LIBC-Junior Symposium Educational Neuroscience

Poortgebouw Rijnsburgerweg 10, Leiden

Programme

09:30-10:00	Registration, coffee
10:00-10:20	Welcoming address plus introduction LIBC Junior by Dr Eveline Crone and introduction Symposium Educational Neuroscience by Dr Paul van den Broek
10:20-11:20	Dr Usha Goswami (University of Cambridge, UK), "*Brain Science and Education: A Cognitive Perspective*" including question/discussion time
11:20-11:40	Coffee break
11:40-12:10	Dr Janet van Hell (Radboud University Nijmegen & Pennsylvania State University), *"Lexical development in child second language learners: Electrophysiological and behavioral evidence"*
12:10-12.40	Dr Paul van den Broek (Leiden University), *"Inferential processes during reading comprehension by proficient and struggling readers"*
12:40-13:40	LUNCH
13:40-14:10	Dr Paul Leseman (Utrecht University), *"Verbal working memory development in bilingual preschoolers – where biology and culture meet"*
14:10-14:40	Dr Jeanet Bus (Leiden University), "*An eye movement study of kindergarten children while they are read to from an alphabet book" (Previous studies have shown that children know the first letter of the proper name or 'mama' before any other letter. The study tests how familiarity with names affects visual attention in alphabet books)*
14:40-15.10	Dr Ludo Verhoeven (Radboud University Nijmegen), t.b.a.
15.10-15.30	Concluding Remarks

Lunch and coffee/tea will be provided.

For more information, please contact Marianne ter Kuile, Kuilemfter@fsw.leidenuniv.nl

For a route description to the Poortgebouw:
http://www.visitors.leiden.edu/buildings/poortgebouw.html

Abstracts:

Usha Goswami: Brain Science and Education: A Cognitive Perspective

The study of how the brain learns - neuroscience - has potentially great benefits to offer education, yet the discipline of educational neuroscience is in its infancy. In this talk, I describe some basic parameters of how the brain learns, and discuss recent neuroscience studies with particular relevance to educational questions. I also discuss some engaging "neuromyths" that have emerged, which mis-represent what neuroscience can offer. Finally, I offer suggestions as to how our increased understanding of brain development and brain function can be used to explore educational questions

Paul Leseman: Verbal working memory development in bilingual preschoolers – where biology and culture meet

Verbal working memory, in particular the capacity to store phonological information as measured with digit span, word or nonword recall, and listening span tasks is strongly related to the development of vocabulary, mean length of utterances, syntactic diversity, and language and reading comprehension, both in the first and in a second language. According to current theorizing, verbal working memory acts as an interface between language input and language learning. Longitudinal and cross-sectional research revealed that the capacity to temporarily store verbal information grows over time. Originally, the explanation was that children become increasingly skilled in using the rehearsal mechanism to maintain phonological information in verbal short term memory. Rehearsal, however, is not observed in children under age 6, whereas the increase in capacity is especially notable in the period before age 6. Is verbal working memory development a matter of biology, that is, maturation, *or* culture, that is, dependent on language acquisition?

According to recent research, including studies from our own lab that will be discussed in more detail in this presentation, the capacity and accuracy of verbal short term storage depends on interaction with long term language knowledge. For instance, well-entrenched knowledge of the speech sound distribution of a language (called the *phonotactics* of that language) support verbal short term memory capacity probably by a mechanism of redintegration (refreshing and repairing) of the decaying representations in short term memory. Children who are successive second language learners have similar verbal short term memory capacity in their first language, measured with nonword recall using *first-language-like* nonwords, but considerably less in the second language, probably as a consequence of less exposure to the second language. Indeed, there is suggestive evidence that the *growth* of verbal short term memory is reciprocally related to the *growth* of phonotactic and semantic knowledge, which in turn depends on language input.

The educational implications will be discussed, with special reference to young second language learners at risk for educational failure.