MRes Psychology Dissertations 2020 -21

Information about Project selection

This booklet lists all of the projects available to students on the MRes Psychology programme. Please take the time to read the booklet carefully and consider which projects you are interested in / the supervisors you would most want to work with. If you require more information about the projects before making your selection staff can be contacted via email and meetings arranged where necessary. You are required to choose the **eight supervisors** you would most like to work with and rank them on the form on the next page (page 3) of this document.

This form must be submitted to the Karen Lander (karen.lander@manchester.ac.uk) by 16:00 on 30/10/2020.

We will then use the rankings to allocate students to supervisors.

Project selection form

Name: _____

Student ID No: _____

Email: _____

1. Please rank in order of preference your 8 preferred SUPERVISORS (you must list 8 different people, not different projects offered by the same person) 1st is First Choice, 2nd is Second Choice… etc

2. Where applicable, if you have a particular preference for a specific project offered by a chosen supervisor, please indicate this (Project area).

3. Please indicate if you would like to be considered for other projects offered by your chosen supervisors in the event that your first choice of project is not available (yes/no)

Choice	Supervisor name	If your supervisor has listed multiple projects & you are specifically interested in a particular project please add the project title here…	I still wish to be considered for other projects by this same supervisor **Yes/No**
1st			
2nd			
3rd			
4th			
5th			
6th			
7th			
8th			

Name of Supervisor: Andrew Stewart

Project 1

Name of Supervisor: Andrew Stewart
Co-supervisor(s): Duncan Bradley

Topic title or area

How do viewers understand data visualisations?

Details of project:

General Overview
Data visualizations appear in many forms of visual media and communicate all kinds of information (for example, in infographics). Visualizations built using R packages are now used widely by the Office for National Statistics, websites such as statistical forecasters (fivethirtyeight.com) and mainstream media sources such as the BBC and the Financial Times. While some of these visualisations are based on traditional methods (such as line graphs, bar graphs, and histograms) many new approaches are available in the data visualisation toolkit that offer innovative ways in which to communicate rich information. Excellence in data visualization comes from the ability to communicate complex ideas "with clarity, precision, and efficiency" (Tufte, 1983: p. 13). However, it is well known that people differ in their abilities to extract the intended meaning from a data visualization (e.g., Friel, Curcio & Bright, 2001; Peebles & Ali, 2009) and the psychological literature on how people understand data visualizations has not kept up with the development of visualization tools.

Specific Project Information
There are a number of related projects that you can investigate. These include (1) how people extract meaning from different kinds of contemporary data visualisations for a range of different purposes, (2) the extent to which prior beliefs influence how the visualisations are interpreted, (3) the extent to which viewers endorse different possible inferences, based on viewing different visualisations of the same data and (4) how viewers integrate text and visual information in order to arrive at a coherent understanding of a visualisation at hand. We will use a range of behavioural and questionnaire measures to understand the processes associated with data visualisation comprehension. Importantly, this project lends itself well to online data collection via platforms/environments such as Pavlovia/PsychoPy.

References
Friel, S. N., Curcio, F. R., & Bright, G. W. (2001). Making sense of graphs: Critical factors influencing comprehension and instructional implications. *Journal for Research in Mathematics Education, 32,* 124-158.

Peebles, D., & Ali, N. (2009). Differences in comprehensibility between three variable bar and line graphs. In N. Taatgen, & H. van Rijn (Eds.), *Proceedings of the Thirty-First Annual Conference of the Cognitive Science Society* (pp. 2938 2943). Mahwah, NJ: Erlbaum.

Spiegelhalter, D. (2019). The Art of Statistics: How to Learn from Data. Pelican.

Tufte, E. (1983). The Visual Display of Quantitative Information. Graphics Press. Cheshire, Connecticut.

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?	**YES**	NO
Could more than one student work on this project?	**YES**	NO
Does this project need ethical approval?	**YES**	NO

       If 'YES', what level of approval is needed?

Divisional

Does this project require a CRB check?	YES	**NO**
Does this project require an honorary contract?	YES	**NO**

<u>Name of Supervisor: Antje Heinrich</u>

Project 1

The role of secondary memory in reading span tasks

Details about project:

General Overview

Reading span tasks (RST) are one tool to assess working memory capacity. Working memory is hypothesized to play an important role in speech-in-noise perception; thus an association between the two tasks is typically taken as evidence for working memory involvement in speech-in-noise perception. However, not all RSTs are the same even though equivalence between different tasks is typically assumed. In this project you will challenge this assumption. Using cognitive behavioural techniques you will measure to what extent primary and secondary memory play a role in different types of reading span tasks and whether this differs between RSTs. You will then investigate whether this differences in composition of primary and secondary memory makes certain RSTs better or worse predictors for speech-in-noise perception. Improving our understanding of the cognitive requirements of off-the-shelf cognitive tests can have wide-reaching consequences for how cognitive tests are used in speech perception research.

Specific Project Information

You will be using a technique called selective reminding (Rose et al., 2010; Rose & Craik, 2012) in the context of two reading span tasks (Daneman & Carpenter, 1980; Ronnberg et al., 1989). Using manipulations based on this technique will allow you to derive separate estimates of primary and secondary memory involvement for each RST. These estimates can then be associated with speech-in-noise perception, which you will also measure.

The testing part of the project is straight-forward and easily set up. The challenge is to get to grips with cognitive theories of memory, how types of memory differ, how they are best manipulated and measured, and how this relates to speech perception. As a cognitive speech scientist I am well place to offer you the support you need.

References

Rose, N.S., Myerson, J., Roediger, H.L., Hale, S. (2010). Similarities and differences between working memory and long-term memory: evidence from the levels-of-processing span task. J Exp Psychol Learn Mem Cogn. 36(2):471-483. doi: 10.1037/a0018405.

Rose, N.S. & Craik, F.I.M. (2012). A processing approach to the working memory/long-term memory distinction: evidence from the levels-of-processing span task. J Exp Psychol Learn Mem Cogn. 38(4):1019-29. doi: 10.1037/a0026976.

Daneman, M. & Carpenter, P.A. (1980). Individual differences in working memory and reading. Journal of Verbal Learning and Verbal Behavior, 19 (4), 450-466.

Rönnberg, J., Arlinger, S., Lyxell, B., & Kinnefors, C. (1989). Visual evoked potentials: Relation to adult speechreading and cognitive function. Journal of Speech and Hearing Research,32, 725-735.

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?	**YES**	NO
Could more than one student work on this project?	**YES**	NO
Does this project need ethical approval?	**YES**	NO

      If 'YES', what level of approval is needed?

      Divisional

Does this project require a DBS check?	YES	**NO**
Does this project require an honorary contract?	YES	**NO**

Project 2

Auditory vs. visual Stroop

Details about project:

General Overview
Inhibition, the ability to suppress goal-irrelevant information, is an important cognitive skill in many situations. One way to measure inhibition is using Stroop tasks. For example, in a visual Stroop task, a colour word (e.g., red) is written in a congruent or incongruent colour (red or blue ink) and a response must be made to the ink colour and not to the word meaning. The typical finding is that participants are slower to respond for incongruent items than for congruent items, as they must inhibit their automatic instinct to read out the word.

Specific project information
This project will use an auditory version of the Stroop task (Morgan & Brandt, 1989; Knight & Heinrich, 2017), in which responses are required to the pitch, loudness, or duration of a spoken word, and the word meaning is either congruent or incongruent (e.g., "high" in a low or high pitched voice). In this study you will be part of a bigger UK-wide multi-lab project that investigates different aspects of Stroop tasks and how they relate to each other in a variety of populations. You will run an experiment that tests some standard conditions (thus adding to a bigger data pool) with the opportunity to add your own conditions according to your interests. You will learn how task conditions can influence quality and reliability of experiments, and contribute to a large research collaboration, helping to shape the research culture of the future.

References

Knight, S. and Heinrich, A. (2017). Different measures of auditory and visual Stroop interference and their relationship to speech intelligibility in noise. *Frontiers in Psychology, 8:* 230.

Morgan, A. L. R., & Brandt, J. F. (1989). An auditory Stroop effect for pitch, loudness, and time. *Brain and Language, 36*, 592-603.

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?   **YES**   NO

Could more than one student work on this project?   **YES**   NO

Does this project need ethical approval?   **YES**   NO
     If 'YES', what level of approval is needed?

     Divisional

Does this project require a DBS check?   YES   **NO**
Does this project require an honorary contract?   YES   **NO**

Name of Supervisor: Bahar Koymen

Project 1

Name of Supervisor: Bahar Koymen
Co-supervisor(s): Keith Jensen

The Power of Promises

Details about project:

General Overview
Promises are an important part of our social lives. They express commitments to future actions, both for ourselves and for others. However, people are not always very good about keeping promises. An important line of investigation asks what children understand about promises. Recent work suggests that by the age of 5, children keep their promises and expect others to keep their promises (e.g., Kanngiesser, Köymen, & Tomasello, 2017). A key question is whether promises made to others carry more weight than promises as personal "commitment devices". This project will investigate how 3- and 5-year-old children make and break promises to themselves and to others.

Specific Project Information
The project will be based on the classic "marshmallow study" (Mischel, Ebbe & Raskoff, 1972). In that study, children could have one marshmallow immediately, or wait up to 15 minutes to have two. This test of delay of gratification will be adapted for promises, in which the children will either (a) make no promise, or (b) make a promise to the experimenter that they will wait. Critically, children will be presented with a social condition in which their ability to wait affects how many rewards another child gets, either with or without promises. This deceptively simple paradigm will probe the power of promises in children.

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?   YES

Could more than one student work on this project?   YES

Does this project need ethical approval?   YES
      If 'YES', what level of approval is needed?
      Full university ethics approval (UREC)

Does this project require a DBS check?   YES
Does this project require an honorary contract?   NO

<u>Name of Supervisor: Bo Yao</u>

Project 1

Does inner speech facilitate sarcasm detection in text comprehension?

Details about project:

General Overview Irony and sarcasm are forms of nonliteral language that are often used to communicate the opposite of what is literally said. Sarcasm is a specific form of irony, which is used when the target of the comment is a person ("You are early!" when in fact someone is late). Sarcasm is mostly used in spoken communication because it relies from paralinguistic cues such as prosody, intonation and facial expressions for effective delivery and comprehension. It is rather difficult to understand when written in text without such cues. Recent research, however, suggests that readers mentally simulate a vivid inner speech during silent reading of written direct speech quotes (e.g., She rolled her eyes and said, "You are early!"). This vivid form of inner speech contains prosodic features similar to that in spoken language which may provide the kinds of paralinguistic cues for sarcasm communication. This project aims to test this idea. **Specific Project Information** We will test whether people are more likely to detect sarcasm (in reading times, sarcasm judgements and comprehension questions) when sarcastic statements are reported in direct speech quotations (She rolled her eyes and said, "You are early!") than matched indirect speech quotations (She rolled her eyes and said he was early). We expect sarcasm in direct speech is easier to detect. Next, to test whether the effects of direct speech on sarcasm comprehension are driven by inner speech, we will aim to replicate the observed effects with articulatory interference (concurrent articulation) vs. manual interference (finger tapping). We expect articulatory interference to eliminate the direct speech effects on sarcasm detection but not manual inference. Finally, there is scope to compare sarcasm and irony detection. Inner speech may specifically facilitate sarcasm detection because it is aimed at a person and is more relevant to social interaction and theory of mind. **References** Țurcan, A., & Filik, R. (2016). An eye-tracking investigation of written sarcasm comprehension: The roles of familiarity and context. Journal of Experimental Psychology: Learning, Memory, and Cognition, 42(12), 1867. Yao, B., & Scheepers, C. (2011). Contextual modulation of reading rate for direct versus indirect speech quotations. Cognition, 121(3), 447-453

For any project you are offering please ensure you include details of the following:

Are you willing to consider projects which you have not listed but which are in your

research area?   <u>YES</u>   NO

Could more than one student work on this project?   <u>YES</u>   NO

Does this project need ethical approval?   <u>YES</u>   NO
        If 'YES', what level of approval is needed?
Divisional Ethics should be fine.

Does this project require a CRB check?   YES   <u>NO</u>
Does this project require an honorary contract?   YES   <u>NO</u>

Please indicate in the box below any other relevant information students might need
to inform their choice (e.g. travel requirements, lone worker arrangements).

Knowledge in Chinese language may be helpful.

Project 2

Does word predictability in text comprehension causally depend on language production?

Details about project:

General Overview
There is an emerging consensus that text comprehension is driven not only by visual inputs but also predictions about the likely input. For example, when reading the sentence 'I have two pets - a dog and a ____', your brain is likely to predict a 'cat', given prior knowledge on likely house pets and how dogs and cats co-occur in your language experience. Such a prediction will facilitate the processing of a 'cat' and will result in a larger surprise if the final word of that sentence is, say, a 'lizard'. Despite ample evidence for predictive language processing, the mechanisms by which predictions are generated in the first place remained unclear. One influential hypothesis is that readers use their language production system to covertly produce what they would say if they were the speaker. Although this integrated framework of language production and comprehension is theoretically elegant, its empirical evidence remains primarily correlational in nature. For example, participants who are good at production tasks show stronger prediction-related effects in comprehension. The current study will take one step further and test a production-based predictive system directly. It will experimentally manipulate covert articulation (inner speech) in text comprehension and examine its causal effects on word predictability.

Specific Project Information
As you may have 'predicted' (pardon me), after reading project 1, that we will use direct speech and indirect speech quotations to manipulate the level of covert production (inner speech) and examine the generation (Experiment 1) and processing (Experiment 2) of a target word (e.g., diamond) in a predictive context (The jeweler was asked if he would examine the ring's huge_____) or in an unpredictable context (The guy was still wondering if anyone had noticed the

big_____). We shall predict high word predictability in direct (vs. indirect) speech reading. We may also consider how the production effects on word predictability may vary as a function of word frequency (depending on the time we have).

References

Pickering, M. J., & Garrod, S. (2013). An integrated theory of language production and comprehension. Behavioral and brain sciences, 36(04), 329-347.

Rommers, J., Dell, G. S., & Benjamin, A. S. (2020). Word predictability blurs the lines between production and comprehension: Evidence from the production effect in memory. Cognition, 198, 104206.

Sereno, S. C., Hand, C. J., Shahid, A., Mackenzie, I. G., & Leuthold, H. (2020). Early EEG correlates of word frequency and contextual predictability in reading. Language, Cognition and Neuroscience, 35(5), 625-640.

Yao, B., & Scheepers, C. (2011). Contextual modulation of reading rate for direct versus indirect speech quotations. Cognition, 121(3), 447-453

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?	<u>YES</u>	NO
Could more than one student work on this project?	YES	<u>NO</u>
Does this project need ethical approval?	<u>YES</u>	NO

   If 'YES', what level of approval is needed?

Does this project require a CRB check?	YES	<u>NO</u>
Does this project require an honorary contract?	YES	<u>NO</u>

Please indicate in the box below any other relevant information students might need to inform their choice (e.g. travel requirements, lone worker arrangements).

This project can be done online. If we are allowed to access the lab, say the second wave of COVID19 magically disappears, then there is scope for using eye tracking and/or EEG/ERP in this research. Fingers crossed!

Project 3

Testing a multi-mechanistic model of auditory verbal hallucinations in non-clinical populations

Details about project:

General Overview
Auditory verbal hallucinations (AVH) refer to hearing voices in external space in the absence of a speaker. While such voices are commonly hostile and distressing in patients, less intense hallucinations are surprisingly common in the general population (7-15%). Little is certain about how the brain produces verbal hallucinations. One general theory is that patients become aware of a normally automatic process of monitoring their own speech or their thoughts or memories so that they are perceived to be foreign or external. Indeed, some patients recognise that it is their own thoughts that are being spoken out loud. Others feel their own palate moving as if articulating speech, when they hear voices. Several specific mechanisms have been proposed, characterizing AVH in deficits in the corollary discharge system (predicting the sound of intended articulation), in intentional inhibition (of distracting information/memories) and contextual binding of memories. Because these specific mechanistic deficits localize the pathology of AVH to one symptom dimension, cognitive function of brain mechanism, none of them is able to capture the full complexity of AVH alone. Here, we wish to test the idea that AVH can in facto be caused by a combination of multiple deficits and these deficits are continuous between the non-clinical and clinical groups.

Specific project information
In this project, we will focus on individuals with a high predisposition to AVH (as measured by the Launay-Slade Hallucination Scale) and test whether they exhibit observable deficits in corollary discharge, intentional inhibition and contextual memory binding, as compared to individuals with a low predisposition to AVH. The three mechanisms will be measured in three behavioral tests that can be done online. The findings of this project can help us test the continuum model of AVH by examining whether the mechanistic deficits of AVH can be observed in the non-clinical populations.

References
Baumeister, D., Sedgwick, O., Howes, O., & Peters, E. (2017). Auditory verbal hallucinations and continuum models of psychosis: a systematic review of the healthy voice-hearer literature. *Clinical Psychology Review, 51*, 125-141.

Garrison, J. R., Moseley, P., Alderson-Day, B., Smailes, D., Fernyhough, C., & Simons, J. S. (2017). Testing continuum models of psychosis: No reduction in source monitoring ability in healthy individuals prone to auditory hallucinations. *Cortex, 91*, 197-207.

Van Os, J., Linscott, R. J., Myin-Germeys, I., Delespaul, P., & Krabbendam, L. J. P. M. (2009). A systematic review and meta-analysis of the psychosis continuum: evidence for a psychosis proneness-persistence-impairment model of psychotic disorder. *Psychological Medicine, 39(2),* 179.

For any project you are offering please ensure you include details of the following:

Are you willing to consider projects which you have not listed but which are in your research area?   <u>YES</u>   NO

Could more than one student work on this project?   YES   <u>NO</u>

Does this project need ethical approval?   <u>YES</u>   NO
        If 'YES', what level of approval is needed?
Divisional or teaching ethics will be fine.

Does this project require a CRB check?   YES   <u>NO</u>
Does this project require an honorary contract?   YES   <u>NO</u>
Please indicate in the box below any other relevant information students might need to inform their choice (e.g. travel requirements, lone worker arrangements).

> This project can be done online or in the lab.

Name of Supervisor: Ellen Poliakoff

Project 1

Name of Supervisor: Ellen Poliakoff
Co-supervisor(s): Jen McBride

Can home-based training help impulse control in people with Parkinson's?

Details about project:

General Overview
Parkinson's disease (PD) is a neurodegenerative movement disorder, typically characterised by slow movement (bradykinesia), tremor, freezing of gait, and rigidity. Some people with PD also experience impulse control disorders (ICDs), characterised by problematic impulsive behaviours, such as problem gambling, hypersexuality, compulsive shopping, excessive eating, hobbyism, and punding. Approximately 10-15% of people with PD have an ICD, which is thought to be as a direct result of dopamine agonist medication and the cumulative incidence of ICDs in patients that take dopamine agonists could be as high as 51% (Corvol et al., 2018). ICDs in PD are thought to be primarily caused by the prescription of dopaminergic medication and the most common method of reducing impulsive behaviours after commencement of ICDs is to simply withdraw dopaminergic medications. However, this can often compromise the successful effects of the therapy on the symptoms of PD itself. Therefore, an ideal solution would be to allow continuation of this otherwise beneficial medication, but to reduce the symptoms of the ICDs in an alternative manner. Previous research has suggested that training on a task of inhibitory control (reducing impulsive action), such as the Stop Signal Task, generalises and reduces risky behaviour in a gambling task (Verbruggen et al., 2012). Therefore, a training tool that involves practise withholding responses may be a valuable tool to help reduce impulsive and risky behaviour in people with Parkinson's.

Specific Project Information
This project will involve piloting a training tool where participants with ICDs practice inhibitory control (a go/no-go task) to assess whether performance improves and whether this improves the participant's ability to disengage from impulsive behaviours. The acceptability and the feasibility of the training will also be assessed. This project will involve following approximately 2-5 people with PD and an ICD over several weeks whilst they use the training tool. The person with PD and their partner will complete measures before and after the training (e.g. reported impulsive behavior; self-efficacy etc.). The participant will also be interviewed following the intervention to explore acceptability and other elements not captured in the questionnaire measures.

References
J.-C. Corvol et al., "Longitudinal analysis of impulse control disorders in Parkinson disease.," Neurology, p. 10.1212/WNL.0000000000005816, 2018.

F. Verbruggen, R. Adams, and C. D. Chambers, "Proactive motor control reduces monetary risk taking in gambling," Psychol. Sci., vol. 23, no. 7, pp. 805–815, 2012

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?   YES

Could more than one student work on this project?   NO

Does this project need ethical approval?   YES
       If 'YES', what level of approval is needed?
This project has NHS ethical approval already.

Does this project require a DBS check?   YES
Does this project require an honorary contract?   NO

Please indicate in the box below any other relevant information students might need to inform their choice (e.g. travel requirements, lone worker arrangements).

It was originally planned that the people with Parkinson's would attend the University at the start and end of the training period. However, these sessions can be conducted via video/online. It is possible that home visits would be needed. This project will be carried out in collaboration with Jade Pickering (PhD student) who is developing the training tool based on her other PhD work. Some elements (e.g. outcome measures) are already determined in our protocol, but there would be scope for the student to input into the design/details of the training task.

Project 2

Name of Supervisor: Ellen Poliakoff

Investigating individual differences in motor imagery

Details about project:

General Overview

Motor imagery involves imagining an action (e.g. reaching out to pick something up) in real time, without executing the movement (Jeannerod & Decety, 1995). This project investigates individual differences in how people are able to engage with this type of imagery.

Specific Project Information

Motor imagery is used as a strategy for rehearsing or planning movements by some elite athletes and professional musicians, as well as in teaching and learning. Moreover, motor imagery may also be effective in neurorehabilitation following a stroke or for people with Parkinson's disease (e.g. Bek et al., 2016). However, therecan be considerable individual differences in how vividly people are able to imagine their movements and the extent to which they draw upon

motor imagery during tasks. This project would be a cross-sectional study in the student (and possibly general) population including measures of motor imagery, such as the KVIQ (Malouin et al., 2007) whereby people rate the vividness of their visual and kinasethetic imagery, and the hand rotation task, where people draw upon their own motor system to judge the laterality (left/right) of hands that they view (Butson et al., 2014). The inclusion of a set additional measures would enable this project to determine which characteristics are associated with differences in motor imagery. These might include: · Autistic traits measured through the autism quotient (Baron-Cohen et al., 2001) · Empathy measured through the interpersonal reactivity index · Musical expertise measured via the Gold-Musical Sophistication self report questionnaire (GOLD-MSI; Müllensiefen, Gingras, Musil and Stewart, 2014) · Level of sport or physical activity · Age · Visuospatial skills · Anxiety There would be considerable scope for the student to propose their own research questions/measures in this area. We plan to collect data online for this study.

Suggested reading:

Baron-Cohen S, Wheelwright S, Skinner R, Martin J, Clubley E (2001). The autism-spectrum quotient (AQ): Evidence from Asperger syndrome/high-functioning autism, males and females, scientists and mathematicians. Journal of Autism and Developmental Disorders, 31(1), 5–17.

Bek, J., Webb, J., Gowen, E., Vogt, S., Crawford, T.J., Sullivan, M., Poliakoff, E. (2016) Patients' views on a combined action observation and motor imagery intervention for Parkinson's disease. Parkinson's Disease, article ID 7047910

Butson ML, Hyde C, Steenbergen B, Williams J (2014) Assessing motor imagery using the hand rotation task: Does performance change across childhood? Human Movement Science. 35, 50-65

Jeannerod M, Decety J (1995) Mental motor imagery: a window into the representational stages of action. Current Opinion in Neurobiology, 5:727-732

Malouin F, Richards CL, Jackson PL, et al. (2007) The Kinesthetic and Visual Imagery Questionnaire (KVIQ) for assessing motor imagery in persons with physical disabilities: a reliability and construct validity study. J Neurol Phys Ther. 31:20–29.

Müllensiefen D., Gingras B, Stewart L, Musil J (2014). The Musicality of Non-Musicians: An Index for Measuring Musical Sophistication in the General Population. PLoS ONE 9(2): e89642. doi:10.1371/journal.pone.0089642

For any project you are offering please ensure you include details of the following: Are you willing to consider projects which you have not listed but which are in your

research area?   YES

Could more than one student work on this project?   YES

Does this project need ethical approval?   YES

If 'YES', what level of approval is needed?
May do if collecting new data from students

Does this project require a DBS check?   NO
Does this project require an honorary contract?   NO

Please indicate in the box below any other relevant information students might need to inform their choice (e.g. travel requirements, lone worker arrangements).

This project is likely to involve joint data collection from other institutions via the Research in Imagery and Observation network (https://riogroup.weebly.com/) and there could be an opportunity to present the protocol/findings at their annual research meeting (late spring 2021).

Name of Supervisor: Emma Gowen

Project 1

Characterising coordination difficulties and their functional impact in autistic adults

Details about project:

General Overview

Coordination difficulties are widespread in autistic individuals, both in terms of affecting a range of movements (e.g. fine finger movements, reaching/grasping, balance and gait) as well as affecting the majority of autistic individuals. Indeed, 80 out of every 100 autistic individuals show poorer coordination compared to non-autistic individuals and they are present from infancy to adulthood. It is therefore surprising that coordination difficulties in autistic individuals are not routinely assessed or treated, particularly as they are known to impact negatively on daily living skills, quality of life, education, employment and mental health in individuals without autism. This situation has arisen because autism research has focussed on social impairments and it is only more recently that the importance of motor aspects in autism has been realized. My consultation with autistic adults indicates difficulties with injurious trips and falls, fear of falling, driving, bumping into objects and using cutlery. They also describe clumsiness having a marked effect on personal confidence and anxiety levels, leading to social isolation. In this project, you will make an important step towards raising the profile of coordination difficulties in autistic adults by characterizing their nature and functional impact using focus group methodology.

Specific Project Information

You will conduct ~4 focus groups with ~20 autistic adults. Some may be conducted via online video or chat facilities which can be better suited to autistic individuals and would enable the project to continue in the face of COVID restrictions. Recruitment will be from the Body, Eye and Movement (BEAM) lab database and connections with local support groups. Thematic analysis would be conducted on the data. The focus groups will aim to provide a description of the nature and severity of coordination difficulties,together with their functional and emotional impact from the perspective of autistic adults. You will join the vibrant BEAM lab (https://blogs.manchester.ac.uk/beamlab/) which has ~10 PhD students doing autism, motor or Parkinson Disease related work. We have a bi-monthly journal club and active slack channel for sharing information. You will also benefit from the network, Autism@Manchester which I chair (http://www.autism.manchester.ac.uk/about/). This network aims to work together with autistic people to produce quality research with real meaning for autistic people. You would present to and work with autistic people on the project. Please see here for a talk that i recently gave on coordination difficulties in autism: https://www.youtube.com/watch?v=kDe6qi4Dy3E&feature=youtu.be For further information about my research see: https://www.research.manchester.ac.uk/portal/emma.gowen.html

References

Fournier K.A, Hass C.J, Naik S.K, Lodha N, Cauraugh J.H. (2010) Motor coordination in autism spectrum disorders: a synthesis and meta-analysis. *J Autism Dev Disord 40 (10),* 1227-40. 2.

Gowen E. and Hamilton, A. (2013) Motor abilities in autism: a review using a computational context. *J Autism Dev Disord 43 (2),* 323-44 3.

Morrison S, Armitano C.N, Raffaele C.T, Deutsch S.I, Neumann S.A, Caracci H, Urbano M.R (2018) Neuromotor and cognitive responses of adults with autism spectrum disorder compared to neurotypical adults. *Exp Brain Res. 36(8),* 2321-2332 4.

Gowen E and Miall R.C (2005). Behavioural aspects of cerebellar function in adults with Asperger syndrome. *Cerebellum. 4(4),* 279-89

For any project you are offering please ensure you include details of the following: Are you willing to consider projects which you have not listed but which are in your

research area?   **NO**

Could more than one student work on this project?   **NO**

Does this project need ethical approval?   **YES**
    If 'YES', what level of approval is needed?

Proportionate UREC approval

Does this project require a DBS check?   **YES**
Does this project require an honorary contract?   **NO**

Please indicate in the box below any other relevant information students might need to inform their choice (e.g. travel requirements, lone worker arrangements).

It would be desirable if students have existing experience of qualitative methods and analysis.

Name of Supervisor: Jason Taylor

Co-supervisor(s): Stephen Ball

Project 1

Semantic Representation and Speech: How Does Context Influence Word Production?

Details about project:

General Overview

Naming and word production tasks have long been an essential tool for investigating how our semantic memory is organized. Semantic interference is a phenomenon wherein naming a target is either slowed or more error-prone in the context of a semantically related distractor. For example, the word 'HORSE' may stifle the production of the word 'COW', given their similarity as large, four-legged hoofed mammals. Recent developments in the understanding of semantic relationships suggests that not all forms of semantic context produce semantic interference - for example, associative or 'thematic' links such as 'FARM' and 'COW' show no semantic interference, and may even produce the opposite effect, facilitating naming. Investigating these processes can yield valuable insight into both how our understanding of concepts and meanings are organized, and how these representations are accessed and manipulated during cognition.

Specific Project Information

There are several avenues of research potentially stemming from this topic, and as such there is flexibility in how the project will look depending on the student's interests. Possible research questions include a deeper dive into the stimuli used, investigating what thematic links provide the greatest facilitation, or how the strength of semantic relationships influences word production. Equally, there is scope for investigating how these phenomena respond to changes in task, including the impact of masked/unmasked primes, or if each kind of relationship is differently affected by repetition. Finally, given these processes are commonly implicated in several clinical conditions (such as dementia, aphasia, and schizophrenia) there is the possibility to consider the research through a more clinical lens, perhaps investigating semantic performance in relation to performance in other cognitive domains such as episodic memory or language and how this could relate to a clinical population.

References

de Zubicaray, G. I., Hansen, S., & McMahon, K. L. (2013). Differential processing of thematic and categorical conceptual relations in spoken word production. Journal of Experimental Psychology: General, 142(1), 131.

McDonagh, D. C., Fisher, A. V., & Nozari, N. Do Taxonomic and Associative Relations Affect Word Production in the Same Way? (Conference paper available here:https://www.researchgate.net/profile/Nazbanou_Nozari/publication/34155025 4_Do_Taxonomic_and_Associative_Relations_Affect_Word_Production_in_the_S

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?   YES   **NO**

Could more than one student work on this project?   YES   **NO**

Does this project need ethical approval?   **YES**   NO
     If 'YES', what level of approval is needed?

                                                                    DNEP

Does this project require a DBS check?   YES   **NO**
Does this project require an honorary contract?   YES   **NO**

Project 2

Getting into the Flow: How Do We Use Experience to Predict Semantic Relatedness?

Details about project:

General Overview

Semantic priming describes the cognitive process of when a target is preceded by a conceptually related prime, the processing of the target is typically facilitated. This process is associated with a number of behavioural and neural responses, such as a decreased reaction time (RT) to identifying targets and the reduction of the N400 event related potential amplitude. Recent studies have suggested that throughout semantic priming tasks, participants use their experience of the task thus far to predict the probability of primes being related to their targets, thus further facilitating target processing. This process reflects the dynamic control of semantic control, a key component of successful semantic cognition. However, recent studies of semantic cognition have led some to suggest that there exist two separate semantic systems in the brain – one for the understanding of how items are similar depending on their features, (such as 'HORSE' and 'COW' both being large mammals) aka 'taxonomy', and one for how items are similar based on their shared contexts (such as 'MILK' and 'COW') aka 'theme'. How these two proposed semantic systems respond to semantic control is a hot topic in the debate around their existence, with some suggesting that the neural differentiation between the two is simply due to differing semantic control demands.

Specific Project Information

There remain questions in the literature around how this semantic control mechanism is implemented across different kinds of semantic relationships, or whether these effects can be identified across different stimulus modalities, such as picture stimuli. This project will provide an opportunity to address some of

these research questions, using advanced statistical analyses such as Bayesian modelling to do so.

References

Delaney-Busch, N., Morgan, E., Lau, E., & Kuperberg, G. R. (2019). Neural evidence for Bayesian trial-by-trial adaptation on the N400 during semantic priming. Cognition, 187, 10-20.

Nieuwland, M. (2020). How 'rational' is semantic prediction? A discussion and reanalysis of Delaney-Busch, Morgan, Lau & Kuperberg (2019).

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?	YES	**NO**
Could more than one student work on this project?	YES	**NO**
Does this project need ethical approval?	**YES**	NO
If 'YES', what level of approval is needed?		
		DNEP
Does this project require a DBS check?	YES	**NO**
Does this project require an honorary contract?	YES	**NO**

Project 3

An illusion of memory: The effect of increased processing fluency on recognition memory judgements

Details about project:

General Overview

This project relates to a sort of 'memory illusion'. On a recognition memory test, increasing the perceptual fluency of a test cue increases the likelihood that the word will be endorsed as 'familiar', even if it hasn't been seen in the study phase (and therefore should have been called 'new'). This effect is often interpreted as the misattribution of fluency to memory, as if participants think 'I processed that item quickly, therefore I must have seen it in the recent past', as when a familiar face 'pops out' of a crowd. When words are used as stimuli, this memory illusion can be induced using masked, subliminal repetition primes during the test phase (e.g., 'horse' flashed briefly before the test word 'HORSE'). However, we have also found that masked conceptual primes (e.g., 'cow' flashed briefly before 'HORSE') do not influence familiarity, but instead they increase correct 'remember' responses, meaning participants are more likely to correctly recollect that the word has been studied.

Specific Project Information

Several questions remain which could potentially be answered in an MRes project: Do these effects depend on the participant being unaware of the primes (and of the fluency manipulation)? What is the mechanism by which conceptual priming increases recollection? How does the broader experiment context influence whether priming affects recognition memory? Can we replicate these effects with images of objects instead of words?

References

Taylor, JR, & Henson, RN (2012). Could masked conceptual primes increase recollection? The subtleties of measuring recollection and familiarity in recognition memory. Neuropsychologia, 50 (13), 3027-3040.

Taylor, JR, Buratto, LG, & Henson, RN (2013). Behavioral and neural evidence for masked conceptual priming of recollection. Cortex, 49 (6), 1511-1525.

For any project you are offering please ensure you include details of the following: Are you willing to consider projects which you have not listed but which are in your

research area?	**YES**	NO
Could more than one student work on this project?	YES	**NO**
Does this project need ethical approval?	**YES**	NO
If 'YES', what level of approval is needed?		
		DNEP
Does this project require a DBS check?	YES	**NO**
Does this project require an honorary contract?	YES	**NO**

Name of Supervisor: Joanna Goldthorp

Name of Supervisor: Joanna Goldthorpe
Co-supervisor(s): Anja Wittkowski

Project 1

Exploring the support needs of new parents during Covid-19 lockdown

Details about project:

General overview

The transition to parenthood is a challenging period (Nelson, 2003; Rogan, Shmied, Barclay, Everitt & Wyllie, 1997; Redshaw & Martin, 2011; Nicolson, 2006).   Several factors have been identified that impact this transitional phase: relationship with partners, anxieties about labour and delivery, attachment with the unborn child, feeding and caring for the infant and confidence in parenting (Deutsch, Ruble, Fleming, Brooks-Gunn & Stangor, 1988). Thus, universal antenatal programmes have been developed in order to facilitate the transition to parenthood in order to improve parental confidence and prepare mothers and fathers for parenting, labour and delivery. During the Covid-19 pandemic many of these services have paused or moved to online delivery. This, combined with possible isolation from existing family and friends and restricted opportunities to establish new friendships with other parents, may exacerbate anxieties around becoming a new parent. There is therefore a need to explore the experiences of new parents in order to establish the best way to provide support that mitigates this challenging context.

Specific Project Information

This work builds on previous research into
parenting support progrmmes carried out by Dr. Joanna Goldthorpe (health psychology, applied qualitative research) and Dr Anja Wittkowski (clinical psychology). The methodological approach will be to carry out qualitative interviews over the telephone or a video conferencing platform such as Zoom and resulting data will be analysed using thematic analysis (Braun & Clarke 2006, Terry et al., 2019). This study requires University Research Ethics application. Students will be supported in writing up their findings for publication.

References

Braun V, Clarke V. (2006). Using Thematic Analysis in Psychology. *Qual Res Psychol, 3,* 77–101.

Deutsch, F. M., Ruble, D. N., Fleming, A., Brooks-Gunn, J., & Stangor, C. (1988). Informationseeking and maternal self-definition during the transition to motherhood. *Journal of Personality and Social Psychology, 55*(3), 420-431. DOI: http://dx.doi.org/10.1037/0022-3514.55.3.420

Nelson, A. M. (2003). Transition to motherhood. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 32*(4), 465-477. DOI: https://doi.org/10.1177/0884217503255199

National Health Services (2016). Implementing the Five Year Forward View for Mental Health.Retrieved from: https://www.england.nhs.uk/wp-content/uploads/2016/07/fyfv-mh.pdf at 12March 2019.

Nicolson, P. (2006). *Post-natal depression: Psychology, science and the transition to motherhood*. Routledge

Redshaw, M. & Martin, C. (2011). Motherhood: a natural progression and a major transition.*Journal of Reproductive and Infant Psychology, 29*(4), 305-307. DOI:10.1080/02646838.2011.639510

Terry G, Hayfield N, Clarke V, Braun V. The SAGE Handbook of Qualitative Research in Psychology - Google Books [Internet]. 2019 [cited 2020 Jul 14]. Available from: https://books.google.co.uk/books?hl=en&lr=&id=AAniDgAAQBAJ&oi=fnd&pg=PA17&dq=braun+and+clarke+thematic+analysis&ots=dnp5plFfIW&sig=Dw_J-U9Cm-T_BzuR6hvdUZugRWw&redir_esc=y#v=onepage&q=braun
and clarke thematic analysis&f=false

World Health Organisation (2015). Thinking Healthy: A manual for psychosocialmanagement ofperinatal depression. Reference number: WHO/MSD/MER/15.1. Retrieved from:https://apps.who.int/iris/bitstream/handle/10665/152936/WHO_MSD_MER_15.1_eng.pdf?sequence=1 at 12 March 2019.

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?	**YES**	NO
Could more than one student work on this project?	**YES**	NO
Does this project need ethical approval?	**YES**	NO
If 'YES', what level of approval is needed?		

Proportionate UREC approval

Does this project require a DBS check?	YES	**NO**
Does this project require an honorary contract?	YES	**NO**

Name of Supervisor: Johan Hulleman

Project 1

Visual Search

Details about project:

Everybody does visual search. Whether you are trying to find a friend amongst disembarking passengers or to find a street name sign to establish your whereabouts, searching for targets by looking for them is an important and ever-present part of our lives.

Although most searches are low-stake and a failure to locate the target has no serious consequences, there are also searches where missing the target does have considerable negative impacts. For instance, when airport security staff misses a weapon during a bag search or radiologists miss a malignancy on an X-ray or a CT-scan, lives are quite literally put at risk.

To make professional searchers better at finding what they are looking for, we have to understand what they are doing. This is the task that vision scientists have set themselves. Unfortunately, there is a considerable gap between the tasks that scientists use in the lab and real-world search tasks that they try to study.

The gap is created by the fact that in real world tasks there may be multiple targets that need to be found (e.g. a bottle and a knife), that the consequences of not getting it right may be very severe and that real world search involve targets ("prohibited item") that are not clearly defined. But to understand these tasks, vision scientists use theories that were developed on the basis of experiments where there is only one target at the most, getting it wrong has no negative consequences and participants know exactly what they are looking for.

This project will start to close the gap by using search tasks that are much closer to real-world tasks because there may be multiple targets, there will be fines and rewards when targets are missed and found and participants will only get a general description of the kind of target they look for. Not only will this project study these factors separately, but they will also be used in combination. To run these studies, we will create a database of images that will be available to anyone who would like to use them

To interpret the results, we will use a new theoretical framework (Hulleman & Olivers, 2017) that is aimed providing a single explanation for all possible kinds of search. This framework is based on what real-world and lab-based search have in common: the eye movements that people make when they are trying to find something. It describes search performance in terms of how difficult it is to see something from the corner of your eye. We will determine how changes in the type of task will make it harder or easier to see from the corner of your eye. Eye-tracking and gaze-contingent stimulus presentation will therefore our instruments of choice in this project.

Together, the experiments and the framework will deepen our understanding of real-world visual search tasks and identify how we can make professional searchers better at what they do.

References
Hulleman, J & Olivers, C.N.L. (2017). The impending demise of the item in visual search. Behavioral and Brain Sciences, 40. doi:10.1017/S0140525X15002794

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?	**YES**	NO
Could more than one student work on this project?	**YES**	NO
Does this project need ethical approval?	**YES**	NO

If 'YES', what level of approval is needed?

Proportionate UREC approval

Does this project require a DBS check?	YES	**NO**
Does this project require an honorary contract?	YES	**NO**

Name of Supervisor: Josef Schlittenlacher

Project 1

Irrelevant Speech Effect

Details about project:

General Overview
Learning in noisy environments leads to poorer results than in silence. This impairment of (short-term) memory has been studied in the lab with simple tasks and the worst sound was found to be speech. When people are told to memorize the order of nine digits, their performance drops by about one correct digit on average when listening to speech instead of continuous noise or silence. This is why it has been termed the "Irrelevant Speech Effect" (ISE), although it can also be observed for other sounds.

Specific Project Information
Various aspects of the ISE have been studied so far (for example including acoustic features, prosody, foreign languages, etc) but little attention has been paid to how it affects hearing-impaired listeners. Knowledge about this may be useful to set up hearing aids for noisy situations and thus possibly benefit millions of people in the UK alone.
In this project you will investigate how speech affects the short-term memory of hearing-impaired people. Participants will be able to do the experiment online with their own headphones. Depending on your interest, other aspects instead of hearing impairment may be studied.

Recommended reading
Ellermeier, W., & Zimmer, K. (2014). The psychoacoustics of the irrelevant sound effect. *Acoustical Science and Technology, 35*(1), 10-16.

Salame, P., & Baddeley, A. (1990). The effects of irrelevant speech on immediate free recall. *Bulletin of the Psychonomic Society*, *28*(6), 540-542.

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?   YES

Could more than one student work on this project?   YES

Does this project need ethical approval?   YES
     If 'YES', what level of approval is needed?   Divisional only

Does this project require a DBS check?   NO
Does this project require an honorary contract?   NO

Name of Supervisor: Karen Lander

Project 1

Exploring Individual differences in face recognition ability

Details about project:

General Overview
Relatively little research has looked at individual differences in face recognition ability. Megreya and Burton (2006) showed large individual differences on unfamiliar faces matching and found moderate correlations between face matching and various components of visual short-term memory, cognitive style and perceptual speed tasks. Li et al. (2010) found that extroverts who have better social skills performed better in a face recognition memory task than introverts (also see Megreya & Bindemann, 2013). Finally, Burton et al. (1999) found that expert police officers were no better at identifying people from CCTV footage compared with other unfamiliar students.

Specific information
This project involves running a number of face recognition tasks, face learning tasks and other cognitive tasks on groups of participants. In addition we would ask participants to complete measures of social anxiety, empathy and personality. We would look at the relationship between different tasks both across participants and at an individual level. In addition we would look at the relationship from face tasks to other social measures. It may be possible to identify some poor recognisers and see if we can train them to get better.

References
Bate, S., Parris, B.A., Haslam, C., & Kay, J.M. (2010). Socio-emotional functioning and face recognition ability in the normal population. Personality and Individual Differences, 48, 239-242.

Burton, AM., White, D. & McNeill, A. (2010). The Glasgow Face Matching Test. Behavior Research Methods, 422, 286-291.

Davis, J.M., McKone, E., Dennett, H., O'Connor, K.B., O'Kearney, R., & Palermo, R. (2011). Individual Differences in the Ability to Recognise Facial Identity Are Associated with Social Anxiety. PLoS ONE 6, e28800. doi:10.1371/journal.pone.0028800

Li, J., Tian, M., Fang, H., Xu, M., Li, H., & Liu, J. (2010). Extraversion predicts individual differences in face recognition. *Communicative & Integrative Biology, 3,* 295-298.

Megreya, A.M. & Bindemann, M. (2013) Individual differences in personality and face
Identification. Journal of Cognitive Psychology, 25, 30-37.

Megreya, A.M., & Burton, A.M. (2006). Unfamiliar faces and not faces: Evidence from a matching task. *Memory & Cognition, 34,* 865-876.

For any project you are offering please ensure you include details of the following:

Are you willing to consider projects which you have not listed but which are in your

research area?   YES

Could more than one student work on this project?   YES

Does this project need ethical approval?   YES
If 'YES', what level of approval is needed? Divisional ethics approval (UREC)

Does this project require a DBS check?   NO
Does this project require an honorary contract?   NO

Please indicate in the box below any other relevant information students might need
to inform their choice (e.g. travel requirements, lone worker arrangements).

> The student/s might collaborate with some PhD students on the project.

Project 2

> ***You look tired today, did you sleep ok last night?* Characterising the impact of sleep loss on facial appearance**

Details about project:

General information
We often make judgements about one's level of fatigue based on how they look. It is commonplace in work and social contexts to be asked the probing question, *"You look tired today, did you sleep ok last night?"* Remarkably, it is still unknown if and how sleep loss modifies features of the face, to bring about changes in appearance. A particularly wide-spread assumption is that sleep loss has a negative impact on physical attractiveness and appearance. Often stimulated by cosmetic companies, it is commonly held that poor sleep leads to pale and dry skin, as well as dark circles
around the eyes.

Axelsson and colleagues photographed 23 healthy individuals after a night of normal sleep and after ma night of total sleep deprivation. These photographs were then rated by naïve observers, blind to the experimental manipulation, on several different parameters. It was found that after sleep deprivation, participants were rated as more tired, less attractive, and less healthy. The authors interpreted these findings as further evidence for the critical role of restorative sleep in maintaining physical well-being, as well as having a potential role in modulating social interactions and
perceptions.

The same research group followed-up these seminal findings in a further study, again taking photographs of healthy controls after total sleep deprivation.3 This time, naïve observers were asked to rate faces on 10 different facial cues. The

main findings were that faces of sleep deprived individuals were perceived as having more hanging eyelids, redder eyes, more swollen eyes, darker circles under the eyes, paler skin, more wrinkles/fine lines, and droopier mouth corners. Ratings of fatigue were positively associated with heightened expression of each of these facial cues. While this preliminary work establishes that sleep deprivation may alter perceptual face judgements, several outstanding questions remain in this emerging scientific area.

Specific information
While total sleep deprivation appears to be associated with facial cue changes, it is not clear whether more modest sleep curtailment (4-5 hrs; Durmer & Dinges, 2005), typical of that experienced by the great majority of the population on a semi-regular basis, may also engender perceptual alterations. That is, is there a dose-response relationship linking sleep and facial fatigue?
We would ask people about their sleep history and then take a picture of them. We would ask a different group of participants to rate facial appearance and relate this to sleep history.

References
Axelsson J, Sundelin T, Ingre M, et al. *BMJ* 2010; 341:c6614.
Durmer JS, Dinges DF. *Seminars Neurology* 2005; 25:117-129.

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?   YES

Could more than one student work on this project?   YES

Does this project need ethical approval?   YES
If 'YES', what level of approval is needed? Full university ethics approval (UREC)

Does this project require a DBS check?   NO
Does this project require an honorary contract?   NO

Project 3

Exploring the role of skin appearance on interpersonal aversion - Perceptions of disgust and eczema

Details about project:

General information
Previous research has shown that the presence of a dermatological condition may deter contact with the affected person because it falsely signals the threat of infection. Previous research (Green-Armytage, Simonds, John & Woodger, 2019) has investigated interpersonal aversion towards individuals with acne and psoriasis. Participants reported significantly less willingness for indirect contact with the person depicted with acne or psoriasis, compared to people with no visible dermatological conditions. In contrast, participants expressed more willingness for social contact with a person with acne than with the person with

psoriasis or no dermatological condition. Unwarranted fear of infection might underpin avoidance and discriminatory behaviour towards those with skin conditions. Further research is required to understand the factors that influence avoidance of contact.

Specific information
We aim to replicate this experiment but investigating the role of eczema on hands. Hands are one area commonly associated with eczema. We will compare the willingness of participants to have direct and indirect contact with people who have no, mild or more severe eczema. We will also consider the role of covid-19 on social impact and determine if fears of social contact are particularly associated with people with visible symptoms of skin disease. We will work in collaboration with consultant dermatologist Dr Elise Kleyn.

References
Green-Armytage, M., Simonds, L.M., John, M. & Woodger, N. (2019). Depictions of acne and psoriasis influence interpersonal aversion. Psychology, Health & Medicine, 24, 94-100. https://doi.org/10.1080/13548506.2018.1497188

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?   YES

Could more than one student work on this project?   NO

Does this project need ethical approval?   YES
If 'YES', what level of approval is needed?

                                                                  DNEP level

Does this project require a DBS check?   NO
Does this project require an honorary contract?   NO

Name of Supervisor: Luke Jones

Project 1

Name of Supervisor: Dr Luke Jones
Co-supervisor(s): Dr Dan Poole

An Investigation of Motor Timing in Autism

Details about project:

General Overview

It is often reported that people with autism have problems with 'time' or 'timing' but which of the myriad of different types of timing is affected and to what degree is undefined. We currently have an ongoing 3 year ESRC grant to investigate timing in autism, which is a colabortation between the autism@manchester research group (www.autism.manchester.ac.uk/) and the Manchester Time Perception Laboratory (www.timelabmanchester.com). We have so far conducted and published a systematic review of time perception in autism (Casassus et al. (2019), and have conducted a large scale systematic empirical investigation of timing processes in people with autism and control participants. In this investigation we gave the participants a wide range of timing tasks to complete, and in different modalities, and we found little to no evidence of significant deficits in fundamental perceptual and interval timing. However, we also conducted a large questionnaire study of parents of children with autism and this confirmed that their children commonly had problems with higher order concepts of time.

Specific Project Information

In our large scale study we investigated a wide range of timing tasks, but for practical reasons we did not investigate motor timing, and this would be the focus of this project. The project would be split into two phases, firstly an online motor tapping task which would be conducted on our pool of autistic participants and controls. In this task participants will be required to tap along to a beeping rhythm, and then continue tapping at the same rate when the beeps are discontinued. There will be several different tapping rates. We may also measure people's preferred tapping tempo. The second phase would be to conduct face-to-face testing using the same task in a laboratory to confirm the findings of the larger online study. This second phase will of course be dependent on what is practical in terms of COVID-19. If it is not possible then there would still be sufficient data from phase one to complete your Master dissertation. All of these details are subject to change, and a sufficiently well motivated master's student would have the opportunity to have input into the design of the project, or complete a slightly different project in relation to this one.

References

Casassus, M., Poliakoff, E., Gowen, E., Poole, D., & Jones, L. A. (2019). Time perception and autistic spectrum condition: A systematic review. Autism Rearch, 12(10), 1440-1462.

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?   YES

Could more than one student work on this project?   YES

Does this project need ethical approval?   Already approved

      If 'YES', what level of approval is needed? DNEP

Does this project require a DBS check?   NO
Does this project require an honorary contract?   NO

Name of Supervisor(s): Paul Warren

Project 1

Using online mouse tracking data to investigate judgement and decision-making

Details about project:

General Overview

In recent decades there has been increased use of eye tracking technologies to reveal information about cognitive processes that underpin judgement and decision making (e.g. Stewart et al. 2016). More recently researchers have also used mouse tracking to address similar questions (e.g. Travers et al. 2016). This latter approach has the added benefit of being open to investigation using online studies. Here we will investigate mouse tracking measures and their relationship to performance in tasks of human judgement and decision making with a view to gaining insight on the cognitive processes that drive performance. We may also consider how such performance metrics vary across traits associated with clinical groups (e.g. ASC).

Specific Project Information

We will use online platforms (e.g. Gorilla, Psychopy) to continuously record participants' mouse position while they engage in a series of classic cognitive tasks/paradigms involving choice between multiple options. For example, choosing which of two gambles to accept, playing games of roulette, making judgements about randomness. As well as standard behavioural metrics associated with each paradigm we will also consider mouse tracking metrics such as proportion of time spent in each available response region, peak speed, etc. (see Travers, et al. 2016). As well as the potential for providing additional insights into the underlying cognitive processing such metrics could also yield proxy measures of cognitive phenomena that are more robust to practice effects and/or explicit attempts to hide implicit preferences. Conducting online studies also enables collection of large data sets and so we could consider how such metrics vary with traits associated with clinical disorders in the general population (e.g. using the Austism Spectrum Quotient – Woodbury-Smith et al. 2005). Such data has the potential to reveal interesting changes in processing in clinical groups.

References

Stewart, N., Hermens, F., & Matthews, W. J. (2016). Eye movements in risky choice. *Journal of Behavioral Decision Making, 29*, 116–136.

Travers, E., Rolison, J. J., & Feeney, A. (2016). The time course of conflict on the Cognitive Reflection Test. *Cognition, 150*, 109-118.

Farmer, G. D., Baron-Cohen, S., & Skylark, W. J. (2017). People with autism spectrum conditions make more consistent decisions. *Psychological Science, 28(8),* 1067-1076.

Woodbury-Smith, M. R., Robinson, J., Wheelwright, S., & Baron-Cohen, S. (2005). Screening adults for Asperger syndrome using the AQ: A preliminary

study of its diagnostic validity in clinical practice. *Journal of Autism and Developmental Disorders, 35(3),* 331-335

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?   YES

Could more than one student work on this project?   YES

Does this project need ethical approval?   YEs – amendment only
        If 'YES', what level of approval is needed?

Does this project require a DBS check?   NO
Does this project require an honorary contract?   NO

Name of Supervisor: Rebecca Champion

Project 1

Visual perception in dyslexia

Details about project:

General Overview:
Much research suggests that dyslexia is related to abnormal processing of visual information. In particular, it is proposed that functioning of the magnocellular-dorsal visual processing pathway (the 'where/how' stream) is impaired in dyslexia, which has implications for the processing of an object's motion and spatial location and for visually guided action. Findings have demonstrated that dyslexic individuals have deficits in the processing of global motion and also differ in their experience of a variety of visual motion illusions.

Specific Project Information:
This project could explore a range of questions related to these findings in order to further our understanding of visual processing deficits in dyslexia, for example:

- In addition to motion perception, the dorsal pathway is responsible for aspects of depth perception such as stereoscopic vision. What impact does dyslexia have on the processes of depth perception?
- Some aspects of motion perception, such as speed estimation, are thought to rely on an interaction between dorsal and ventral streams – how are these processes affected in dyslexia?

Key references:

- Stein, J. (2019) The current status of the magnocellular theory of developmental dyslexia. Neuropsychologia, 130, 66-77.

- Gori, Molteni & Facoetti (2016) Visual Illusions: An interesting tool to investigate developmental dyslexia and autism spectrum disorder. *Frontiers In Human Neuroscience*, 10, 175.

- Gori, Seitz, Ronconi, Franceschini & Facoetti (2016) Multiple causal links between magnocellular-dorsal pathway deficit and developmental dyslexia. *Cerebral Cortex*, 26, 4356-4369.

For any project you are offering please ensure you include details of the following:
Are you willing to consider projects which you have not listed but which are in your

research area?	YES
Could more than one student work on this project?	YES
Does this project need ethical approval?	YES
If 'YES', what level of approval is needed?	UREC
Does this project require a DBS check?	NO
Does this project require an honorary contract?	NO