

HELLO!

Welcome to the Plymouth Babylab's annual newsletter for 2013! Firstly, we would like to say a very big thank you to all you lovely parents and children who have visited us this year and we hope you will enjoy reading about all of the ways you have helped us

NEWS

As you may well know, the Babylab moved to a lovely shiny, and very high tech, new home at the beginning of the year. Though we are still on the University Campus, just in the centre of town, we are now in the Portland Square Building. This has been a very big and exciting move for us and allows us to have a more specialised base and helps give you the best Babylab experience possible. We have also finally got some permanent signs up around the campus, so finding us has never been easier - simply follow the yellow signs and you can't miss us.

We have been very busy this year with lots of different studies running, some of which are now complete, with others still running and more exciting ones beginning. Thanks to all of our wonderful parents we have had almost 650 visits from mummies, daddies and children since September – an astounding number! This is particularly wonderful seeing as we have unfortunately been having a few issues with our emailing system this year. It seems that quite a few of our emails have been going into spam so please do watch out for us and if at all possible take us off your spam list. We wouldn't want to miss out on any lovely visits!

We have also had a total revamp of the Babylab website, making it much easier for you to see what we are doing. The new layout now shows you such things as our recent publications, information on the Babylab team members, our recent news and also gives contact information and detailed directions if you ever need us.

Everyone here at the Babylab is proud to share any new discoveries we have made about how children learn and we are therefore always very excited when we have the opportunity to attend conferences to present our work. This year, some of the Babylab staff have been lucky enough to visit Seattle and San Sebastian to tell people of all the new things you have helped us discover with your visits.

This year, we have had 4 project students working within the Babylab who completed research for their dissertations on the UK/US study (see below). Over the past year you may have met Lydia and Hannah who had taken a year out of their degree to gain experience within child language development. They will be leaving us this July to continue with their psychology degree and will be replaced by Jodie and Paul, who will start in September.



Age ranging from 5 to 12 months

Babynames

(5 months)

Doctoral researcher Dr Claire Delle Luche

This research is continuing. Infants can differentiate very fine differences in speech, noticing the consonant change in “ba-ba-ba-ba-da” sequence. When speech becomes meaningful, however, will they only recognise the exact form of a spoken word or a broad set of representations for that word?

Here, 5-month-olds (we now have 160 babies!) were presented with recordings of the first word they learn: their own name. They heard either their name or a slightly mispronounced version (e.g. Sam or Tham). Results so far show us that infants at 5 months already do recognise their name, preferring the correct version.



Fascinating rhythms

(5 months)

Dr Laurence White and Dr Caroline Floccia with Doctoral Researcher Dr Claire Delle Luche

Babies are surprisingly good at telling different languages apart. Speech rhythm – the flow of syllables, some louder and longer than others – seems to be important for this. However, some researchers claim that certain groups of languages are difficult for babies to distinguish – English, German and Dutch are claimed to have similar rhythms, different from those of French, Italian and Spanish. We played French speech to English five-month-olds for a few minutes and then either switched to Spanish or kept playing French. We found that babies were more interested when the languages were switched, which was also true if they were familiarised with Spanish and French was the unfamiliar language. This clearly shows that five-month-old infants can hear a difference between the two languages, an ability not predicted by previous theories. This suggests that rhythmic differences between languages such as French and Spanish may be greater than once thought, which could be important for how we teach our children to learn other languages.

ILV: Illegal and Legal Vowels

(9 months)

Dr Caroline Floccia and Lydia Gunning working in collaboration with Dr Katrin Skoruppa, UCL.

This study is a follow-up of a study we ran last year in collaboration with Essex. We look at what kind of information infants' use to break speech into words. That is, when they hear "What a lovely baby!" how do they know which parts are words and which are not? One possibility is for those who learn English is to track vowels. In English, long vowels can end a word, such as bee, or be inside a word, such as beep. Short vowels however cannot end a word (you cannot say beh). The idea is that if infants have discovered this rule, they can perhaps use this to decide that anything with a short vowel has to be within word. We have seen 24 children in a Head-Turn set-up, where they listened to made-up words ending with either a short vowel or a long vowel. Results so far indicate that they prefer the long vowel version, suggesting they prefer to listen to the words that follow the English rule of vowel durations.

UK/US: Infant-directed speech and word learning

(11 months)

Dr Caroline Floccia

When we talk to children, we all tend to adopt a special type of speech: we speak more slowly, we exaggerate the intonation, and we use simpler sentences. This infant-directed speech style (IDS) has been found to be very useful for infants to start learning sounds and words. There has been some suggestion that IDS is more exaggerated in the US than here, and we wanted to see whether children would be even more able to learn words when using a US-style IDS, or a UK-style one. We have tested around 20 infants so far, aged 11 months on average. At this point, we found that they are successful in learning words only in the US-style condition. This is quite a puzzling result as we predicted that they would still be able to learn the words in the UK-style condition. We might try and publish these results soon, as a lab in York has also found similar results.



ERP: How do babies process consonants and vowels?

(12 months)

PhD student Jacqueline Turner

We know that consonants and vowels play a different role in language processing for adults, but when do infants develop this ability? Jacqui's ERP is a passive listening task which looks at how 12 month olds perceive phonemes within syllables. If an infant listens to a train of 4 syllables such as "ta", and then a 5th syllable that might have a vowel change such as "ti" or a consonant change such as "ka", will there be any differences between how they process the consonant versus the vowel changes?

We have tested 40 babies for the ERP study and, so far, the results show us that infants' brain respond to vowels a lot quicker than they do to consonants. We are still analysing this data, but it's an exciting study and we look forward to having more results very soon!

Age ranging from 15 to 20 months

OC: Do 20 month old toddlers process consonants and vowels equally?

(16 and 20 months)

PhD student Jacqueline Turner

At 20 months old are infants better at detecting changes in familiar words if you change a consonant or a vowel? Will they notice a consonant change if it is at the beginning of the word or at the end of the word, and will they notice a vowel change?

In this study we presented toddlers with pairs of images and named one, half of the time using the correct name and half a mispronounced name e.g., "Bib" "Wib" "Bim" or "Beb".

We tested 40 infants and the results show that 20 month old infants process vowels and consonants equally. We also found that there are no differences between the consonants that are changed at the beginning of the word, with the consonants that are changed at the end of the word.

CCV and BOP: A virtual teacher

(16 and 20 months)

Doctoral Researcher Dr Claire Delle Luche

In this study, children were watching cartoons of a lady teaching the name of two objects one after the other. For the 16-month-old group, the names differed by a consonant (pag-pad) or by a vowel (tip-toop). Just like their French peers, we found that they are better at spotting the difference between consonants rather than vowels.

For the 20-month-old group, the differences were trickier, and we wanted to see if some consonants are more easily confused, like biv-bithe, and compare English learner performances with French learners. English children learn better words that differ on classic English sounds like "the", a sound French children have difficulties to learn.



SemCat: Do 18 month olds think about "dogs" upon hearing the word "cat"?

(18 months)

PhD student Samantha Durrant and Doctoral Researcher Dr Claire Delle Luche in collaboration with Professor Kim Plunkett, Oxford Babylab

This study wanted to test whether children would notice the difference between words that were related (e.g., cat, squirrel, penguin, horse) or not (e.g., mouth, bread, milk, arm) when just hearing these words. While some children would playfully point at their nose when hearing "nose", the results on all the children who participated show that indeed, they spot the difference!

We have just submitted a paper, and hope that the scientific community will be as thrilled as we are, since 18-months is now the earliest age where we show that children do pay attention to these "semantic links" between words.

ME: Learning new words

(18 and 24 months)

PhD student Samantha Durrant

Children are expert word learners. One way that they are thought to learn new word is using a strategy called Mutual Exclusivity. This is where they match a new word to an object they have no name for, based on the assumption that each word can have only one label. It has been found that bilingual children don't use this strategy for learning new words as for them each object does have two labels. We are looking at whether children hearing different pronunciations due to accents behave like bilingual children or monolingual children. We have tested 42 children aged 18 months so far and at this age we see that do not seem to use this strategy to learn a new word regardless of the accents they hear. We are now testing children aged 2 years to see if they use this strategy and have so far tested 20 children, so watch this space for results of that study soon.

Age 21 months +

Coda: Mispronunciations of familiar words

(21 months)

PhD student Samantha Durrant

It has regularly been demonstrated that children know lots about the sounds that make up the words they know. Even as young as 12 months children look longer to a picture of a cat when hearing the word 'cat' but not when hearing the word 'gat'. You may remember reading last year about a study we completed here showing that children who hear different accents at home are more flexible with these mispronunciations and still look at a picture of a cat when hearing 'gat'. This new study looks at the same topic but additionally changes the sound at the end of the word as well. This means we can explore whether the position of the mispronunciation in the word is important for recognising it. We have tested 21 children aged 21 months so far and still have many more to go. We will let you know the results soon...

Allophones: Word Recognition

(21 months)

PhD student Samantha Durrant and Hannah Jenkins in collaboration with Dr Laurence White

Children are really good at noticing small differences in the pronunciations of familiar words. However, studies we have done in the Babylab suggest that children hearing a range of pronunciations due to dialect differences are more flexible in what they accept as a name for an object, e.g. 'gat' for 'cat'. This new study looks at whether children accept a change to a word that they may have encountered in their input, regardless of dialect differences. This specific case is glottalisation, most noticeable in words such as 'water' where the 't' is not always obvious. The idea is that children will accept both pronunciations for words they heard both ways but when we make the change to words where this is less common only the children hearing additional dialects will accept these. This is because they have adapted to hearing greater variation due to their input and so are more flexible generally. So far we have seen 30 babies for this study with lots more to see before we can look at the results



WinG and BinG: Words in Game

(21 to 36 months)

Dr. Allegra Cattani, Cristina Naftanaila and Dr Caroline Floccia

In this study we are aiming to build a measure of direct observation suitable for English children of 21, 24, 27, 30, 33 and 36 months that can hopefully be used in health settings as first screening tools to assess children at risk of language difficulties. Children played a card game, in which we looked at their knowledge of nouns and verbs. Over 100 children visited us, while parents also filled out a report of vocabulary skills and another language assessment test matched for age. This was initially done with monolingual children, but thanks to promising results we expanded to bilingual children, hence the newly adapted name: BinG. We are currently expanding the geographical area for data collection from English children based in South-East and Midlands's nurseries. We are delighted to continue this work next year and look forward to seeing lots more children!

Phon: Word recognition at 24 months

(24 months)

Doctoral Researcher Dr Claire Delle Luche

Here, we wanted to see if there is a gradation in how badly a word can be pronounced. For example, children would see the picture of a bath and a book, and a voice over would say "Look! Bath", or sometimes with a bad pronunciation (e.g., bass or bash). This way, we will be able to see which of two theories predict better how children will treat these bad pronunciations. We have just started testing so patience is needed until we have enough babies!



Affordance

(4.5 years)

Doctoral Researcher Dr Claire Delle Luche and MSc Student James Colton

Research has revealed that when we see a cup with the handle on the right, we subconsciously activate the action of grasping it with our right hand in our brains, even if we have no conscious intention to pick it up. Is this a consequence of a lifetime of experience with objects, or is it due to an innate ability to generate appropriate actions for objects? Images of common household objects are presented on a screen and children are asked which ones they could eat, responding by either squeezing a large or small button. If the children's responses to large objects are quicker with the large button and vice-versa, this would suggest that this ability is either innate or develops very early in life. We have tested 43 children aged 4 years old so far but have many more to go before we can do the exciting bit and start looking at the results!

Movement Control

(3 to 6 years)

Dr Marina Wimmer and Charlotte Thomas

Past research has shown that watching a model perform a certain sports technique can help to improve sports performance more than just practicing alone. This research however has always been quite subjective as the only way to judge whether there has been an improvement is by observation.

We have designed a study where children will play a game of discus on the Xbox Kinect, watch a video of an adult with a good throwing technique, and then be asked to play again. Using the Xbox Kinect we are able to record exact movements so will be able to use this movement data to back up our findings with solid evidence.

When testing adults we found that watching the video did significantly improve their throwing technique. We are very interested to see if this pattern continues with children and if it becomes more effective as they become older.

Morals: Right from Wrong

(3.5 and 4.5 years)

Doctoral Researcher Dr Claire Delle Luche

As adults, we generally know that is morally wrong to steal from another person. Take a scenario where a child has stolen a chocolate from their friend: adults would recognise that the child's behaviour was wrong and may even state that the child will feel emotions such as sadness or guilt. With children however this can be rather tricky. Previous research has suggested that children around the age of 4 would report feelings of happiness in these types of situations 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 the child to be sad too. This research is really promising and we are excited about continuing this research.

As the Head of the Babylab, I am very proud to see, year after year, more and more visitors coming to our very dedicated research unit. The recently launched survey (which you can fill in after a visit) tells us how happy you are with your Babylab experience, and the large number of parents and children who come back again and again shows us that you enjoy taking part in infant research. We love to see your children growing, and gaining confidence in the Babylab, so please continue to visit us!

Dr Caroline Floccia

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