

## BANGOR BRAIN IMAGING UNIT

School of Psychology: Bangor University

### Information Sheet for Participating in a Research Project

You are being invited to take part in a two-part research study that will involve two identical brain imaging sessions and several days of behavioural training procedures. This Information Sheet explains all the procedures for the brain imaging part of the experiment. Should you wish to take part in this study, you will be given information and have the procedures about the behavioural training portion explained separately. Before you decide whether to participate here, it is important for you to understand why the research is being done and what it will involve this time. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

**TITLE:** The effects of physical and observational learning on sequence recall

**INVESTIGATORS:** Dr. Emily Cross, *Principal Investigator*  
Dr. Alex Jones, *Postdoctoral Research Associate*  
Ms. Dilini Sumanapala, *Doctoral Researcher*  
Ms. Laurel Fish, *Undergraduate Research Assistant*

### WHAT IS THE PURPOSE OF THIS STUDY?

When learning a new skill, observing the performances of others is often required to consolidate learning of the skill. We are interested in the difference between learning skills through observation and physical practice at both neural and behavioural levels. Dance is a motor skill that uses the entire human body, and is well suited to answering questions regarding changes that occur with different kinds of learning. Previously we have shown that different brain regions are involved in different kinds of learning. However, these regions overlap considerably. We are interested in using advanced training and neuroimaging techniques to disentangle these learning help us to examine how learning shapes the brain and behaviour in more detail.

### WHAT ARE THE PROCEDURES?

You will be asked to lie still in the scanner while images are obtained. You will be able to see outside the scanner during the scan and will be able to communicate with the operator. If you find the scan to be uncomfortable in any way, the operator will immediately stop the scan. This study will include MR measurements of static brain anatomy; these require nothing on your part except that you remain still in the scanner. The remainder of the session will comprise studies of brain activity while you observe the action sequences and press buttons when you see specific things on the screen.

The whole scanning session will take about 1 hour. However, you will not actually be scanned for more than 50 min of this time. You will then leave the scanner and be asked to fill in a short questionnaire taking no longer than 5 min. Because a magnetic field is involved, you cannot be scanned if you have any metal in your body. We will go through a list of relevant items with you before scanning.

### **WHAT IS THE DEVICE INVOLVED?**

We can learn a great deal about how the brain works by looking at the blood flow to, and chemistry of, different parts of the brain whilst at rest and while performing different tasks. We need to obtain this information in both health and disease.

We measure brain function using images taken with a magnetic resonance imaging scanner. This scanner uses a strong magnetic field to create detailed images of brain structure and function. By taking a series of images whilst you perform a task we can build up a picture of the brain areas activated by this type of function. The scan does not involve any injections or X-rays.

### **ARE THERE ANY RISKS?**

The scanner can be loud when it takes images, and you will be given earplugs and ear defenders to block out some of the sound. Also, the MR environment is quite confined – people who have a history of claustrophobia and are uncomfortable in small or confined spaces may not be able to participate. If this should be you, remember that you may withdraw from the study at any time without explaining why. Otherwise, given that the procedure involves a non-invasive imaging technique it is not painful or dangerous in any way. There are no known risks or side effects.

### **WHAT ARE THE BENEFITS?**

You will have made a contribution to our understanding of the relationship between brain and behaviour. However, there are no direct benefits to you for your participation in the study.

### **WHAT IF NEW INFORMATION BECOMES AVAILABLE?**

If the new information regarding the safety of MRI becomes available you will be informed. Otherwise, new information will be disseminated through traditional scientific channels (e.g. journal articles, conference presentations).

### **HOW IS CONFIDENTIALITY ENSURED?**

We treat your information with the utmost confidence. The information obtained from the assessments may be published in scientific journals, but your name will not appear in any public document, nor will the results be published in a form that would make it possible for you to be identified.

### **WHO WILL HAVE ACCESS TO MY DATA?**

Members of the BANGOR BRAIN IMAGING UNIT will have access to the data. The BANGOR BRAIN IMAGING UNIT complies with the requirements of the Data Protection Act 1998 with regard to the collection, storage, processing, and disclosure of personal information. All enquiries concerning access to the data held by the BANGOR BRAIN IMAGING UNIT should be addressed to the Freedom of Information Liaison Officer at the Unit in the first instance.

### **DO I HAVE A RIGHT TO REFUSE OR WITHDRAWAL?**

You may refuse to participate at any time. You may change your mind about being in the study and quit after the study has started, and if you feel, for any reason, uncomfortable, the study will be discontinued. You may also decide to terminate your participation after you have completed all phases of the study, so long as you let us know you wish for your data to be excluded by 1 week after your final day of participation.

### **WILL MY GP BE INFORMED?**

Your GP will not be routinely informed if your participation in this study has been as a normal volunteer.

### **What if there is something wrong with my brain, would it show up on my images?**

This is an important question, and one that can't be answered with a straight yes or no answer. The information below hopes to provide an answer. If you still have questions, please ask the researcher for more information.

There is the potential that an unexpected abnormality will be found in your scan. The likelihood of such an abnormality being found in a normal volunteer's scan is estimated to be between 2-10%, so you should be aware that such a possibility exists.

The MRI scans being done as part of the study you are participating in are designed to answer research questions and not to provide a medical diagnosis. They may not show problems that an ordinary clinical scan would, and since the scientists reviewing the scans are generally not medical doctors, they may fail to notice such abnormalities.

However if something out of the ordinary is suspected in one of your scans, we will ask a neurologist, who is a medical doctor with experience interpreting brain MRI scans and treating brain disorders, to review the images with us. The neurologist will not be told your name, although they may be told your age and gender. If they think there may be a problem, we will then contact you. You will be offered the opportunity to meet and have a discussion with the neurologist about the findings and your options.

If you have a GP and you agree, we will contact her/him and pass the scans along with the recommendation from the neurologist. We will only contact your GP with your permission and if your brain scans show something of potential medical concern. These scans do not routinely become a part of a medical record, however, if a problem is detected and with your permission the images are sent to a medic involved in caring for you, they may become part of your medical record. There is also the possibility that you may be unduly worried if a problem is suspected, but is not actually found.

If in the future symptoms do arise, do not assume that because your brain has been scanned and we haven't contacted you that there is not a problem. Please take any future concerns to your GP; we can make the images available if required.

### **WHAT WILL HAPPEN TO THE STUDY RESULTS?**

They will be kept securely for a minimum of 10 years and possibly indefinitely in the BANGOR BRAIN IMAGING UNIT data archive in accordance with good research practice. Results of the study may be published in a scientific journal or other public format. In this case your data will either be included as part of a group average, or will be anonymised so that no identifying information is given.

### **WHAT IF I HAVE FURTHER QUESTIONS?**

We welcome the opportunity to answer any question you may have about any aspect of this study or your participation in it. Please contact the following researchers regarding any questions you may have:

Ms Dilini Sumanapala (Doctoral Student): [psp2b7@bangor.ac.uk](mailto:psp2b7@bangor.ac.uk)

Dr Emily Cross (Senior Lecturer): [e.cross@bangor.ac.uk](mailto:e.cross@bangor.ac.uk)

**ARE THERE COMPENSATION ARRANGEMENTS IN CASE SOMETHING GOES WRONG?**

In the unlikely event of anything untoward happening, the University's insurer provides insurance for negligent harm. It does not provide insurance for non-negligent harm but does take a sympathetic view should a claim be made.

**WHAT IF I HAVE COMPLAINTS?**

This research study has been approved by the School of Psychology Research Ethics and Governance Committee. In the case of any complaints concerning the conduct of research, please address these to Hefin Francis, School Manager, School of Psychology, Bangor University, Gwynedd, LL57 2AS.

Thank you for considering taking part in this study. Our research depends entirely on the goodwill of potential volunteers such as you. If you require further information, we will be pleased to help you in any way we can.

**BANGOR BRAIN IMAGING UNIT**

**Participant Consent Form**

**CONSENT TO PARTICIPATE IN A RESEARCH STUDY**

**TITLE OF STUDY:** The effects of physical and observational learning on sequence recall

**INVESTIGATORS:** Ms Dilini Sumanapala, Dr Alex Jones, Dr Emily Cross, Ms Laurel Fish

The volunteer should complete this entire sheet himself/herself.

Please circle as appropriate:

Have you read the participant information sheet?

YES / NO

Have you had the opportunity to ask questions and discuss this study?

YES / NO

Have you received enough information about the study?

YES / NO

Do you understand that your participation is voluntary and that you are free to withdraw from the study:

- at any time
- without having to give a reason
- and without affecting your future medical care?

YES / NO

Do you understand that these are not diagnostic scans?

YES / NO

Do you understand that the Bangor University provides insurance for negligent harm but that it does not provide insurance for non-negligent harm?

YES / NO

Do you understand that the research data may be accessed by researchers working at or in collaboration with the BANGOR BRAIN IMAGING UNIT in similar ethically approved studies, but that at all times your personal data will be kept confidential in accordance with data protection guidelines?

YES / NO

Do you agree to take part in this study?

YES / NO

If you would like a copy of this consent form to be e-mailed or posted to you, please indicate this by filling in your e-mail address or postal address here:

---

Date

---

Participant Signature

---

Participant Name (block letters)

---

Date

---

Investigator Signature

---

Investigator Name (block letters)