

Babylab

NEWSLETTER 2010

Centre for Brain and Cognitive Development



A HUGE Thank You to our current funders, including: Medical Research Council, European Commission, Autistica, The Baily Thomas Charitable Fund, British Academy, Charles Wolfson Charitable Trust, The David and Elaine Potter Foundation, Down Syndrome Educational Trust, Economic and Social Research Council, The Henry Smith Charity, Leverhulme Trust, The Mercers' Charitable Foundation, Royal Society, University of London Central Research Fund, the Waterloo Foundation, Williams Syndrome Foundation, Wellcome Trust.



Baby Lucian

Also a HUGE Thank You to the parents, grandparents and carers who have volunteered their babies and toddlers for our studies and to everyone who has supported our scientific research over the years, without whom our research into how the brain develops would not be possible. Thank you!!!

We are always in need of babies and toddlers because they grow up so quickly. If you know anyone who would be interested, please pass on our details. Your recommendation is very important to our future success!

Highlights for this issue

We will be welcoming 7 new Marie Curie fellowship students to the CBCD and Babylab. The Centre was awarded the very prestigious Marie Curie fellowship training scheme for the second time. This fellowship aims to support the training and mobility of researchers throughout Europe. This scheme is particularly focused on the provision of doctoral level research training.

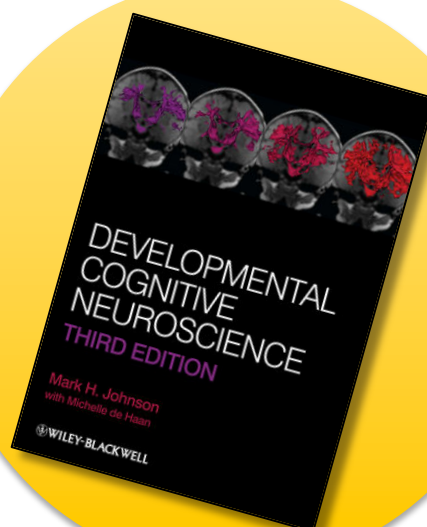


In the picture below you can see the previous fellowship students at their end of fellowship party. Some of their projects included:

- “Developing a cortex specialised for perceiving different aspects of faces” – Kathrin Cohen Kadosh
- “Feature extraction in infants’ formation of object categories: visual saliency and influence of labelling” – Nadja Athaus
- “Interaction between emotional facial expression and eye gaze processing in adults and infants” – Silvia Rigato
- “Rapid detection of face-like patterns and its neural basis” – Przemek Tomalski
- “The role of functional object affordances in infants’ looking and grasping behaviour” – Haiko Ballieux
- “Developing object representation in the brain” – Tessa Dekker

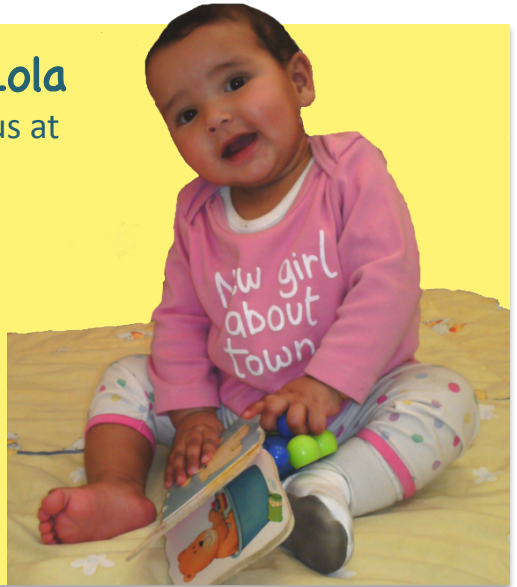


Another highlight of 2010 was the publication of the 3rd edition of Babylab Director Professor Mark Johnson’s book: “Developmental Cognitive Neuroscience”. Much of the research carried out at the Babylab, with the help of all our baby volunteers, is featured in this and previous editions of this book.



One day at the Babylab with Lola

Recently Lola and her mother came to visit us at the Babylab.



The first friendly face to greet Lola on her visit was Marian. Marian works at Babylab reception from Monday to Wednesday, and is also the proud grandmother of baby Oliver, who was born on the 8th of October 2010 in Australia.

Lola is taking part in a longitudinal study, which means that she visits the Babylab at different points in time, up until she is 3 year old.

On her first visit, Lola was 4 months old and in one of the studies she took part in, she wore a NIRS hat (see picture on the right). There is a full description of the NIRS set up on page six.



Lola really enjoyed watching the videos and images in our eye-tracking studies. For this part she was comfortably seated on her mother's lap, looking at an array of images that we showed to her on a screen, which has a special camera that can detect exactly where on the screen babies are looking.



During a visit to the Babylab, there are a good variety of tasks and normally, in between computer tasks' we have more interactive play sessions, in which we use age appropriate toys and play freely with the baby. In the picture on the left you can see how much fun Lola is having playing with Kim. Lola's mum says: *"it is rewarding to contribute to research in child development and it is also important to understand your own child's progress"*

Tracey, Lola's mother, really enjoys coming to the Babylab. She also used to come with her older daughter Missy, who is now 6 years old. Tracey says *"the staff are really friendly, its really fun to see your child taking part in new activities and observe their reaction to new things"*



This is a picture of Lola's sister, Missy, when she was a baby and visited the Babylab to help us with our studies. Our hats looked a bit different back then!



Lola's mother says she first volunteered to take part in the Babylab studies with Missy because *"coming to the Babylab is really fun, and it's a different kind of play session with new interesting activities and it is a great way for Missy and Lola to interact with new people."*



Thank you so much for your visit, and we look forward to seeing you again soon!!!!

Current studies

Eye tracker computer games – by Sam Wass

We are developing cartoon-based computer games for babies. We do this using something called an eye tracker, that measures where on a computer screen your baby is looking. Because babies don't have the manual skills required to operate a joystick or a touch screen, this allows us to develop interactive computer games that change depending where on the screen the baby is looking. The aim of this study is to see if these games improve young babies' abilities to concentrate.

In recent years, a number of small studies of older children (aged 4-6 years old) have suggested that training the attention skills of children might, in at least some children, improve their subsequent performance at school – either by improving childrens' working memory and cognitive flexibility, or by improving their ability to regulate their own behaviour, and to sit still and concentrate in class. However, it is important to remember that these findings are preliminary, and based on small-scale studies.



Milly taking part in Sam's study.



The development of social communication in sighted babies of blind parents – By Atsushi Senju

Infants have an amazing capacity to learn from adults. This capacity for social communication develops rapidly in the first few years of life. The main purpose of this study is to explore how sighted babies with blind parents develop the brain mechanisms and skills for social communication. The methods used in this study have been discussed in detail with a research officer from the Royal National Institute of Blind People.

If you know a sighted baby with a blind parent we would like to hear from you!

To receive further details about the study contact:

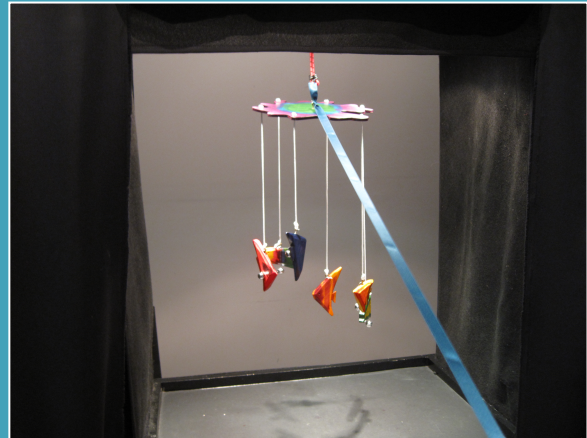
Leslie Tucker, email: l.tucker@bbk.ac.uk

Tel: 020 7631 6325 (direct line)

www.cbcd.bbk.ac.uk/babylab/SIBP/

Kicking Fish – By Carina de Klerk

Studies have shown that when infants observe an action, a similar pattern of activation can be observed in the motor areas of their brain as when they would perform the action themselves. This association between brain activity during the execution and observation of actions has been suggested to play an important role in infants' emerging abilities to understand and imitate other people. We are now starting to investigate how this association develops in the infant brain.



Example of stimuli used by Carina in her study

In the Kicking Fish study infants first see some videos of leg movements from either a first or a third person perspective. We will also encourage infants to make leg movements themselves by showing them that their own kicks cause a brightly coloured mobile to move in front of them. Using a sensor hat, we can observe the activation in the motor areas of the brain while infants are watching the videos and compare this activation to when infants move their own legs. We can then test the idea that actions observed from a more familiar perspective results in more activation in the motor areas of the infant's brain.

Understanding actions of others – By Victoria Southgate and Katarina Begus

Anticipating other people's actions in terms of their goals, such as expecting someone to reach for a spoon before eating soup, is an important function that develops during infancy. Studies have shown that infants react with surprise when an adult reaches for an object that they had not previously reached for, suggesting that infants understand adults' actions as related to objects and that they can learn to anticipate simple reaching gestures.



We have two ongoing studies investigating how this "action understanding" develops in the infant's brain. For this we use two techniques: the EEG, which gives information of **when** the baby's motor cortex is activated, and the NIRS, which gives information of **where** in the brain these processes occur.

Baby Nicholas wearing a near infrared spectroscopy (NIRS) hat, this is a specially designed optical imaging hat, which uses weak light beams to measure naturally occurring brain activity.

Pointing study – By Katarina Begus, and Victoria Southgate

Before infants are able to use words they already use several gestures to communicate with people in their environment. One of the most effective communicative tools is pointing. Pointing has been shown to be both understood and used by infants as a means of sharing, informing and requesting objects from others. In our study we are interested whether infants might also use pointing in order to request information – in other words, is pointing used to “ask” questions about objects or events they find interesting.

We set up a situation in which the child perceive a researcher as either a good or a bad informant. We did this by naming objects, which were familiar to the child, with the correct (good informant) or false (bad informant) label. Then, certain objects were presented behind the researcher so that they were only visible to the child. We were interested to see which situation (the bad or the good informant) would elicit more spontaneous pointing from the children.



Miles pointing to a novel object appearing behind the researcher.

Our results show infants point twice as often to a good, compared with a bad informant situation. This finding supports the hypothesis that infants use pointing not only to obtain desired objects, but also that they are quite selective when they learn information from others.

We would like to thank all the parents and babies for helping us find these exciting results!

Where is my hand? - by Silvia Rigato

An almost automatic reaction to being unexpectedly touched is to look towards the part of our body where the touch sensation occurred. This automatic reaction occurs because we look towards the visual side that matches the part of the body just being touched. Despite the automatic nature of this reaction, previous research found that this ability develops between 6 and 10 months of age.



In our study, we want to know how the brain responds to an unexpected touch sensation. We therefore present short vibrations to the palms of an infant's hands (left or right; one at a time), and record their brain activity.

In touch sense localisation tasks with adults, crossing the hands makes localisation a little more difficult and slower; it seems to confuse us when our hands are not on the side of the body where they usually rest. It is very well known that the right hemisphere of the brain 'controls' the left part of the body and vice versa. We are investigating whether it is still the case when we cross the midline and our (e.g.) right hand appears in the left visual space. Preliminary analysis is showing that the brain is taking longer to detect where the buzzing sensation is located when the arms are crossed.

British Autism Study of Infant Siblings



The “Babysibs” Project

Mayada Elsabbagh, Leslie Tucker, Janice Fernandes, Teea Gliga, Jeanne Guiraud, Helena Ribeiro, Kim Davies, & Mark Johnson - CBCD Babylab

Greg Pasco, Susie Chandler, Rachael Bedford, Wafa Alshami and Tony Charman - Institute of Education

In collaboration with

Simon Baron-Cohen - Autism Research Centre, Cambridge

Patrick Bolton - Institute of Psychiatry, Kings College London

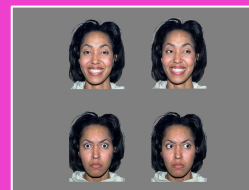
Jonathan Green - University of Manchester

Andrew Pickles - Institute of Psychiatry, Kings College London

Autism is a developmental condition affecting up to 1 in 150 children in the UK. Currently autism can only be diagnosed after three years of age, when symptoms affecting social development and communication are sufficiently clear. Understanding how autism emerges in the early years could provide vital answers to several puzzling questions, including the underlying causes. It could also help explain why outcomes are so variable in different children.

It has been a very exciting time for the Babysibs project, which started at the Babylab a few years ago. The project has grown into a UK wide network called the British Autism Study of Infant Siblings (BASIS). The main aim of BASIS is to follow the development of the baby brothers and sisters of children diagnosed with autism, compared to babies who have older siblings and no family history of autism. It is hoped that in the long term this will help identify the early signs of the disorder, allowing for earlier and more effective intervention aimed at improving the quality of life of children with autism.

The images below are examples of stimuli used in the Babysibs project



BASIS has now enrolled over 250 families who have a child with autism, in addition to families who don't have a family history of autism as a “comparison” group. Unlike most projects at the Babylab, families are asked to visit the lab regularly from the time the babies are around 4-6 months until they reach three years of age. It has been wonderful to see these little ones grow from babies to toddlers! Families usually spend a whole day at the Babylab, with their child taking part in several fun short computer tasks such as watching faces and colourful animations as well as taking part in interactive games with the researcher.

BASIS Network www.basisnetwork.org

Since its formal launch in 2008, the BASIS project portfolio has grown substantially. In addition to the ongoing work at the Babylab, BASIS scientists are now setting up projects on genetics, brain imaging, and intervention. Collaborating centres include Birkbeck, University of London, Institute of Education, Institute of Psychiatry, Cambridge University, and University of Manchester. Moreover, over 50 affiliated scientists from different institutions around the UK attended the last annual scientific meeting in September to share what they are learning and to discuss future directions. We hope BASIS will continue to be a platform for some very fruitful collaboration across different teams in the UK.

The coming year will be a very exciting one for BASIS as most of our children will reach their third birthday and we can begin to answer some of the challenging questions we set out to answer. We expect to have some of the results published in 2011 and we will share this with you in our BASIS newsletter. We really appreciate your patience and **the team would like to take the opportunity to thank all the families who have taken part so far!**



Infant Scientists Wanted!



Are you pregnant, or do you have a baby between the ages of 0 – 9 months who has an older brother or sister with autism?

The British Autism Study of Infant Siblings (BASIS) is a UK wide network of researchers. Our aim is to learn more about the early development of baby brothers and sisters of children with autism. We hope our studies will in the longterm help to improve early detection and diagnosis of children with autism.

If you are pregnant, or have a baby between the ages of 0 – 9 months who has a full sibling diagnosed with an autism spectrum disorder, please contact us for more details. Travel costs to central London (WC1) are reimbursed and special arrangements are made for families who live further away.

BASIS, The Babylab, Centre for Brain and Cognitive Development. Tel: 020 7079 0761, Email: basis@bbk.ac.uk or visit: www.cbcd.bbk.ac.uk/babylab/babysibs and www.basisnetwork.org

Frequently Asked Questions

Q: I would like to visit the Centre, but would like to find out more about travel arrangements. How is it done?

A: We will always cover your travel expenses when you come to visit the Babylab. If you are outside of our taxi zone you can arrange your own taxi/train, keep your receipts, and you will be reimbursed during your visit. We can provide a taxi service if you live close to our Centre. If you decide to drive to the Centre we provide a parking space close our building reserved for visiting parents. We always reimburse petrol costs and the congestion charge. Please remember that we cannot pay the congestion charge for you, though if you are unsure of how to pay the charge we can help you through the process during your visit.

Q: Can I find out if my baby is developing normally from the data you collect during your studies?

A: At the Babylab, we do not study the performance of individual babies. Our studies are not intended to be diagnostic tests that give results on the development of the individual - the information we receive from the babies is grouped to provide overall results.

Q: What if my baby is asleep, hungry or needs changing upon arrival?

A: Many babies fall asleep during their journey to the Babylab. We try to let the babies make their own schedule. We want happy babies so that they will be content to sit through our studies. If a baby is tired, hungry or wet, they are unlikely to want to participate. Therefore, we encourage you to carry on with their normal schedule as far as possible, even if it is during a visit. We have changing facilities at the Babylab and you can also feed your baby in the reception area. Water, tea and coffee are always available for parents and carers. However, if you know that your baby naps/eats regularly during certain hours, please mention this when booking an appointment.

Q: What if my baby does not want to participate on the day?

A: You should not feel badly if your baby decides they would rather not participate on the day of your appointment. This can be for many reasons: heat, teething, illness, tiredness, etc. Some babies just find the study too boring to look at. This does not mean that your baby will always react in this way during a study. Babies change day-to-day, hour-to-hour. We will be happy to ask you back for another visit if your baby comes within the appropriate age-range for another study.

Q: I received my packet of information from the Babylab months ago, but I've not been asked to participate in a study . . . will I get a call?

A: Whether or not you are called for an appointment is completely dependent on the studies that are currently running. Each study has an age range that is specific to a particular stage of infant development. If you have not been contacted it is not because we have forgotten about you, it is only because your baby does not fit into the age range of one of our current studies. Our studies are constantly beginning and ending so new opportunities may arise!

Q: Do you ever need adult participants for your studies?

A: Yes. Sometimes we do run studies and require adult subjects. There are also other studies running within the Department of Psychology at Birkbeck College.

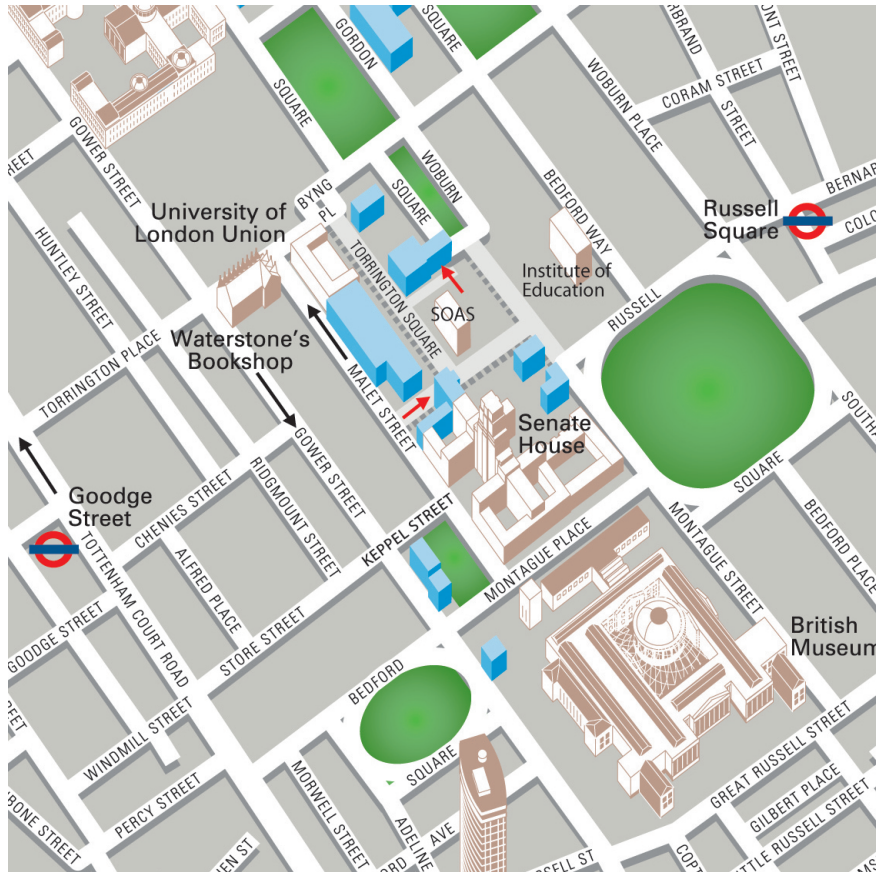
If you are interested, you can fill out a Volunteer Form at:
https://psyc-bbk.sona-systems.com/student_new_user.asp.

Map of where we are

The Henry Wellcome Building is located just off Torrington Square, around the corner from the 'Clare Management Building' (on the path between Torrington Square and Woburn Square).

Signs on either side of the doors say 'The Wolfson Institute for Brain Function and Development' and 'The Henry Wellcome Building'.

We are within *walking* distance from the following stations: Russell Square, Goodge Street, Euston, Euston Square, Warren Street, Kings Cross and St Pancras.



If *driving*, The Babylab has two areas available for parking: **Woburn Square** (both sides) and **Torrington Square**. **Woburn Square is easier to** access within the one-way system in this area. Torrington Square is more difficult to navigate by car, however since it is a quiet residential street, there are usually a few spaces open. To enter **Torrington Square you must make your way through the** one-way system to Keppel Street to get into Malet Street. From Malet Street turn right through the University of London gates, then left into Torrington Square (drive down the slope) and park on the right-hand side of the square. You can park on either side of **Woburn Square**. **When you arrive at the Babylab, we will** provide you with a temporary parking permit. If you are staying overnight for a study, we recommend that you park on Torrington Square to guarantee a parking space.

Taxi drivers: Please ask the driver to drop you outside 28 Woburn Square, WC1H 0AA (not our building). Once at the top of the square turn right and walk up the paved slope. The Henry Wellcome Building is a new building on the right.



Is your baby an
INFANT SCIENTIST?

They could be at.... **the Babylab**

Join the Babylab or update your information



Don't lose touch! If you are moving house or having another baby please let us know so that we can update our records. Ring us on 020 7631 6258, return the form below or contact us via e-mail at babylab@bbk.ac.uk.



If you have a friend who you think may enjoy a visit to the Babylab please ask them to contact us too. We are constantly in need of babies from birth to twelve months to help us with our research.



Parent's name _____ Daytime tel _____
Address _____

Baby's name _____
Sex _____ DOB (or expected date) _____

Please return form to:

The Babylab
FREEPOST RRGX-ARGH-SESR
Centre for Brain & Cognitive Development
The Henry Wellcome Building
Birkbeck, University of London
Malet Street
London WC1E 7HX

Or you can...

Tel: **020 7631 6258**

E-mail: babylab@bbk.ac.uk

Website: www.cbcd.bbk.ac.uk