

# Brown Bag Meetings On Atypical Development



Celebrating the partnership with the Curry School of Education at the University of Virginia (Charlottesville, USA), the Chair of Augmentative and Alternative Communication (Faculty of Social Sciences) has organized a series of Brown Bag Meetings in June 2015.

Students and researchers with an interest in atypical development in language, literacy, communication and motor skills are invited to join our lunch sessions. Bring your own lunch!

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## Program

<b>Monday June 1<sup>st</sup></b> <b>12:00 – 1:30 pm</b> <b>Spinoza A01.12</b>	<b>Prof. dr. Filip Loncke:</b> The study of speech and language processes has interesting implications and applications for Augmentative and Alternative Communication (AAC)
<b>Wednesday June 3<sup>rd</sup></b> <b>12:00 – 1:30 pm</b> <b>Spinoza A01.12</b>	<b>Moniek Schaars, MA:</b> Early reading development in Dutch readers <b>Evelien van Wingerden, MSc:</b> Attainment of reading comprehension in children with Intellectual Disabilities <b>Mark van den Bunt, MSc:</b> Response to altered auditory feedback (AAF) in reading and reading development
<b>Friday June 5<sup>th</sup></b> <b>12:00 – 1:30 pm</b> <b>TvA 8.12</b>	<b>Lian van Berkel-van Hoof, MA:</b> The effect of augmentative signs on word learning by children who are deaf/hard of hearing and children with Specific Language Impairment <b>Prof. dr. Hans van Balkom:</b> Intervention strategies in AAC
<b>Monday June 8<sup>th</sup></b> <b>12:00 – 1:30 pm</b> <b>Spinoza A01.12</b>	<b>To be announced</b>
<b>Monday June 15<sup>th</sup></b> <b>12:00 – 1:30 pm</b> <b>Spinoza A01.12</b>	<b>Prof. dr. Harry Knoors:</b> Educating deaf learners: towards more evidence based practices <b>Prof. dr. Bert Steenbergen:</b> Motor disabilities and rehabilitation
<b>Thursday June 18<sup>th</sup></b> <b>12:00 – 1:30 pm</b> <b>TvA 8.12</b>	<b>UVa students:</b> Wrap up UVa Exchange highlights

## Abstracts

### Prof. Dr. Filip Loncke

What is a word? What is speech? Can and should speech and language processes be emulated in alternative modes? How does AAC deal with word finding, lexical organization, syntactic programming, monitoring and feedback, and multimodality? Are graphic symbols an equivalent of words, or an equivalents of pre-verbal concepts? Is the voice synthesis used in AAC the best possible solution? These and other questions relate to the problem which cognitive or linguistic framework helps us best in understanding the nature of communication through non-speech means, and may give a direction to research and development of applications.

### Moniek Schaars, MA

During this presentation, I want to tell you something about my research on early reading development. The purpose of this talk is to encourage you to think about the way children learn to read in specific languages. In the presented study, 973 Dutch children were systematically exposed to incremental subsets of Dutch letter-sound correspondences. To uncover how children systematically built a full ability of word reading, monthly word reading measurements were taken. The results showed that right from the very beginning, children attained ceiling levels of word reading accuracy while they showed ongoing growth in word reading efficiency (fluency). Analysis showed great individual stability in the development over time. Furthermore, the development of word reading efficiency was found to be related to children's phonological awareness, rapid naming, and verbal and visual short-term memory. This talk highlights the importance of fine grained attendance to the first developmental phases of learning to read.

### Evelien van Wingerden, MSc

The comprehension of a written text involves many different types of skills and knowledge. The processes involved have been studied extensively in individuals with a typical development. Much less is known about the reading acquisition of children with intellectual disabilities (ID). Children with intellectual disabilities are able to acquire basic literacy skills, yet their level of literacy can vary greatly. When children with ID do succeed in acquiring word decoding skills, specific problems occur in reading comprehension. These problems are mainly found in implicit comprehension and less so in explicit comprehension. Currently, little is known about their linguistic and cognitive correlates of literacy acquisition. The present study aimed to identify the main precursors of literacy acquisition in children with ID.

In the present study, 81 children with mild ID (age 9,5 – 10,5 years) were tested on phonological awareness, word decoding skills, language comprehension, implicit and explicit reading comprehension, memory and reasoning. The connection patterns resembled the patterns of typical children who are in the first grade of primary school. The acquisition of literacy skills is delayed, but is not substantially different from typically developing children.

## Mark van den Bunt, MSc

There is a large consensus that phonological processes, and more specifically, the quality of and/or access to phonological representations, are causally related to Reading Disorders (RD). Current theory suggests that the quality of phonological representations depends on the integrity of speech sensory and speech motor feed-forward and feedback mechanisms (Guenther, Ghosh, & Tourville, 2006; Hickok, Houde, & Rong, 2011). Applying online auditory altered feedback during speech production while measuring the subsequent speech realizations directly measures these underlying mechanisms and might yield a more sensitive measure of what is awry in RD as compared to classical predictors of reading ability. We tested 26 adult typical readers and 22 adults with RD and show that adults with RD show a stronger response to AAF and do return less to baseline after the AAF has been shut off. Preliminary results of the response to AAF in a large (>50) cohort of children will be discussed too.

Preparatory reading:

Guenther, F. H., Ghosh, S. S., & Tourville, J. A. (2006). Neural modeling and imaging of the cortical interactions underlying syllable production. *Brain and Language*, 96, 280–301.

doi:10.1016/j.bandl.2005.06.001

Hickok, G., Houde, J., & Rong, F. (2011). Sensorimotor Integration in Speech Processing: Computational Basis and Neural Organization. *Neuron*, 69(3), 407–422. doi:10.1016/j.neuron.2011.01.019

## Lian van Berkel-van Hoof, MA

**Introduction** Augmentative signs and gestures (meaningful movements, usually of the hands, that accompany speech and are part of the communicative message) have been shown to aid word learning for typical populations (e.g., Goldin-Meadow & Alibali, 2013). The augmentative sign/gesture creates an extra ‘path’ to the mental lexicon (besides the path created by the auditory signal), which strengthens memory and recall. Results on augmentative signs and other audiovisual language processing in Deaf/Hard of Hearing (DHH) children (e.g., Bode & Knoors, 2003) and children with Specific Language Impairment (SLI) (e.g., McGregor, 2008; Voogt, 2009; Weismer & Hesketh, 1996) are, however, inconclusive. Some research suggests augmentative signs might create a cognitive overload for DHH and SLI children, while other research shows a beneficial effect of augmentative signs, or no effect at all.

**Purpose** We aim to investigate whether augmentative signs facilitate word learning for DHH and SLI children as compared to words presented to the children without a sign.

**Method** We conducted a word learning experiment, in which DHH and SLI children (9-11 years old) and a group of age-matched typically developing (TD) peers were presented with nonsense pictures and pseudo words. Half of the words were accompanied by an iconic pseudo sign. The children were tested for their passive word knowledge.

**Results** Results show that the DHH children recognised significantly more words that had been presented to them with a sign as compared to those without one. The SLI and TD children, however, did not show a main effect of sign.

**Conclusions** The difference between previous research and the SLI and TD groups may be caused by the present study’s focus on learning pseudo words with nonsense pictures, as opposed to learning second language words with pictures of existing objects in previous studies. The DHH children possibly show a different pattern because of their experience with Sign Language. More research is needed to find out what caused these results.

Bode, D., & Knoors, H. (2003). Het effect van het gebruik van gebaren op de woordproductie van kinderen met specifieke taalstoornissen. *Van Horen Zeggen*, 44(1), 4-9.

Goldin-Meadow, S., & Alibali, M. (2013). Gesture's role in speaking, learning, and creating language. *Annual Review of Psychology*, 64, 257-283. doi: 10.1146/annurev-psych-113011-143802

McGregor, K. (2008). Gesture supports children's word learning. *International Journal of Speech-Language Pathology*, 10(3), 112-117. doi: 10.1080/17549500801905622

Voogt, M. (2009). Een gebaar: Zomaar een handbeweging of ook effectief? Het effect van het gebruik van ondersteuning met gebaren (NmG) op het begrip van de instructie bij kinderen met specifieke taalstoornissen. Master thesis, Radboud University, Nijmegen.

Weismer, S., & Hesketh, L. (1996). Lexical learning by children with specific language impairment: effects of linguistic input presented at varying speaking rates. *Journal of Speech and Hearing Research*, 39, 177-190.

### **Prof. Dr. Harry Knoors**

In this presentation I will first of all highlight the primary challenges in educating deaf learners, one of the major ones being the provision of access to communication and language. Subsequently, I will point out some successful developments, but I will also illustrate the lack of a firm evidence base for many practices in deaf education. Finally, I will give some examples of research projects Royal Dutch Kentalis and the Radboud University (have) conduct(ed) to strengthen this evidence base.

### **Prof. Dr. Bert Steenbergen**

The research group "Beweging in Zicht" supervised by Prof. Dr. Bert Steenbergen aims to make a direct connection between (fundamental) research and societal practice in children with visual and physical impairments. In this presentation I will give an overview of our research projects.