

Hello and welcome to the Plymouth Babylab's annual newsletter. Firstly, we would like to say a massive thank you to all you lovely parents and children who have visited us this year!

NEWS

We have had a great year with lots of studies, some of which are now complete, some are still ongoing and we have some exciting new studies starting.

Dr Caroline Floccia (Head of the Babylab) is currently on sabbatical and has been very busy writing papers about the completed studies and applying for funding to go towards the new studies starting soon.

In other news, we'll be saying goodbye and good luck to one of our PhD students, Hester Duffy, who is heading off to Western University in Canada, to work on a project coming up with new ways to use brain-scanning technology to diagnose cognitive deficits in brain-damaged new-borns! We wish her the very best!

We at the Babylab are always looking to share our work and so have been attending conferences. This year we have been to Minneapolis and London where our work has been well received.

The Babylab this year has taken on 7 project students, who completed research for their dissertations. Over the past year, Emma and Emily have taken a year out of their degree to gain experience within child language development, and will be finishing at the end of July. They will be replaced by Hannah and Lydia, who will start in September.

Studies- Age ranging from 5 months to 12 months

Babynames (5 months) *Post Hoc, Claire Delle Luche*

This research is still ongoing; we have found that children are recognising their own name (over a mispronunciation, e.g. Emma-Imma). We have had some babies listening to sound-clips that do not contain their name. These babies are just as important for helping us with our results. We look forward to seeing more of you soon!

ILV (9 and 11 months) *Working in collaboration with Katrin Skoruppa, UCL.*

In standard English, there is an unspoken rule that words must end with an extended vowel e.g. igloo. Words ending with a short vowel are considered to be unfinished words. At what age do we learn this rule? In this study, children heard lists of nonsense words, ending in either long or short vowels. At 11 months, we found no significant results, so we have now started a new study with 9 month olds doing the same thing. We're hopeful for some exciting results.

Aem (8 and 12 months)

PhD student Samantha Durrant

This study uses the eye tracker so we are able to see in real time what the infants are looking at. For this study we are interested in whether children can learn that a particular word or pronunciation of a word is linked to the side of the screen that our Bob the Builder character appears from – for example when they hear book he will appear on the right and when they hear cat he will appear on the left. We are doing this either with words like book and cat or with words that can be pronounced rhotically (with a long 'r' sound or non-rhotically – for example car. We are interested in whether the infants can do this task with the very different words and then following this with whether they can differentiate the 2 pronunciation types.

110
babies

B&B (11 months) *PhD student Hester Duffy*

This study is investigating how Infant Directed Speech (IDS) can affect 11 month olds abilities to segment speech (pick out an individual word from a spoken sentence). In America, children at 11 months are successfully able to segment, however, in this country these results cannot be found. Could this be due to the differences between IDS across countries? If so, does IDS affect how children process language? To investigate this, children heard spoken sentences in either an over exaggerated style of IDS or a calmer style of IDS, containing unfamiliar words such as pasture or carriage in a head turn setting. They then heard these unfamiliar words individually, and looking time was recorded. So far we have tested 40 babies and we would like a few more! The results are yet to be analysed properly, but we are hoping that they are of significance!

40
babies

28
babies

ERP (11 months) *PhD student Hester Duffy*

Over the past year and a half, 62 11-month-old babies took part in our first infant ERP study at the BabyLab. They wore a sensor-cap, which recorded their brain activity, while they took part in a study which aimed to look at the way infants process speech when they're listening to someone with an unfamiliar accent.

We've now processed and analysed the data, and found that the babies' brains did differentiate between the targets and distracters, even when the task was very hard. In fact, we found bigger differences between the brain's response to targets and distracters when the babies were listening to the German accent than when they were listening to the familiar accent. We think this is because the brain has to work that much harder with difficult tasks than easy ones.

The data from this study were presented in a poster at a recent international conference in Minneapolis, and will be submitted for publication within the next couple of months.

62
babies

20
babies

ERP (12 months) *PhD student Jacqueline Turner*

20
babies

Given that syllables are the building blocks of word, how will 12 month olds perceive syllables? We do know that infants are very good at detecting phonemic changes from as early as 4 months old. But if an infant listens to a train of 4 syllables such as “ta”, and then a syllable that had a vowel change such as “ti” or a consonant change such as “ka”, will there be any differences between how quickly they process the consonant versus vowel changes? So far we have tested 20 babies using ERP, and need at least another 30 before we see any results, but we look forward to seeing what we can find.

CCV and BOP (16 and 20 months)
Post Hoc, Claire Delle Luche

55
babies

These studies used a new and exciting form of technology which allowed us to directly track your child’s eye movements. Each child was shown a cartoon of a lady talking about objects presented with made up names. For CCV we expect your child to have a preference for object names that differ by a consonant (e.g. kip-pip) rather than a vowel (kip-kep), and for BOP we want to know if the difference between bef and bev is more difficult to recognise than between bef and beth. So far we have tested 40 children for CCV and 15 for BOP, recruitment is still ongoing as we need more 16 and 20 month olds, but hopefully we will see some exciting results!

Studies- Age ranging from 15 months to 20 months

Nuffield (15 and 20 months)
PhD student Sam Durrant

65
babies

This study is now very nearly completed! We have got some exciting results for the 20 month infants and are currently watching lots of videos of the 15 month infants to see which pictures they were looking at!! For this study your child would have been shown pairs of pictures and we then said the name of one of them. We may have said it correctly (cat) or incorrectly (gat). This was to see how much children know about words and how flexible they are in accepting the incorrect pronunciations depending on the accents they hear at home. We had two groups of children in this study, those who lived in Plymouth and has mum and dad who were in Plymouth and those who had a mum or dad who had a different accent – we had parents from Scotland, Birmingham, Liverpool, Australia and many other places! Our results show that the children at 20 months do treat incorrectly pronounced words differently. The children who hear words said in a Plymouth accent don’t like the incorrect words at all, whereas the children hearing different accents still look at the cat when hearing gat! This is a very exciting result and we think this means that these children are more flexible about how words can sound! We are now excited to see if children do the same thing at 15 months old!

Raf18 Mono/Bi (18 months)
PhD student Rafalla Farag

33
babies

Over the past year and a half, we looked at the way 18-month-olds store words in their mind: when they hear the word “cat”, do they automatically activate related words such as “mouse” or “dog”? We compared bilinguals and monolinguals, and our hypothesis is that in that kind of task, bilinguals learn to connect words a little bit earlier than monolinguals. We have tested 20 monolinguals and 13 bilinguals so far, if you have a bilingual child close to 18 months, please do contact us!

ME (18 months)
PhD student Sam Durrant

16
babies

Mutual Exclusivity (ME) is one way children are thought to learn new words. This explains how when a child hears a word they don’t know in the presence of 2 objects; one they have a name for (e.g. ball) and one they don’t (e.g. garlic crusher) they assume that the new word refers to the new object. This is a very useful method when learning only one language, research has shown however that bilingual infants are less likely to use this strategy – as they have to learn that an object can have two (or more) names. We are interested here in whether children who hear two different types of the same language (in the form of accents) also relax their use of this strategy. In this study 18-month-old children will be sat in a high chair facing a screen where pairs of images will be presented. A voice will say ‘look at the ...’ and we measure how long the children look at each picture. Sometimes the word will be a word they know and then we expect them to look at the corresponding picture but sometimes they hear a made up word and in this case we are interested in whether they look to the picture they know or the picture of the unknown object.

OC (16 and 20 months)
PhD student Jacqueline Turner

20
babies

This study investigates how sensitive infants are to vowel and consonant mispronunciations of familiar words. We are also interested in looking at how infants perceive consonant mispronunciations, which take place at the beginning and end of a word. Pairs of images are presented on a screen representing common words (for example, a ball and a cat). A voice says “Look ball”, for example. We measure how long your child looks at each of the pictures. In some cases, a mispronunciation at the end of a word would be heard (e.g. “look bawn”), or at the beginning of a word (e.g. “look mall”); this is to see what level of phonetic detail children have encoded about these words. This study has only just begun, and so far we have tested 20 infants, and we need to test at least another 20 infants before we see any results we look forward to some promising results.

Plymouth



Babylab

SemCat 1,2 and 3 (18 months)
Coll with *Kim Plunkett, Oxford Babylab*

24
babies

In these experiments, we were looking at how children connect words with each other at the beginning of vocabulary development. In adults, it is well established that when hearing or reading the word “cat”, other related words get activated in our brains (“dog”, “mouse”, “milk”, etc). Is it same in children, or do these connections develop when their vocabulary is big enough? In Semcat1, we presented children with lists of spoken words, which were all from the same category (e.g. animals) or made of mixed categories (e.g. clothes and food items). In Semcat2 and 3, we did the same but this time we presented pictures, and not words. We tested 24 children in Semcat1, and found that children listened longer to the lists made of one category rather than the lists made of two mixed categories. In Semcat2 and 3, no such effect was found (but we are re-doing them with slightly different conditions to make sure). So we conclude that spoken words are already connected with each other at 18 months, which is a crucial finding to build up models of vocabulary development: now we know that we need to integrate these semantic links from very early on. However we need to run some control experiments, so you might be contacted for more of these!

FCV
Coll with *Thierry Nazzi, Universite Paris Descartes,*

23
babies

In this experiment, we played a little game with the children in which they were presented with objects bought in a DIY store, and they were told that they were named with made-up labels such as tag and tak. Then they were showed another object, and the experimenter said “Look, I have another tak! I put this tak in the cup. Could you please put the other tak in the cup for me please?”. With this kind of task, many studies before have found that French toddlers are better at picking the right object if the two labels differ by one consonant (as in tak/tag) rather than by one vowel (as in tak/tok). British kids, on the other hand, are equally good in both conditions. So, to determine whether the difference between French and English children is due to their life-long exposure to these two languages, or whether it is due to the sounds we use during the experiment, we carried out the same experiment with English children, but in French. This proved to be rather difficult, as half the children (about 12) we saw struggled when we switched to French (it is a difficult task already, so imagine when the language doesn’t make any sense to you). For the other half (about 11 so far) who completed it, the results show an equal success for items differing by consonants or vowels. This confirms that it is a lifelong exposure to English or French that results in different sensitivity to vowels or consonants. We are now left to explain what in these two languages produce these different linguistic behaviours!

PhonSem 2/4
PhD student Samantha Durrant

71
babies

We have now completed this study and the results have been published!!! We looked at how 2 and 4 year olds recognise words that they know. We were looking at whether hearing one word makes recognising a related picture easier. For example, does hearing cat make them look longer at a hat? And how far do these links between words go? Specifically, here we looked at whether a similar sounding word could link to a word with similar meaning (so mouse sounds like mouth and mouth is related by meaning to tooth). Children sat in a highchair and looked at a screen where an individual picture (e.g. mouth) was presented and then followed by a pair of pictures (e.g. tooth and duck) accompanied by the phrase ‘look, tooth’. If the infants have made these links they should look longer when the first picture is linked to the word they hear (this was not always the case, sometimes the pictures were for example frog and cup, hearing cup). The findings of this study show that even as young as two years old infants have made these links between words so that when they hear one of them the others are made ‘ready’ to be used or heard!! This just goes to show how good children are at learning words and using them!!

Studies- Age ranging from 21 months +

65
babies

PinG (21 to 36 months) *Dr. Allegra Cattani*

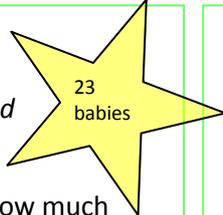
PinG is an Italian standardised test which is specifically designed to assess the early acquisition of linguistic properties of words heard and said; e.g. nouns, adjectives and verbs. This form of assessment is not yet available for English children. It is cheap, quick, easy to use and it has the potential to be standardised in English. This version will be called WING (Words in Game). In order to do this, we needed to compare PinG with some English language tests and word lists (English SET-K, PLS4, BPVS III and Oxford CDI). We have tested 65 children between the ages of 21 and 36 months. For the oldest age where we had the largest number of children the results look promising. The three forms of assessment consistently show a similar growth of knowledge of the children with positive relationships among BPVS III, PinG and the Oxford CDI; suggesting that PinG is a good test of the early acquisition of linguistic properties in English children. We are delighted to continue this work next year and look forward to seeing lots more children!

babylab



Nat's Bilingual Norms (3-3.5 years)

This study was part of Natalie Jago's undergraduate project dissertation supervised by Allegra Cattani



Most bilingual parents are curious to know how much English their child should be exposed to in order to perform well in both languages. The amount of exposure to English is correlated with the ability to learn words and the grammatical rules of the English language. 10 bilingual and 13 monolingual children aged between 36-43 months participated in two activities which involved the measurement of the child's ability to recognise simple words and early grammatical aspects of the language. Bilingual children displayed high variability in the degree of exposure of the two languages, for example 30% English and 70% Chinese or 70% English and 30% Chinese. More children will be needed to be investigated. From this study we expect to find a cut-off point of English input exposure where children's lexical and grammatical linguistic ability will be equivalent to their monolingual English peers. These data will drive future studies that will investigate how bilingual children can effectively be part of two languages to achieve as best as they can.

Morals (3.5 and 4.5 years)

Research conducted by Jessica Clements, Emma Prevett and Post Hoc Claire Delle Luche



Take this scenario...Joshua has stolen chocolate from Martha. As adults, we would recognise that Joshua's behaviour was wrong and should feel emotions such as sadness or guilt, but what would a child think? Previous research has suggested that children around the age of 4 would report Joshua to feel happy in this type of situation as they focus on what has been gained (the chocolate). We have designed a study that presents cartoons of similarly natured stories whilst tracking children's eyes. Preliminary results showed that 3.5 and 4.5 year olds tested in our Babylab have more mature expectations; they expected Joshua to be sad. This research is really promising and we are excited about continuing this research.

Monolingual and Bilingual Children Interpretations of Pictures (3.5-6 years)

This work was conducted by Research Assistant Christina Marx and supervised by Dr Marina Wimmer



In this research project we are looking at how children understand ambiguous pictures. How do children interpret pictures that can be two different things? For example, a circle could be interpreted as plate or as a balloon. Specifically, we are interested in whether there are differences between monolingual and bilingual children in the interpretation of these ambiguous pictures. Are bilingual children more flexible because they are required to do this in their language on a day-to-day basis? And how does this develop between the ages of 3 and 5?

Happy Victimiser (4.5 years)

Research conducted by Rachel Fowler, Alexandra Teichmann and Dr Michaela Gummerum



Understanding and anticipating other people's emotions is a major developmental achievement that allows humans to interact and communicate with others. Children's emotional understanding undergoes major developmental changes over the preschool years. In this study we investigated whether children's understanding of others' emotions is related to their "executive functions". Executive functions are abilities that are important for planning, decision-making, paying attention to important information, etc. We told children stories and asked them how a story character might feel after he or she had done something wrong. Children could respond in one of three ways: (1) by pointing to a feeling face with their finger, (2) by pointing to a feeling face with an arrow, (3) by waiting for 15s second before choosing a feeling face. We believe that children who point with an arrow and children who have to wait will more often say that the boy/girl feels bad. We also measured your child's executive functions with the 'Day-Night Stroop Task'. In this task, children have to say "day" when they see a picture of the moon and "night" when they see a picture of the sun. We have just started with data collection and still need more children to complete the study. Hopefully, in the next newsletter, we can tell you about our results.

This year has been particularly active in the Babylab, thanks to your growing participation, and also thanks to the involvement of our two placement students this year, Emma Corder and Emily Sullivan. You probably met them when you visited us: welcoming, enthusiastic, professional and very pleasant to work with. We wish them both an exciting final year of undergraduate studies in Psychology!

Caroline Floccia

Have your details changed since you signed up? If so please tear this form off and send it back to: FREEPOST, BabyLab - School of Psychology, University of Plymouth, Drake Circus, Plymouth, PL4 8AA. We will contact you as soon as we receive your form.

Name _____ Address _____ Post Code _____
Email _____@_____
Telephone number(s) _____