

# Plymouth Babylab WITH PLYMOUTH UNIVERSITY Newsletter 2016/2017

## HELLO...



To all parents/carers and clever little scientists welcome to the 11th annual newsletter for the Plymouth University Babylab. We would just like to start off by saying a huge thank you to everyone who has taken the time out of their busy schedules to visit us at the Babylab this year. Without your continued help and support we would not be able to carry out all the exciting research projects that we have the opportunity to do here, and so for that we are very grateful.

This newsletter will give you the opportunity to read about all the different studies that have taken place in the Babylab this year, and any results that have been found so far.

We hope you enjoy reading this newsletter and hope to see many of you back in the Babylab very soon!!

## NEWS...

At the Babylab this year there has been a variety of different studies carried out, some of which we have now completed data collection, some still running and other interesting ones that are only just beginning. We have had over 560 families that have been to visit us since September, starting from children at just 5-months-old, all the way up to our 5-6-year-olds. This is a fantastic number to see, as the Babylab has now been open for more than 10 years, which shows that we are still engaging interest of families across Plymouth who are now part of many pioneering research projects.

We would also like to give a special shout out to all the baby and toddler groups that have given us the opportunity to visit their classes (Hope Baptist Church, NCT, Mum2Mum, Nomony, Green Ark & Manor St Children Centre, Popin's, Baby Sensory, Mums Net Meetups, Plymouth Libraries, Bring Your Baby Cinema & Street Recruitment). This is our main source of recruitment to find families to visit the Babylab and because of this we have successfully been able to sign up 427 new children onto our database.

This year we have also had 14 project students and 3 PhD students working in the Babylab, many of whom you may have met. The studies which they carried out this year will also be included in this newsletter. Over the past 10 months you may have also met Nicole, Dani, Abbey and Sarah during your visits to see us. This will be our last month at the Babylab as we will be going back to continue our undergraduate degree. We will be replaced by three new placement students in September; Mollie, Sophie and Eleanor.

To find a particular study within this newsletter that your child has participated in, all the studies have been arranged in age order from youngest to oldest.

Finally, if you have any children who may not be on our database and would like to sign them up, or need to update any of your information please let us know by calling 01752 584865 or email us at [plymouthbabylab@gmail.com](mailto:plymouthbabylab@gmail.com).



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## Mummy

(5 months)

*Collaboration with Dr Thierry Nazzi, CNRS-University Paris Descartes*

For you and me, if someone says “nunny” instead of “mummy”, we immediately hear the difference. For babies, it is not necessarily the case: we know that babies start understanding common words by the age of 6 months, but what has always made debate in the field is how much detail they have memorised about these words. Here we used the head-turn procedure and presented 5-month-olds with lists of “mummy” correctly pronounced, versus mispronunciations such as “nummy”, “memmy” or “bummy”. About 100 infants took part, and results show that infants detect mainly mispronunciation involving a vowel change (“memmy”), not a consonant change (“bummy” or “nummy”). This is very close to what colleagues have observed in Paris with French babies, suggesting all infants start by paying more attention to vowel sounds than consonant sounds.

**BABYLAB BABYLAB BABYLAB BABYLAB**

## Line Orientation and Dot Grid: Where is the odd line and where is the dot?

(7-8 months)

*Dr. Allegra Cattani*

We know that each side of our brain becomes specialised for many things, but we do not know is whether these abilities stem from the ancestral brain ‘division of roles’. Our eyes move around and tell us what we see and how we focus our attention to then send signals to our brain. A group of infants watched images of parallel lines (placed like a ‘clock’ face) in which one odd line was oriented differently. Children also looked at images of a black dot on the screen or placed inside a black grid. After having received 65 infants, I was surprised to see how many of them spot the different line (or the dot) doing one straight movement of their eyes from the starting attention to the centre of the screen. We still have to learn on which side of the screen the infants spot either the odd line, or the dot faster, but to do so many more children are needed!

**BABYLAB BABYLAB BABYLAB BABYLAB**

## Snakes and Frogs

(7-9 months)

*Dr Caroline Floccia and Sophie Cooper*



This study aims to determine whether humans are born with an ability to detect certain evolutionary predators, such as snakes. And whether detecting these near us changes the way we look at and pay attention to our surroundings. This is done by showing infants between the ages of 7 and 9 months images of either a frog or a snake and using eye tracking software to see where they look, once the picture is no longer on the screen. In total there will be twenty participants in the study, so far we have tested eight. It is too early to know whether the results will support this theory.

### **The Many Babies Project**

(9-12 months)

*Abbey Searle, In collaboration with the Manybabies Consortium*

There is a well-established finding in the Developmental Psychology area that infants prefer to listen to Infant-Directed speech over Adult-Directed speech for many reasons. For example, we speak at a slower pace, use repetition and speak higher up the octave. In a collaboration of about 70 Babylabs around the world, we are hoping to replicate these ancient findings using the same set of speech samples, recorded by North American mums. So far in our lab to date we have tested 32 babies and need to 19 more to complete our data set. For more information follow this link (<http://babieslearning-language.blogspot.co.uk/2015/12/the-manybabies-project.html>)

### **CVC**

(12 months)

*Collaboration with Dr Thierry Nazzi, CNRS-University Paris Descartes*

An interesting difference has been found recently between French and English infants: when they approach their first birthday, French infants start paying more attention to consonant sounds than vowels, whereas English infants show no preference. Here we explored this further by presenting 12-month-olds with lists of familiar words (cat, dog, etc..) in which we changed either the first consonant (dat, bog, etc..) or the vowel (cit, dug, etc.).

If infants pay more attention to consonants than vowels, they should prefer the list with the vowel changes over the list of consonant changes, as they would judge the former to be more familiar than the latter. This is indeed what was found in Paris. In Plymouth we tested about 30 infants so far, and results are not telling yet, unfortunately.

### **Size Full**

(12 months)

*Collaboration with Prof Roy Patterson from Cambridge University and Prof Sue Denham from our School.*

Most baby animals are born with the ability to judge very quickly whether they are facing an adult or another immature conspecific. For example chimps can determine whether cooing is produced by an adult or a young chimp, using acoustic information about vocal tract length. As humans, we are notoriously born with poor abilities to deal with the world - we rely on others for many, many years. Does that mean that we develop late the ability to judge the size of people by their voice? In this experiment, we examined whether 12-month-olds would be able to distinguish between an adult voice and a child voice, using the usual information found in voices: vocal tract length information and pitch. Babies were presented with videos of a blonde (or a brunette) woman next to a blonde (or brunette) child, repeating syllables ("boo" and "bu"). These syllables were computer-generated to either match the voice quality of an adult or that of a child. At the time of writing, 24 infants did the experiment, and we are analysing the results. We did similar experiments at age 6 months last year and it didn't work. If this one works, we will conclude that it takes an extensive experience for human infants to tell conspecifics by their voice, contrary to baby apes!

## **Bilingual Exposure Questionnaires**

(12-24 months)

*Alshaimaa Gaber Salah Abdel Wahab*

This study aims at designing an assessment tool that would allow parents and researchers to evaluate whether a bilingual child, between 12 to 24 months, learning English plus an additional language would be developing the two languages at a typical rate, or not. Therefore, it is important to have an idea about the amount of exposure that children have for each of their languages to find out if this can predict how many words they know in each of them. This is done through different questionnaires for evaluating the amount of exposure, and we want to identify which one is the best. About 40 children took part in the study, and results suggest that all the questionnaires contribute equally to the prediction of vocabulary scores. But most of the parents have liked our Plymouth Language Exposure Questionnaire which may drive the decision



## **Colocation**

(18 & 22 months)

*Dr Caroline Floccia & Paul Ratnage*

When hearing a new word (e.g., “modi”) together with animal names, does a child extrapolate that a modi must be an animal like the others? We have tested 20 18 and 22-month-olds in this new experiment, in which we first present infants with lists of animal names mixed up with a new word, such as “modi”. Then we present them with pictures of a familiar animal (e.g. a cow) with an unfamiliar animal (such as a tapir), and see whether they would look longer at the unfamiliar animal upon hearing “modi”. However, we didn’t find any evidence of word learning so far, possibly because we have created a task too difficult for the children. We will soon start again with a simplified version.



## **Segmentation**

(18 & 22 months)

*Dr Caroline Floccia & Paul Ratnage*

When we speak, we don’t make pauses between words, and yet we have the impression to hear a string of words: this is called word segmentation. It is well established that infants learn to segment speech during their first year of life, but it is not easy to show experimentally because the task is usually a bit boring. So here we tried a new technique: instead of presenting all sentences and words in the experimental booth, the children hear the sentences (containing the words we want them to segment out) in a play area, and then we see whether they recognise the words in the eye tracking room. We have seen about 20 children with this task so far, but results haven’t been analysed yet!

## ME21

(21 months)

*Dr Caroline Floccia & Samantha Durrant*

Mutual Exclusivity (ME) is one way children are thought to learn new words. When hearing a new word in the presence of 2 objects, e.g. a ball and an unknown garlic crusher, children assume that the new word names the new object. Monolingual children do this at around 18 months and bilingual children at 24 months. We asked when children hearing two accents in their family use this strategy.

Children aged 21 months saw pairs of images and a voice which said 'look at the ball', we measured how long the children looked at each picture for. Sometimes they knew the word and sometimes they heard a made up word (e.g. "dax"). We were interested in which picture they looked at when they heard the made up word!

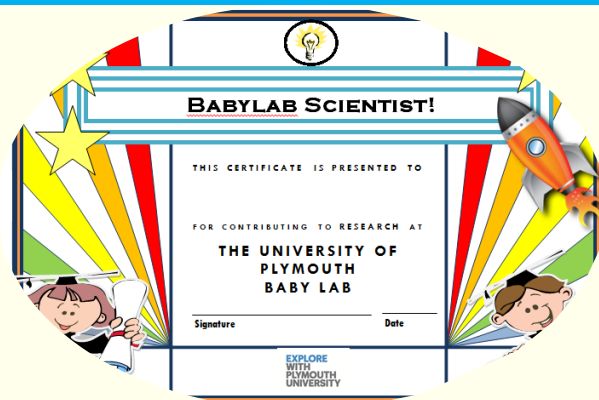
It looks like children who hear different accents are more like bilingual children, one accent children do this at 21 months and two accent children at 24 months. We are currently analysing the rest of these results and will be presenting the findings at a conference in Lyon, France at the end of July!

## Allophones

(21 months)

*Dr Caroline Floccia & Samantha Durrant*

Children are learning language in a sea of variation, the ways that words are pronounced differs between people and sometimes the same person says a word differently depending on the context. When the pronunciation difference doesn't affect what the word means we call these allophonic differences. One example is glottalisation which often affects the 't' sound in words like 'bottle'. Adults are great at recognising both pronunciations and know that they mean the same thing, but what about children? And what effect does hearing different accents at home have on children's recognition of these pronunciations? We showed children pairs of pictures and played them one type of pronunciation for one of the pictures, then later in the study showed them the same pictures again with the other pronunciation. So far it seems that children prefer one pronunciation over the other (when the 't' sound is very clear) regardless of the accents they hear. We are now testing whether they recognise the other pronunciation if that is the only one they hear in the study as it could have been mixing the pronunciations that confused them. Watch this space for more information.





## Emoji: How Well Do Two Year Olds Understand Emoji Faces?

(24-36 months)

Beverly Plester, Samantha Ball & Katarina Gauger

The assumption is often made that everyone understands emoji face sentiments. We studied whether 30 two-year-old children could reliably associate various human facial expressions of emotion with emoji faces that represent the same emotions, defined according to a pilot study of young adults. They used human faces depicting Happiness, Sadness, Surprise, Fear, Anger and Disgust. Half of the time the children saw the human face first, with a choice of three possible emoji matches; half of the time they saw the emoji face first, with a choice of three human face matches. The children matched the emotions well above chance, happiness and sadness best, and were most sensitive to the positive or negative feeling of the faces shown, sometimes confusing more complex negative emotions.



## BP3

(26 months)

*Collaboration with Oxford Babylab, Prof Kim Plunkett*

This experiment is about understanding how little bilinguals recognise words as compared to little monolinguals. In an adult bilingual who speaks for example French and English, we know that when she/he hears the word “dog”, her brain also activates at the same time its translation in French, “chien”. This is an automatic process that cannot be suppressed. We want to know whether the same kind of irrepressible transfer from one language to the other takes place in infancy, when the words are just starting to be learnt. So we present infants with a word, for example “dog”, immediately followed by 2 pictures side by side, depicting a dog and something else such as a car. We measure how long it takes for the baby to recognise the target image, that is, the dog. The catch point is that some of these words are cognates in the two languages: for example banana and “banane” in French sound very similar. So the idea is that perhaps cognates will be recognised faster than non-cognates. Colleagues in Oxford did most of the testing with bilingual children and here in Plymouth we tested about 50 monolingual toddlers, to compare to the bilinguals. So far, the results point towards a faster recognition for cognates in bilinguals, as predicted!

### **WinG: Words in Game**

(19 to 42 months)

*Drs. Allegra Cattani, with Andrea Krott (Birmingham), Ian Dennis, Caroline Floccia*

We are excited to say that we started a negotiation with a publisher to see the adaptation of the Words in Game test to be published toward the end of 2017! The Words in Game test is a comprehensive word assessment test for children aged 19-37 months. This test has been normalised from 376 children tested in the UK. We hope in the future to see this task used by speech and language therapists and health care professionals to help identify children at risk of language difficulties. We are currently adding an additional sample of older children between 38-42 months to complete the standardisation of the most difficult target words.

### **WingG: Gestures with Words in Game**

(24 to 30 months)

*Drs. Allegra Cattani, with Caroline Floccia, Evan Kidd (ANU), Virginia Volterra (CNR, Rome).*

This work is in collaboration with Australian and Italian researchers using the Words in Game naming test to evaluate the contribution of words and spontaneous gestures made by 24-30 month old British English, Australian English, and Italian children. The Italian children do gesture more than the other English speaking children, and they also are ahead in the word assessment than the other children. The striking similarity of the English-speaking children in the level of vocabulary learnt led us to believe that it is the language not the environment (in which these children live) that has an influence on language learning. On the other hand, the gesture productions are influenced by the surrounding environment because we have seen differences in the types of gestures between the British English and Australian English speaking children. This project is completed and now under review.



### **BinG: Words in Game of bilingual children**

(36 to 38 months)

*Drs. Allegra Cattani, Caroline Floccia*

Some bilingual children know and say fewer words than children of same age that speak only one language. We believed these bilingual children would use gestures more often than monolingual children to compensate in order to enhance effective communication. We still do not know the results but we have seen great variability among gesture production but we have not seen large differences between the two groups.

Thanks to your support, we have seen 9 bilingual children so far this year, and we really need to see many more over the coming months!

Mums and Dads of bilingual children, please do help us in bringing your child to the Babylab. You will be fascinated by the number of words known in English by your little one!





## **Social Interactions and Freeplay: from Children to Robots**

(48 months)

*Severin Lemaignan and Charlotte Edmunds*

The study looks at how collaboration emerges between children when they play together, and how they might interact in the presence of a friendly robot. During the experiment, children freely play with blocks and pictures of characters on a large touchscreen. In some cases, two children play together; in some other cases one child plays along with a robot. Our aim is first to build a large dataset of children playing together (we record their faces, gestures, what they say, etc.). Then, we will use this data to train robots to better recognise and interpret social interactions. For instance, whenever you look at me, is it because you are seeking help? Or on the contrary, do you want me to suggest something to do?

As the study just began, we have so far only tested 10 4-years old children. Many more will be recorded in the coming weeks.



## **Accent and Trust**

(5-6 years)

*Dr Caroline Floccia, Nicole Day & Dani Curcic*

A child's evaluation of an individual can take form in many ways and can be based on preferences towards one's race, gender or accent. Our studies aim to see how an individual's accent can influence 5- to 6-year-olds social preferences. The first study will look to see whether children will prefer to be 'friends' with an individual who shares their local accent in comparison to either a foreign or regional accented speaker. Based upon previous research, we predict that infants will show a preference for their local accent. The second study will look to see if this accent preference is mediated by the content of the sentences spoken by the accented speakers. In particular, we will see if infants prefer a 'nice' regional or foreign speaker over a 'mean' local speaker. Again, based on previous research, we predict that the content of the sentence will influence children's social preferences rather than the accent they are spoken in.



**Parents' Preferences for Shared Medical Decision Making: Cross-cultural perspectives**

(Under 6 years)

*Fatimah Alharbi*

This study aimed to investigate parents preferences to be involved in a medical decision (eg treatment for Type 1 Diabetes) for their child. We compared the preference for being involved in making shared-medical decision for themselves v for their child. We predicted that participants are more likely to be engaged in the decision about shared-medical treatment when it's for themselves. We tested a non-clinical sample of 199 parents from both Saudi Arabia and the UK (75 from the Babylab). Results show that UK parents were significantly more likely to be involved in the decision making process than Saudi Parents and parents overall were more likely to take an active role when the decision was about themselves rather than their child. Looking at the emotional reactions and confidence levels of their choices, we found that both were higher when parents had an informed choice (ie given exact information including the pro and cons for each choice). Overall these findings will help us understand how much parents want to be involved, and ultimately how parents, children and doctors engage to make successful medical decisions.

**THANK YOU THANK YOU THANK YOU THANK YOU**

Once again on behalf of Dr Caroline Floccia (Head of Babylab), and Dr Allegra Cattani (Manager of Babylab) we would like to thank each and every one of you for volunteering your free time to help us with our research. We look forward to what the next year will bring, and welcoming you all back to the Babylab.

**babylab**

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