



LANGUAGE DEVELOPMENT LAB Newsletter

Summer 2010

Volume 1

Director

Dr. Chris Fennell

Grad Students

Annie Drouin

Sophie Godbout-Beaulieu

Tamara Hudon

RAs/Volunteers

Brock Ferguson

Meghan Spring

Zhen Xu

News

◇ Graduate student Annie Drouin is currently in the Dominican Republic, studying a group of deaf children who appear to be creating their own sign language.

◇ Good luck to research assistant Christine Frank, who has left the lab after 4 years to pursue graduate studies at Carleton University.

◇ Welcome to the new honours students, Gabrielle Cunningham and Liz McKeen.

Language Development Lab



Le labo du développement
du langage

From the Director

Let me begin by sincerely thanking all the parents and babies who have participated in our studies. We are learning so much about early language development, both in monolingual and in bilingual infants, from your participation, and we are happy to share these findings with you via this newsletter. Whether you have participated in a study or not, I would also like to thank you for your interest in our research. We think that language development is pretty cool and we are glad you do too! In this newsletter, we will tell you about completed, ongoing, and new research projects in the lab. As with all research enterprises, this work would be impossible without a dedicated research team. My graduate students and collaborators will share their findings as well. We are always happy to answer any questions you may have about our research or about language development during infancy. Feel free to contact us! Once again, thank you for your continuing support and ongoing interest.

Recently Completed

Television and Vocabulary

Recent research has indicated that young monolingual children do not learn words effectively from television and that these children's vocabularies are negatively impacted when television is often on, even when it is simply in the background (e.g., having the nightly news on while a child is playing in the room). Children with higher exposure to television have lower vocabulary sizes than children who are not often exposed. Researchers believe that this effect is due to the fact that parents are distracted by the TV and therefore spend less time interacting with their child, and language is best learnt through interactions. Only one previous study has been done with bilingual children and they found no effect of television. However, no researchers have directly compared monolinguals and bilinguals in the same study until now. Parents of monolingual English, monolingual French, and bilingual English-French toddlers completed questionnaires regarding their child's television exposure and vocabulary. For monolinguals and bilinguals, increased background exposure to television was related to lower vocabulary sizes. However, it is not all bad news: for bilinguals, the higher the overall exposure to television (which was mostly in English) the higher the bilinguals' English vocabulary. This research, designed and primarily carried out by a previous Honours student Matthew Hoftyzer, adds to the growing literature on the impact of TV on language development, and highlights the excellent contributions that young researchers can make to this field.

Our research is funded by grants from the Natural Sciences and Engineering Research Council of Canada, and the Social Sciences and Humanities Research Council of Canada.

Ongoing Studies

Ducks and docks, des bols et des bals... Vowel Discrimination in Monolingual and Bilingual Babies

We know from past studies that at as early as one month of age, monolingual infants can discriminate phonemic contrasts in languages that they've never heard before. For example, an English-learning infant can distinguish two **d** sounds from Hindi. Over the first year, however, they focus in on the language that they are hearing around them, and improve on these native-language phonemes while losing the ability to distinguish phonemic contrasts that exist in other languages. But what happens if the baby is hearing two or more languages in his/her environment? Do bilingual babies follow the same developmental pattern as monolinguals? In order to find out, we are testing three different language groups (English monolinguals, French monolinguals, and French-English bilinguals) at 4, 8, and 12 months of age on two vowel contrasts. One of the contrasts exists in both French and English, while the other exists only in French.

Do Babies Notice when a Sound Influences its Neighbour?

At 13 months of age, babies are in the midst of putting their ability to perceive phonemic contrasts to good use in word-learning. However, word-learning is at first a very challenging task; so challenging, in fact, that at this age babies still aren't very good at detecting small mispronunciations in a word that they have just learned (ex: if "bin" is mispronounced as "din"). In this study, we are trying to see if we can help infants succeed in detecting this mispronunciation by teaching them words with two syllables (ex: "goobin") instead of just one. The reason for this is because all sounds influence their neighbours: essentially, the **oo** sounds slightly different if it is followed by a **b** than by a **d**. If you're doubting me, try this experiment: put your hand slightly ahead of your mouth while saying "spit". Then say "pit". Even though both **ps** sound exactly the same to an English adult, you should be able to feel the difference in the sound waves: the **s** has influenced its neighbour, **p**.

Adults don't typically notice these types of differences, but if infants now succeed in detecting the mispronunciation in a two-syllable word when they failed with the one-syllable word, this could very well mean that they are sensitive to this extra acoustic information from the adjacent sound to help them distinguish the similar sounding words.

Bilingual Word Learning: Does Clarifying the Language Help?

In this study, we are examining bilingual infants' ability to learn new words when these new words are used inside of sentences (ex: "Look! Do you see the gem?" or "Regarde! Vois-tu le gem?"). In past studies, where the new words were always presented in isolation (ex: gem! gem! gem!), bilingual babies didn't learn these words as well as monolingual babies. One hypothesis was that bilingual babies were confused as to which language these words belonged to.

Now, by embedding the words inside of English or French sentences, we are clarifying the language. Results seem to suggest that, yes, bilingual babies are now performing as well as their monolingual counterparts in learning these new words.

What's a phoneme?

Here at the lab, we spend a lot of time thinking about phonemes. Phonemes are units of sound that are meaningfully different from one another in a given language. For example, **l** and **r** are both phonemes in English because the words "rate" and "late" mean different things. This is not true for all languages: what is a distinctive sound contrast in one language is not necessarily so in another. This is why, for example, a Japanese speaker learning English will often say **r** instead of **l** and vice-versa; the difference between the two sounds is not a phonemic difference in Japanese and is therefore very hard for a Japanese speaker to hear.

"...by embedding the words inside of English or French sentences...bilingual babies are now performing as well as their monolingual counterparts in learning these new words."

New (Really Exciting) Studies

Adjusting for Accented Speech

One major challenge that infants face when learning new words is the fact that different speakers will say the same word in slightly different ways: a man's voice sounds different from a woman's voice, which in turn is different from a child's voice. A speaker with a foreign accent will also have a slightly different pronunciation than a native speaker. Past studies have shown that young infants have difficulty with both gender and foreign accent differences, presumably because they have not yet learnt that these acoustic differences are irrelevant for identifying words.

We want to see if infants who are already hearing more variable production of phonemes at home (i.e. infants in a bilingual household) might be more willing to accept different pronunciations of the same word as "good enough."

Modeling Monolingual and Bilingual Language Environments

How well do infants track and remember the sounds that they hear around them? In order to find out, we will have infants listen to a series of different sounds which mimic an unfamiliar language environment. These different sounds – none of which exist in English or in French – are arranged in patterns where the most important sounds (for these unfamiliar languages) occur the most often. Then, we will test infants on their ability to distinguish these different sounds. We are predicting that infants' performance on a specific sound contrast will depend on how important (i.e., frequent) the sound was in the simulated language environment that they were just exposed to.

Eventually, we plan on extending this study to simulate a bilingual language environment. Obviously, the patterning of sounds would be drastically different from a monolingual environment, since some sounds would be shared between the two languages (and so occur a lot more often), while others would be unique to one or the other (and thus occur a lot less). Will we see any difference in infants' ability to track a bilingual pattern of sounds as opposed to a monolingual one?

"...young infants have difficulty with both gender and foreign accent differences, presumably because they have not yet learnt that these acoustic differences are irrelevant for identifying words."

Participating

If you are interested in participating with your baby (4-24 months of age), you can contact us by phone (613-562-5800 x4447) or email (ldl@uottawa.ca). Alternately, you can fill out an online registration form at www.ldl.uottawa.ca.

If you've already participated in the past, thank you! Our research could not happen without you.

Recent Publications and Presentations

- Fennell, C. T., & Waxman, S. R. (in press). What paradox? Referential cues allow for infant use of phonetic detail in word learning. *Child Development*.
- Fennell, C. T. Two languages in one tiny head: Bilingual word learning in infancy. Carleton University Institute of Cognitive Science, Ottawa ON. *Keynote address at the Cognitive Science Spring Conference*.
- Fennell, C. T., Hudon, T., & Spring, M. French-English bilingual infants' discrimination of vowel contrasts. Ottawa, ON. *Development 2010: A Canadian Conference on Developmental Psychology*.
- Fennell, C. T., van der Feest, S., & Spring, M. Perceptual asymmetries of consonants at 14 months: Implications for phonological acquisition. Baltimore, USA. *17th Biennial International Conference on Infant Studies*.
- Fennell, C. T., & Byers-Heinlein, K. Cues to a word's language boost infants' learning of minimal pairs. Baltimore, USA. *17th Biennial International Conference on Infant Studies*.

