WESTERN SYDNEY
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Participant Information Sheet – EEG Study: Infants

Project Title: The Neural Basis of Object Categorization in the Infant Brain

Project Summary:

Recognizing and categorizing objects in everyday life seems trivial, even when we view them from non-standard angles or when the object is partially obscured. Nevertheless, the ability to quickly and accurately recognize and categorize the same object under a variety of different visual conditions is something that must be acquired through the course of development. Infants' ability to recognize objects across changes in viewpoint and visibility develops gradually throughout their first year of life, as infants gain more sensory experience and interact with objects. Studying infants' neural representations of object category is an evolving domain within developmental cognitive neuroscience that has gained substantial attention in recent years, shedding light on the early perceptual and cognitive processes underlying infant visual recognition. As this field matures, an important question to be addressed concerns how soon infants achieve *invariant* object representations (i.e., object representations that are tolerant to changes in viewpoint), which are often taken to be a 'hallmark' of adult object vision.

You are invited to participate in a research study being conducted by Mahdiyeh Khanbagi, PhD candidate – under the supervision of Dr Genevieve Quek, from the MARCS Institute for Brain, Behaviour and Development, Western Sydney University. The research involves behavioural and non-invasive neuroimaging (electroencephalography [EEG]) experiments that investigate the neural activity associated with object recognition and perception. This study is a face-to-face EEG experiment.

How is the study being paid for?

This study is funded by HDR Candidature funding from Mahdiyeh Khanbagi

What will I be asked to do?

Prior to the experiment, you will be asked to complete a basic demographics questionnaire about you and your child. During the experiment, your baby's brain responses (EEG signals) will be recorded using EEG electrodes. Your baby will wear a fabric cap to which measuring plates (electrodes) are attached. Gel is applied to make contact between the electrodes and the scalp so we can measure and record brain activity. The gel consists of common salt, water, and thickening agents. It is non-allergenic, very well tolerated, and easily washable after the experiment. If your child has particularly sensitive skin, please let us know.

During the experiment, you will sit with your baby as they view visual stimuli on a computer screen. The visual stimuli may be presented in different ways and in different durations, and features of the stimuli may also change. While your child should move as little as possible, we understand this is not easy for a curious child, so we have designed the stimuli in such a way that they capture the attention of one-year-old children. However, if your child feels uncomfortable or becomes restless, there is always the possibility to take a break. After the experiment, you are welcome to wash your child's hair to remove any gel.

How much of my time will I need to give?

The study will take up to 1 hour to complete, which includes the time required to set up the EEG sensors.

What benefits will I, and/or the broader community, receive for participating?

You will have the opportunity to learn more about object recognition and how the brain creates representations from visual information. To reimburse your travel expenses, you will be reimbursed $20, and your baby will receive a graduate certificate and a gift.

Will the study involve any risk or discomfort for me or my child? If so, what will be done to rectify it?

This study complies with Western Sydney University's COVID Safe procedures regarding face-to-face experiments. If applicable, participants and researchers must meet university requirements (e.g., vaccinations) to complete the study. The EEG equipment and testing location will be sanitised before and after each experiment, and social distancing will be practised whenever possible. Researchers will adapt to any changes to safety procedures, including the wearing of face masks while indoors.

There are no known risks associated with EEG. It is a non-invasive technique and all researchers involved in the study are familiar with the safety protocols for EEG. All researchers involved will also have clearance to work with infants, i.e., a Working with Children Check.

The study should not cause you or your child any serious discomfort. Your baby may feel slight discomfort from the electrode cap and from watching the visual stimuli for short periods of time. There will be breaks between experimental blocks so your baby can rest their eyes.

However, please note that this experiment is not suitable for babies with a history of photo-sensitive epilepsy due to the way the visual stimuli is presented.

If you or your child ever experiences discomfort, please let the researcher know and the experiment can be discontinued at any time.

How do you intend to publish or disseminate the results?

It is anticipated that the results of this research project will be published and/or presented in a variety of forums. In any publication and/or presentation, information will be provided in such a way that the participant cannot be identified, except with your permission. The information we collect from you in this study will be made completely anonymous in all platforms we share this data to.

Will the data and information that I have provided be disposed of?

No. Your data will be used as per Western Sydney University's Open Access Policy. This means that data collected from this study will be anonymised and can be made available online and world-wide in perpetuity.

Can I withdraw from the study?

Participation is entirely voluntary and you are not obliged to be involved. If you do participate you can withdraw at any time without giving reason.

If you do choose to withdraw, any information that you have supplied will be withdrawn from the database whenever possible. However, if your data is already in an Open Access repository, it may not be possible to fully withdraw your data. Please be assured that all data shared to these platforms will be de-identified.

How can I prepare my child?

Make sure your child feels as comfortable as possible, e.g., ideally well-rested, full and freshly changed. You can bring your child's favourite toys and blankets along with you on the day.

Can I tell other people about the study?

Yes, you can tell other people about the study by providing them with the Chief Investigator's and/or Research Assistant's contact details. They can contact the Chief Investigator and/or Research Assistant to discuss their participation in the research project and obtain a copy of the information sheet.

What if I require further information?

Please contact Principal Investigator Mahdiyeh Khanbagi and/or Principal Supervisor Dr Genevieve Quek should you wish to discuss the research further before deciding whether or not to participate.

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What if I have a complaint?

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through Research Engagement, Development and Innovation (REDI) on Tel +61 2 4736 0229 or email humanethics@westernsydney.edu.au

Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

If you agree to participate in this study, you may be asked to sign the Participant Consent Form. The information sheet is for you to keep, and the consent form is retained by the researcher/s.

This study has been approved by the Western Sydney University Human Research Ethics Committee. The Approval number is H14498.