Assessing individual differences in cognitive ability through speech-based tasks: Attention-shifting and inhibition control in L2 phonology

This talk will address methodological issues in the design of tasks that aim at obtaining measures of cognitive skills involved in second language (L2) phonological development and will present results of recent research investigating the relationship between cognitive factors and learners’ accuracy in L2 sound perception and production. The overall objective of this research is to gain a better understanding of the contribution of cognitive skills to explaining individual differences in L2 learners’ pronunciation skills and to develop more efficient training methods for L2 phonological acquisition. The importance of measuring cognitive skills through speech-based tasks that specifically tap on learners’ attention-based resources will be illustrated by reporting on the results of studies investigating the role of attention and inhibitory control in L2 sound perception and production. The findings so far suggest that such cognitive skills may be important predictors of perception and production accuracy in the L2, but the way they interact with the various levels of phonetic and phonological processing of L2 speech and their role in L2 sound category formation is still not well understood. We will suggest and discuss future directions of research on the role of individual differences in L2 phonological development.

A current study by Safronova focuses on the attention-shifting skill and L2 vowel perception. It has been widely observed that speech processing in the L1 and the L2 is different in terms of ease and efficiency. In contrast to automatic and highly efficient L1 processing, L2 processing is believed to require more attention control (Kormos, 2006; Segalowitz, 2010). This talk will discuss previous findings on the role of attention control (operationalized as the ability to shift attention among different sets of linguistic relationships [Isaacs & Trofimovich, 2011; Segalowitz & Frenkiel-Fishman, 2005]) in L2 acquisition and will present new developments on the role of attention in L2 vowel perception based on our ongoing research with adult Spanish/Catalan EFL learners in the University of Barcelona. This research investigates the extent to which inter-subject variation in L2 phonological competence may be explained by individual differences in learners’ ability to shift attention efficiently between the temporal and spectral dimensions of L2 vowels. A novel speech-based attention-shifting task was developed to obtain a measure of learners' phonological attention control, which was then related to their discrimination accuracy scores in the perception of an L2 vowel contrast. The results of these experiments suggest that phonological attention control is involved in the processing of L2 speech, facilitating target-like phonetic cue-weighting. These findings will be discussed in light of the role of individual differences in L2 phonological development.