playing” with nearby physical objects and this has been linked to successful learning. Another project will explore how children of different ages play with a mystery toy that has several switches and a light that can be turned on through the correct combination of switch presses (cf. Coenen et al, in press). The project will test how children’s exploratory choices change as a function of age, and what this can tell us about the hypotheses they are considering.

4. **Dealing with a changing world**
   The world behaves in predictable ways most of the time, allowing us to learn how to get what we want from it. But what do you do if the world changes such that something that used to be effective stops working? In this project we will set up a simple game in which participants have to keep a power plant from overheating by controlling the level of several chemicals (cf. Berry & Broadbent, 1987). Once they
have learned a successful control strategy we will change the relationship between the chemicals and the outcome and test how and when participants adapt to this.

5. **Telling cause from effect through observation**

Recent developments in statistics have shown that, contrary to received wisdom, it is sometimes possible to distinguish causes from effects in data without performing an experiment (e.g., Mooij et al, 2016). For example, given a dataset of the altitude of different alpine towns and their temperature, the cause (altitude) can be distinguished from the effect (temperature) merely from the pattern of errors when one is used to predict the other. Since such a signal exists, it is interesting to test whether people are ever sensitive to it in their intuitive attributions of causality. This project would explore several ways of presenting pairs of variables to participants testing whether they can detect, above chance, which is the cause. This would be a highly significant finding if true, but a convincing demonstration that people cannot do this would still be a valuable result.


Lucas, C. G., Bridgers, S., Griffiths, T. L., & Gopnik, A. (2014). When children are better (or at least more open-minded) learners than adults: Developmental differences in learning the forms of causal relationships. *Cognition, 131*(2), 284-299.


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**Dr Nicolas Chevalier**

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I am prepared to supervise projects investigating cognitive control (executive function) in children and/or adults. Cognitive control is one of the best predictors of academic achievement and life success. Emerging cognitive control during childhood supports greater autonomy and increasingly adaptive behavior.

Projects may include child and/or adult participants; however, projects with children need to be started early and are subject to funding availability. Students are expected to work in pairs/small groups. Available projects are listed below. Note, however, that not all the projects below will necessarily be carried out next year.

- **What are the neural correlates of cognitive control development?** Young children tend to prioritize objects that they can manipulate/act upon over cues that signal how to act efficiently.
The project will use eye-tracking and fNIRS to examine the neural correlates of environmental cue processing and how they are affected by the types of cues that children need to process.


- **Does cognitive control build on statistical learning?** Immature cognitive control may be advantageous in early childhood, as diffuse attention may help children learn the statistical regularities in their environment. Conversely, statistical learning may help children accumulate knowledge which subsequently help children develop efficient cognitive control as they grow older. This project will examine the potentially changing relation between cognitive control and statistical learning during childhood.


- **Is random exploration related to cognitive control in children?** This project examines whether, unlike adults who tend to exploit their knowledge and only explore when needed, children explore their environment more randomly and whether random exploration is related to immature cognitive control.


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**Dr Martin Corley**

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- **Comprehension of disfluent speech**
It’s been known for a while that when speakers hesitate, for example saying “um”, “er”, or “like”, listeners’ comprehension processes are affected: They seem to change their predictions of what will be said, and they are more likely to remember hearing words that follow disfluencies. However, to date, our understanding of exactly how disfluencies affect both the processing and the eventual comprehension of messages is incomplete. I’m interested in supervising projects on a range of topics to do with this area, including:
The ways in which disfluencies affect attention, using techniques based on phonetic discrimination tasks;

What exactly constitutes a “disfluency”, using eyetracking or other methodologies;

What listeners think of disfluent speakers, using experimental “games”;

- **The “Little Voice Inside Your Head”**
We all experience an inner voice, but what is its relationship to overt speech? One set of studies suggests that our inner voice is like an “underspecified version” of our overt speech, which lacks in phonetic detail. I’m not sure that’s true; but showing that it isn’t is a tricky proposition! If you fancy a challenge, this is for you: It will probably involve fiendishly complicated tongue-twisters.


- **Reading and Answering Questionnaires (joint topic with Dr Tom Booth)**
This project will use eyetracking methodology to investigate aspects of questionnaire responding, with respect to both the reading of items and the processing of response scales. There is scope within this broad topic for students to define their own projects. The project will be jointly supervised by Tom Booth and Martin Corley. We anticipate that two key focuses will be established, with a pair of students working on each; however there will be reasonable overlap in the collective project.


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**Prof Sergio Della Sala**

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In addition to the following topics, I will be happy to discuss students’ own ideas for projects related to cognitive or experimental neuropsychology, particularly on topics of forgetting or learning.
**How do we forget?**

Forgetting is an integral part of memory, not simply the opposite to learning, and is crucial for successful cognitive functioning. Questions to be addressed within this topic include:

- Are different methods of testing differentially sensitive: is recognition less sensitive than recall and is recollective remembering more sensitive than familiarity judgement?
- Does rate of forgetting depend on modality?
- Do the same rules apply to both long- and short term forgetting?

Aim of this project is to study aspects of forgetting in healthy people with a view of better understanding the causes of pathological forgetting.

**References**


**Visual memory capacity**

Human memory shows remarkable capacities. It has been shown that this is particularly true within the domain of Visual Memory. In Visual memory tasks people can apparently remember an incredibly large amounts of information even when each single items is presented only for a brief time. However, what we still don’t know is how generalisable these findings are. In particular, which are the everyday circumstances or experimental conditions which would show or fail to show the phenomenon of large Visual Memory capacity. We also do not know whether or not this ability is preserved in older people and in people suffering from amnesia due to brain lesions or to degenerative diseases of the brain. Aim of this project is to investigate Visual Memory capacity in some details.

**References**


**Retroactive interference**

Interfering effect of later processing on recall is known as retroactive interference. Context dependency implies that material learned in one environment may be more difficult to recall in a different environment. Cognitive load refers to the different effect produced by relatively easy vs relatively difficult interfering tasks. Material specificity refers to the effects produced by the similarity between the to-be- remember material and the interfering material. The role of these variables on retroactive interference has been little explored. Aim of this project is to find out whether or not any of these variables plays any role in retroactive interference effect whether any of these variables interact with delay.

**References**


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- **Does gaze behaviour observed in laboratory setting represent gaze behaviour in the real world?**
  
  Most research investigating gaze behaviour comes from laboratory settings in which the participants view images or films on a computer screen. Only a few studies have investigated whether the findings from laboratory-based studies actually elicit gaze behaviour similar to the that found in the real world (typically they do not). Students will be able to influence the direction of the project in terms of what activities the participants will perform in the real world and laboratory but these could include gaze behaviour when watching a magic trick, social interactions or navigating traffic.


- **Gaze behaviour as a function of expertise**
  
  Perceptual expertise is typified by the ability to recognise complex patterns that are common in their field of expertise. Chess has often been used to study perceptual expertise as it provides a complex task and skilled participants typically have an official score indicating their level of expertise. Studies that have looked at the gaze behaviour of chess players frequently use a simplified version of the chess board and have reported experts make shorter and fewer fixations before making a move than less experienced players do. Some studies have reported experts are more likely to fixate on the edge of the squares on the board than less experienced players but there this is not always the case. In this study you will investigate the gaze behaviour of experienced and novice chess players when attempting to solve a series of chess related puzzles (they will see a chess board with pieces in a variety of positions and decide on the best move).


- **Other related topics**
  
  I am happy to discuss other topics related to gaze behaviour, attention or perception.

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**Dr Elena Gherri**

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Perceptual load in a tactile flanker task

In the tactile modality, the presence of tactile distractors can impair the detection and discrimination of tactile targets presented simultaneously (e.g. Evans & Craig, 1992; Soto-Faraco, Ronald, & Spence, 2004). In these studies, tactile stimuli (both target and distractors) were presented to both hands simultaneously. However, the mechanisms underlying within-hand and between-hand tactile selection might be different, given that a different pattern of tactile ERP modulations is obtained when the attentional selection is performed between the hands (c.f. Eimer & Forster, 2003a) or within the same hand (c.f. Eimer & Forster, 2003b). Aim of the present project is to investigate whether an analogous interference effect would emerge when target and distractors are presented to fingers of the same hand, establishing a within-hand tactile equivalent of the flanker task (Eriksen & Eriksen, 1974). Crucially, by manipulating the physical difference between the target and the distractors (high and low perceptual load conditions) it will be possible to evaluate whether the interference of incompatible distractors is reduced under high perceptual load condition, as postulated by the load theory of selective attention (Lavie, Hirst, de Fockert & Viding, 2004).

References:

Conflict monitoring across sensory modalities

The cognitive adaptation phenomenon can be observed in conflict tasks (Flanker task, Simon task, Stroop task) when the sequential analysis of trials is carried out (that is when the compatibility of both current and preceding trials are considered). Typically, the compatibility effect is reduced after the consecutive presentation of two incompatible trials (e.g. Gratton, Coles, and Donchin, 1992). According to the response conflict monitoring hypothesis (Botvinick, Braver, Barch, Carter, and Cohen, 2001), the response conflict in the preceding trial elicit a stronger top-down control that improve performance in subsequent trials. The aim of this project is to test whether the mechanisms responsible for conflict monitoring operate in a supra-modal fashion, that is whether these conflict-adaptation effects will still be observed when stimuli of different sensory modalities are presented on successive trials.

References:
Space coding in touch

How do we code the location of a tactile stimulus that is presented to our body? While the primary somatosensory cortex encodes the location of a tactile stimulus on the skin surface independently of body location, higher level brain areas integrate this information with the location of the body in external space. Recent studies on tactile perception have shown that tactile stimuli are remapped from somatotopic to external space before they can be consciously perceived (Azanon & Soto-Faraco, 2008). However, little is known about the strength and characteristics of these reference frames. In this project, we will use the Simon task as a tool (Simon, 1969; for a recent review, see Hommel, 2010) to investigate the reference frames employed to encode tactile stimuli presented to our hands.

References


The effects of gaze and covert attention on tactile processing

When we direct our gaze to one of our hands (even when vision of the hand is prevented), the processing of tactile stimuli presented to the gazed hand is enhanced (Forster & Eimer, 2005). The effect of gaze on tactile processing is very similar to the ERP modulations of tactile stimuli that are usually found when participants covertly attend one of their hands while maintaining their gaze on a central fixation point. Furthermore, responses to tactile stimuli presented to the gazed hand are faster than those to the same tactile stimuli when presented to the other non gazed hand (c.f. Driver & Grossenbacher, 1996; Honoré, Bourdeaud’hui & Sparrow, 1989). The aim of this project is to systematically investigate the nature of this gaze effect and its links with covert tactile attention. Is the effect of gaze on tactile processing independent from endogenous attention? What happens when gaze and attention are simultaneously directed to different hands? Is the effect of gaze dependent on the availability of visual information (what happens when the hand are not visible?).

References:


Dr Paul Hoffman

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I am interested in supervising projects in the area of semantic memory, particularly how our semantic knowledge influences how we speak and how semantic abilities change over the lifespan. Two such projects are given below; I am happy to discuss students’ own ideas as well. Projects in this area are best conducted in pairs.

**Effects of divided attention on speech production:** In everyday life, we often speak while performing another task, like driving or doing the washing up, that demands our attention. Previous studies have shown that the speed and complexity of speech declines under these conditions, and that older people are particularly susceptible to these effects. This project would look specifically at how divided attention affects the coherence of older people’s speech (i.e., how well they remain focused on the topic at hand). The project will involve choosing a suitable task to distract people with, as well as transcribing and running analyses on the speech participants produce.


**How does ageing affect semantic processing?** Semantic memory develops in different ways across the lifespan. Older people are more knowledgeable than young people but they can show difficulties in using their knowledge in a flexible way, particularly when different aspects of knowledge compete with one another. This project will probe the nature of these changes to controlled semantic processing, by taking an existing experimental paradigm and running it in an older population. Some possibilities include: looking at how non-verbal object knowledge is affected in later life (hardly any studies have done this), comparing competition effects in semantic memory with other cognitive domains, and contrasting different types of controlled semantic processing.


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**Dr Peter Lamont**

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**What is critical thinking?**

Everyone agrees that ‘critical thinking’ is a good thing. However, there is no agreement about what ‘critical thinking’ is. In much of the psychological literature, it is about avoiding bias, and the rigorous application of scientific methods. For others, it is about challenging the very idea of bias-free knowledge, and questioning the assumptions on which scientific methods rest. This project will use discourse analysis of published texts to examine how ‘critical thinking’ is defined, and how it is applied in different ways to come to different conclusions.


- **Belief maintenance: a discursive approach**
  Much research has been carried out into paranormal belief, most of which has depended upon questionnaires as measures of belief, despite the fact that psychologists have identified a number of problems with these. Meanwhile, little work has been done on how beliefs are maintained at a discursive level: how are they expressed and defended in the real world? This project would use discourse analysis of published texts in order to examine how beliefs have been constructed and warranted.


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**Dr Billy Lee**

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**Exploring Lived Experience**

I am interested in phenomenological psychology and use experience-near qualitative methods to explore and understand people’s lived experiences. I welcome project proposals on any area of lived experience that holds interest or significance for the student. As part of your dissertation you will receive training in experience-near interviewing and analysis following the method of Interpretative Phenomenological Analysis (IPA). This is a relatively new psychological technique that has been used to understand personal experiences around health, sexuality, gender, and identity. IPA is inductive rather than hypothesis driven. You will learn how to bracket your preconceptions in order to attempt to get an “insider perspective” of your participants’ experiences. As part of your project you will identify, recruit and interview up to six participants; transcribe the audio recordings; analyse the transcripts; and contextualise your findings. Your data should enable you to critique existing psychological knowledge using the experiential accounts of your participants. Access to a special participant group, perhaps via contacts with a charity or other organisation, is a distinct advantage. I prefer to supervise students who are able to work as a pair.


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**Prof Robert Logie**

Office: F9 (7GS)
Multiple cognitive subsystems
One view of cognition is that it comprises a general ability, as, for example, measured by intelligence tests, and that the overall capacity limit of this general ability varies from one person to another. Another view is that cognition comprises several different specific abilities, e.g. verbal, visual, spatial, motoric, learning, retrieval, planning, inhibition, task switching, reasoning, problem solving and doing two things at once. According to this view, each specific ability is supported by different overlapping networks in the brain, each of these abilities has its own capacity, and general cognitive ability is the sum of all of the individual specific capacities working together, with specific combinations of abilities selected according to the demands of a given task. This project will explore the relative merits of these contrasting views of human cognition.

References


Dr Steve Loughnan
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I am interested in a range of social psychological topics. Below I list my major topic for this year as meat-eating and animals. I have provided a few indicative projects. There are two references which are review papers. I am open to other, student-guided projects.

Animals and Language:

Why are people so poor at updating their behaviour when they receive new information? Several studies have now shown that people do not use information about animals in a consistent way, instead seemingly acting in a motivated fashion (e.g., Piazza & Loughnan, 2017). One project could explore where this breakdown occurs by looking at how people read information about animals and their rights. This might appeal to students with interests in social psychology and psycholinguistics.

Exploitation beyond meat:
Animals are used by humans in a whole range of areas: farming, entertainment (e.g., horse racing), hunting (e.g., foxes), fashion (e.g., fur), research, etc. In many of these arenas, the animals suffer and sometimes die prematurely. Psychological research has focused nearly myopically on the context of farming and meat consumption. Do the models of human-animals relations built for meat hold when
looking at other domains? Is there evidence for a more general way humans perceive and interact with animals?

**Anthropomorphism and Pets:**
Pets or companion animals reflect the opposite end of the spectrum of human-animal treatment. It may well be that people attribute these animals with human-like characteristics (anthropomorphise them). One potential risk is that this results in unrealistically high expectations of pets, which could lead to disappointment. This study will explore the relationship between anthropomorphism, attachment, and expectations of pets.


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**Dr Michelle Luciano**

Michelle is currently on research leave and therefore has no office hours
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I am interested in the genetic and environmental determinants of behaviour and am willing to supervise any projects studying individual differences, particularly in the areas of cognitive abilities, personality, well-being and mood. I have previously supervised projects on, for instance, personality, diet, eating behaviour, academic achievement, and mate selection. For those accessing existing data sets there will be an emphasis on more complex statistical modelling. Please get in touch to discuss your ideas or any coinciding interests before nominating me as a supervisor so that we can map out a feasible project.

A potential project on the antecedents and outcomes of language and reading abilities would involve working with a very large longitudinal dataset such as the 1970 British Cohort Study or the National Child Development Study. More information about such studies can be found here:

https://www.closer.ac.uk/closer/explore-the-studies/

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**Dr Sarah MacPherson**

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Below are some suggested research topics for dissertation projects. I am willing to discuss other projects investigating frontal lobe functions such as memory, executive abilities and social cognition and how they
are affected by healthy adult ageing and brain damage. Anyone wishing to undertake a patient group project would need to access this group (e.g., via voluntary centres) independently.

1. **Cognitive estimation in aging**

   The Cognitive Estimation task (CET) assesses the ability to estimate answers to questions likely to be unknown to participants (e.g., “What is the length of an average man’s spine?”) and is a commonly used clinically to assess executive processes. Yet, aging studies examining the effects of healthy adult aging on the CET suggest that estimation abilities do not decline with age, unlike performance on other tests of executive dysfunction. This project will investigate further how participants perform the CET and what processes might be important for successful CET performance.

   **References:**
   


2. **The Edinburgh Social Cognition Test**

   Difficulties in social cognition are thought to be a key contributor to social functioning deficits and interpersonal impairments. Adults who exhibit better social cognitive abilities are more competent at social interactions e.g. social communication tasks. Moreover, individuals who experience social cognitive deficits often report high levels of social isolation and limited social relationships. The Edinburgh Social Cognition Test (ESCoT) is a newly developed measure of social cognition. It examines cognitive theory of mind, affective theory of mind, interpersonal understanding of social norms and intrapersonal understanding of social norms. Projects might examine the relationship between performance on the ESCoT, social functioning (e.g. engagement in social activities) and social networks (e.g., peer support and friendship groups) or the influence of environmental factors and performance on the ESCoT in aging.

   **References:**
   


3. **Collaborative learning in aging (co-supervised with Dr Catherine Crompton)**

   While older adults consistently show a decline in memory performance when assessed individually, learning with another person may ameliorate age-related differences in learning and memory (Derksen et al., 2014). Recent collaborative learning research has largely utilized paradigms involving participants learning with a familiar person (Duff et al., 2008; Derksen et al., 2014). In our own work, we have investigated whether familiarity enhances the effect of collaboration on older and younger adults’ memory performance. Our findings suggest that the familiarity of a partner does not affect learning outcomes in younger or older adults when learning in a social context. However, while we examined memory accuracy and speech data, we have not examined the video recording data. This project will require coding and analysis of an existing aging study to examine whether there are differences in nonverbal cues across the familiar versus unfamiliar conditions in younger and older adults and whether any differences relate to performance on social cognition tasks.

   **References:**


4. Clinical versus “real-world” frontal executive tasks

Patients with frontal lobe damage often have difficulties with performing everyday tasks such as going shopping or cooking a meal. In contrast, while the frontal lobes decline with age, older adults do not appear to have difficulties performing these types of tasks, despite performing poorly on traditional frontal executive tasks administered in clinical assessment. This project will examine differences between tasks that are used to assess traditional frontal executive abilities and real-world executive abilities.

References


5. Clustering and switching in verbal fluency in aging

Verbal fluency is widely used in neuropsychological assessment as a quick and easy test of executive function. In category fluency, individuals are required to generate as many words as possible belonging to a particular semantic category (e.g., animals) while in phonemic fluency, they are required to generate as many words beginning with a particular letter (e.g., C) within one minute. The sequences generated can be scored in terms of total number of words generated, as well as cluster size (i.e., the number of items from the same semantic or phonemic subcategory) and the number of switches between subcategories. Older adults have been found to switch less often between subcategories compared to younger adults and this has been associated with a decline in executive abilities. This project will involve gathering acoustic data from healthy younger and older adults to not only examine the semantic or phonemic information generated but also acoustic and prosodic information and their relationship with executive functions, with the aim to add to our understanding of fluency performance in healthy aging.

References:


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In addition to the following topics, I am happy to discuss students’ original ideas for projects related to motor behaviour or visual attention.

**Grasping the laws of behaviour**

Steven Hawking said that we haven’t had much success predicting human behaviour from mathematical equations. Maybe he had not heard of Fitts’ law, which can predict how long someone will take to make a reaching action, based on how far away and how small the target is. We recently adapted this law for the more complex situation of grasping a solid object. We can predict almost perfectly how long people will take to reach out and grasp objects of different sizes, at different distances. In this project, you will design a more naturalistic follow-up study to find out how well these ‘laws’ hold up when people grasp objects in more everyday circumstances. You will learn how to use infrared motion capture to study movement.


**Two sides to every story**

I have a long-standing interest in spatial neglect, a symptom that arises after right brain damage. Neglect is a bias of attention away from the left, and towards the right side of space. If you ask a person with neglect to mark the middle of a horizontal line, they will tend to mark far to the right of centre. Healthy adults also show spatial biases, but these are much more subtle, and tend to be towards the left side (this has sometimes been called ‘pseudoneglect’). I have introduced a new way of analysing the line bisection task that makes it more sensitive to biases of attention in neglect. I would like to apply this new analysis of line bisection behaviour to healthy adults, to re-examine some phenomena that have been reported for bisection behaviour. For instance, a change in line bisection error, between near and far space, has been used to estimate the size of a person’s ‘near’ extrapersonal space. Does our new analysis of bisection behaviour shed any new light on such phenomena? This is just one idea – there are many other studies that we could run to investigate this general topic.


**Language through the looking glass**

When learning to write, children often reverse letters, or even whole words. They may write their name back to front, such that it would look normal if seen in a mirror. This used to be thought of as a sign of low intelligence; but it’s actually quite an impressive trick for a child to write letters back-to-front when they have never been taught to do so. Mirror writing may provide clues about how representations of written language develop. The *Psychologist* article by McIntosh and Della Sala gives a sweeping introduction to mirror-writing. The other references report experiments on mirror-writing in schoolchildren by previous Honours and MSc students. If you plan to do follow-up studies with schoolchildren, you will need to be extremely well-organised, proactive and motivated. An alternative would be to run some related studies in normal healthy adults.


Understanding attitudes towards final year research projects across the UK
There is an opportunity for one pair of students to work on an exciting project, as part of a consortium across 15 different departments in the UK. The overall aim will be to assess what Psychology students from different UK Universities think their final year research project is for, and how they feel it will be assessed. The project will also assess the understanding of research methods across different individuals and institutions and test whether those influence attitudes towards the goals and outcomes of final year research projects. Data will be collected in collaboration with other final year project students across different departments in the UK, which will facilitate data collection (to give each student a larger, and more diverse sample), but also impose some constraints (students at each institution will have to be selective in the questions they contribute). Collaborating institutions include: Anglia Ruskin University, University of Bath, University of Bristol, University of Cambridge, University of Cardiff, University of Dundee, University of Durham, University of Edinburgh, Goldsmiths University, University of Liverpool, Royal Holloway, University of St Andrews, University of Plymouth, University of the West of England, University College London.

My planned projects focus on the possible rehabilitation methods for spatial neglect. Spatial neglect is most often the results of a right-hemispheres stroke and is an inability to perceive, orient to or attend to objects in their left side of space. Despite their being no real treatment for neglect, there are a number of promising rehabilitation options for these patients.

1. **Prism adaptation and perceived gaze (joint project with Prof. Rob McIntosh)**
Prism goggles are used to induce an optic shift either to the left or the right, and repetitive reaching movements under these conditions cause adaptation to this visual shift. Prism adaptation using right-shifted goggles has been a possible rehabilitation method for spatial neglect since the late 1990s (Rossetti et al., 1998, Nature). It is known to improve a wide range of symptoms, yet it is still unclear how. I am interested in the possible affect prism adaptation has on where we are looking or think we are looking. To improve our understanding of how prism adaptation changes behaviour in the healthy population and improves spatial neglect. This project will be jointly supervised by myself and Rob.

2. **Smooth pursuit training and spatial attention**
Smooth pursuit training (SPT) is another promising treatment for spatial neglect. SPT requires tracking an array of moving dots (either to the left or right) for an extended period of time. SPT to leftward moving arrays substantially improves symptoms of spatial neglect, across a range of modalities (Kerkhoff et al., 2012, Neuropsychologia; Kerkhoff, Keller, Ritter, & Marquart, 2006, Restor. Neurol & Neurosci). It is unclear how SPT improves neglect and there is also little research into the effect of SPT on neurotypical individuals. This project would revolve around testing how SPT changes responses to attention-based
tasks in healthy individuals. Once again, to improve our understanding of the effects of SPT in the general population and as a rehabilitation method for spatial neglect.

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1. Where do climate (and science) sceptics come from?
This project follows up on substantial recent work linking individual differences in moral values to belief in/denial of climate science and anthropogenic climate change. How much of this relationship is due to moral values linked directly to perceptions of science versus moral values linked to need to identity signal, and perceiving science as being a ‘liberal thing’?

Starting readings:

2. Bayes’ rule and the (ir)rationality of belief updating: Can people intuitively distinguish certainty from impossibility from the way debates unfold?
This project investigates whether or not people’s perceptions and judgements of meaning and sincerity in debates on contentious topics (immigration, Brexit, climate change, etc.) tracks the theoretical difference in certainty and impossibility in the Bayesian rationality framework.

Starting readings:

3. Do students still read books?
There is increasing frustration on the part of both students and lecturers regarding student writing quality. Students feel they are not taught how to write well and academic staff feel students are getting worse at writing over time. One possible mechanism is that fewer students read books now, since more easily available information is online. But is there any evidence that reading books has declined over time in proportion to perceived decrease in writing quality? This project will aim to quantify some relevant evidence here, and to develop a measure that captures relevant decline if it has occurred.
Discussion of project particulars and selection of readings necessary.

4. **Does the psychology of power uniquely predict immoral behaviour and moral disengagement?**
   We’ve recently advanced the state of theory and measurement in the psychology of power. However, though we know that power is related to immoral behaviour and moral disengagement, it is not clear if such relationships are more nuanced and systematic than previous research would suggest. We will try to evaluate the unique predictive power of the DoPL model of power motives for a variety of moral judgements.

Starting readings:

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Does social pressure make us more alike? If personality development is influenced by social expectations, these ought to make people more similar to the normative person. The study will characterize a range of traits in their ideal levels from the parents’, peers’, partners’ and bosses points of view and investigate whether traits under pressure decrease in variance over time.

Is personality development in young adulthood driven by finding our own niches? Until about mid-adolescence, children grow more different from one another over time in almost every trait. This is most likely because they find themselves suitable niches that accentuate their traits. After adolescence, the pattern becomes more nuanced, with the magnitude of individual differences increasing for some traits and decreasing for others. It is possible that increases continue for traits that allow people selecting their niches (e.g., traits that are linked with leisure, friendship, academic and job choices) but stop for other traits. The study will characterize a range of traits in their links with niche-selection and investigate whether traits more strongly linked with niche-selection increase in variance over time.

Which aspects of your personality are most heritable? This project will employ (ordinary) siblings to estimate the degree of genetic influences on range of traits and explore what characterizes the most heritable traits. For example, it is possible that traits that help us to carve out our own unique experiences are most heritable, because our genetic potential can fully thrive in them. Also, it is possible that the aspects of our personalities that we have to adjust to social expectations do not have much room for genetic influences. This is a larger project with several possible subprojects that can accommodate four students to facilitate data collection.
My research is focused on video game play. I’m interested in how people engage with the strategic and ethical decisions presented by video games, how players navigate the social elements of multiplayer games, and what factors affect success and expertise collaborative or competitive in video games. This research links to various areas of individual differences, social psychology and sports psychology, and I can supervise quantitative and qualitative (Thematic Analysis) projects.

Potential quantitative topics include predictors of toxic or cooperative behaviour in multiplayer games, influence of personality and motives on strategy selection in games, and ways in which people make ethical choices in games. Qualitative topics can include accounts of griefing and toxic game play, as well as experiences of playing “serious games”.

I am happy to discuss related topics with students if they have a particular project in mind.

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I am interested in supervising projects concerned with language and communication, particularly in relation to aspects of meaning or grammar. My research addresses questions relating to speaking, listening, reading, bilingualism, and the links between linguistic and musical interaction. I would also consider projects about social aspects of language use, dialogue as a form of joint action, and the relationship between language and music. Here are four example types of project.

- **Preparing your response in conversation**
  During conversation, we switch between listening to our partner and producing our own response. We do this so quickly that there is often little gap between our own and our partner’s contribution (around 200ms; Stivers et al., 2009). As a result, listeners must prepare at least part of their own response before the speaker reaches the end of their turn. One hypothesis suggests listeners do this by guessing the content of the speaker’s utterance (e.g., by forming a rough estimate of how many more words they are going to utter; Bögels, Magyari, & Levinson, 2015). This project investigates what type of information listeners can use to make these guesses, so they can prepare and produce their own response.

References

**Bilingual turn-taking**

Research suggests that bilinguals often activate both their native (L1) and non-native (L2) languages when speaking and listening (Hartsuiker, Pickering, & Veltkamp, 2004). How do they juggle these languages during conversational turn-taking, where there is little gap between speaking and listening? Previous studies have shown that monolingual participants may achieve such coordination by anticipating when the speaker will reach the end of their utterance (De Ruiter, Mitterer, & Enfield, 2006). However, research has not yet examined whether bilingual listeners use similar mechanisms when conversing in their second language. By comparing bilingual and monolingual participants, this project will investigate whether turn-taking mechanisms are similar in L1 and L2.

References


**Social aspects of alignment**

People tend to repeat each other’s choices of words and grammar in a way that appears to underlie communicative success (Pickering & Garrod, 2004). To what extent is this tendency affected by social factors? Do interlocutors tend to like partners more if they repeat aspects of their utterances? And are people more likely to align with people who they appear to have more in common with? This project will combine work in social psychology and the psychology of language using experiments that measure the causes and effects of linguistic repetition.


**Predicting what someone is likely to say**

During language comprehension, listeners often predict what speakers are likely to say before they actually say it (e.g., predicting *kite* if a speaker says *I’m going outside to fly a…*). But do listeners predict what they themselves would say, or do they predict what they believe the speaker would say? Image if you asked for directions to the nearest coffee shop, and the person facing you responded *Turn left at the end of the street*. You could interpret this utterance from your own perspective (i.e., egocentrically) and turn to your own left. Alternatively, you could interpret it from the speaker’s perspective (i.e., allocentrically) and turn to your right. It would be useful for listeners to predict allocentrically, since their predictions will tend to correspond with what the speaker actually ends up saying. This project investigates whether listeners can “step into the speaker’s shoes” in this way by using gender as a tool to create differences in the perspective of the speaker and the participant.

Reference:

Broadly, my research focuses on the cognitive and affective aspects of romantic relationships and their effects on behavior, physiology, and health and well-being. I use a variety of quantitative methods, including questionnaire measures, video recording, cardiovascular assessments, and behavioral tasks. For the 2019-2020 academic year, I am interested in pursuing projects on the following topics (presented in alphabetical order):

- **Measuring Implicit Closeness**
  This project will extend a previous project in my lab in which we began developing and validating a novel measure of implicit closeness in three-dimensional perspective using LEGO.

- **Partner Responsiveness and Self-Expansion**
  This project will investigate how perceiving a romantic partner to care for us, understand us, and validate our thoughts and feelings influences our immediate and longer-term personal growth.

- **Relationship Correlates of Eating Behavior**
  This project will investigate the positive and negative events in relationships that drive us to eat healthy versus unhealthy foods, and the potential emotional mechanisms that underlie those links.

- **Schadenfreude within Relationships**
  This project will extend a previous project in my lab in which we began understanding the circumstances in which people do and do not experience pleasure at a close other’s misfortune.

I am happy to discuss other projects related to relationship science with students if they have their own ideas. Please bear in mind that I am a quantitative psychologist and do not have qualitative skills (so I could not supervise a qualitative project).

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**The causes of misinterpretation**

The psychology of language seeks to explain how we deploy a range of different types of information in real time, to arrive at the successful interpretation of language. However, what many existing theories fail to explain is why we often misinterpret sentences, even when they are quite simple. This project would involve examining misinterpretations experimentally, with the aim of testing theoretical claims about why they arise. Three possible causes that could be investigated are (a) interference in memory retrieval processes; (b) the subconscious adjustment of expectations to allow
for the possibility of errors in the input, and (c) shallow processing (i.e. some of the language input may not be fully analysed).


- **Processing of structured information across cognitive domains**
  In daily life, human cognition often requires the processing of information that has a hierarchical structure: in other words, the recognition of a complex object requires the recognition of its component sub-parts. For example, in mathematical cognition, to calculate 2 x 3 + 4, we need to compute 2 x 3, and add the result to 4, while to calculate 2 + 3 x 4, we need to add 2 to the result of multiplying 3 x 4. Understanding language also requires the recognition of hierarchical structure. The most sensible interpretation of “organic coffee dealer” (a dealer of organic coffee) requires combining the complex expression “organic coffee” with “dealer”, while the interpretation of “wealthy coffee dealer” (a coffee dealer who is wealthy) requires combining “wealthy” with the complex expression “coffee dealer”. The recognition of hierarchical structure has also been proposed to play a role in other cognitive domains, such as visual scene perception, event and action understanding, and music. This project will address questions such as: How do we go about processing these structures in different domains. Are the processes or mental representations shared across cognitive domains? The details of the study will be agreed between the student and the supervisor, and methods could potentially include eye-tracking, reaction time recording, or priming techniques.


**Projects 3 and 4**
In addition to the above projects, I would be happy to supervise any project within a wide range of topics in cognitive psychology. I am best qualified to supervise projects in the psychology of language, but would also be able to discuss possible projects in other areas such as musical cognition. I would also be happy to supervise replication study of an existing published piece of research.

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The role of group bonds in emergencies

Previous research suggests the people come together to provide social support in emergencies, including staying together in dangerous areas to provide support to others, and seeking out fellow group members at risk to personal safety. I am interested in exploring three key factors in responses to emergencies: 1) the extent to which people provide social and emotional support to others based on group membership, 2) how social influence effects evacuation behaviour, and 3) how people change from being unconnected individuals to group members.

Example literature:


The effect of social identification on social support

Previous research has demonstrated that we are more likely to provide help to ingroup members than outgroup members, but that we can manipulate perceptions of group membership to influence the likelihood that others are helped. One type of social identity people can have is a national identity, and the definition of this identity can have specific norms attached to it, such as being inclusive of diversity or against immigration. I am interesting in exploring how changing the perceived group membership of someone can effect the level of support that is provided to them within a national context.

Example literature:


This way! The effect of group membership on proximity and social influence

People walk in close proximity with ingroup members (compared to outgroup members) to stay together, and we are more likely to trust information from ingroup members in decision-making contexts. I am interested to see how social identification with others influences the likelihood that information will be trusted and followed, and how closely people coordinate. I particularly want to explore this in the context of evacuation behaviour to explore how route choice and reaction time are influenced by the perceived group membership of others.


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When QRPs are minimised, is there replicable evidence for extrasensory perception?
The ganzfeld is a mild sensory isolation procedure that parapsychologists have been using since the 1970s to test for hypothesised extrasensory perception (ESP). Meta-analyses of this work have mostly found results consistent with the ESP hypothesis (e.g., Storm, Tressoldi & Di Risio, 2010), leading some parapsychologists to claim that they have found replicable evidence for ESP using the ganzfeld method. However, the retrospective nature of these meta-analyses (as with most meta-analyses) allows the possibility of researcher bias to operate (Watt & Kennedy, 2017). Likewise, most of the ganzfeld studies have not been pre-registered, leaving the possibility that individual study effect sizes may be inflated by questionable research practices (QRPs; e.g., John, Loewenstein & Prelec, 2012) such as changing the status of data from exploratory to confirmatory.

Therefore there is still debate over the evidence for or against the ESP hypothesis. To help resolve this debate, I have posted a prospective meta-analysis of ganzfeld ESP studies on the Koestler Parapsychology Unit Study Registry (Watt, 2017), where each individual study is also pre-registered. The proposed projects would contribute to this effort by conducting trials testing ESP using the ganzfeld method, therefore the main method and research question would be well-defined and closely supervised. The projects could vary in terms of other variables that could also be introduced as possible predictors of task performance (e.g., participant personality, analysis of mentation characteristics), according to students’ interests. This project could be useful for students who wish to learn about study registration and who have an interest in replication issues in psychology.

References:


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1. Justifying and denying responsibility for civilian deaths

Finlay (2018) examines the arguments used by Israeli spokespeople to account for the large number of civilians killed in Gaza during the conflict of 2014. He identifies four discursive strategies: using passive and noun constructions which minimise reference to civilian deaths and Israeli soldiers’ involvement in them; describing in detail Hamas’ but not Israeli weapons and actions; presenting alternative motives (preventing deaths); and attributing responsibility to Hamas. This study would extend this analysis for
example, by looking in more detail at how these arguments are used, especially when challenged by a news interviewer; by looking at how Hamas spokespeople are called on to account for deaths; or whether similar arguments are used in other conflicts.


2. Expressing support for asylum seekers, refugees or immigrants

There is a growing literature on how people express discriminatory views while denying prejudice. There are fewer studies of pro-arguments, perhaps because understanding ‘negative’ than ‘positive’ or tolerant views seems more urgent, more in need of changing in the interests of an equal and inclusive society. However, Burke and Goodman’s (2012) study of the use of the term ‘Nazis’ in Facebook group discussions to describe supporters as well as opponents of asylum raises two important issues. One is that supporting arguments may occur less frequently and second is that the way supportive arguments are formulated may make them easily dismissed. This project would use discursive psychology to look at the construction of pro-arguments in naturally occurring interactions (online or offline), especially in contexts where they may be challenged.


3. Grime music and racism.

Youth subcultures and their music have inspired moral panic and admiration for grassroots politics since the 1950s, and grime music and rap are no exception. Media debates, academic and popular articles revolve around whether outsiders’ negative attitudes are displays of racism, or whether there is some basis to the expressed fears that the music is somehow bad for youth. This project could look at the ways that the meaning of grime and the identities of those who create and listen to it are constructed in debates and online discussions of this phenomena for example on reddit. Can this also provide a participants’ perspective on what is racism (cf. Edwards, 2007)?


See also:

‘MPs warn that grime music is under threat from institutionalised racism – it’s mostly their fault’ (https://www.independent.co.uk/voices/grime-music-support-exposure-mps-racism-music-venues-drill-rap-a8830321.html)

Writing in City Journal, John H. McWhorter claims that ‘hip-hop holds blacks back’ which commentators responding to the article display a variety of views (https://www.city-journal.org/html/how-hip-hop-holds-blacks-back-12442.html).

4. Constructing gay masculinity
Discursive studies of masculinities have been concerned with the way that (hegemonic) masculinity is sometimes constructed in contrast to gay ‘others’. There is much less work on constructing gay masculinities, especially work that attends to the details of how, where and for what gay identities are invoked, rather than asking people directly in interviews or through focus groups.
