

## **2. The acquisition of sign language phonology in deaf children: relationships with age, receptive language and fine motor skills**

Studying sign languages allows us to ask questions about the universal nature of children's development of phonological processing skills. This cross-linguistic study is grounded on research with hearing subjects, using non-word repetition tasks, and the applicability of its findings for research with deaf sign language users. One of the main objectives of this investigation is to examine the impact caused by a change in modality on the role of phonological working memory in non-sign repetition. Non-word repetition paradigms in spoken language measure the child's ability to create, store and retrieve novel phonological representations. Stimuli can be manipulated to investigate the impact of different phonological factors on repetition accuracy, e.g. by increasing the number of syllables or the phonological complexity of items. Phonology in sign languages such as British Sign Language (BSL) relies on the integration of visual information that is often produced simultaneously (Brentari, 1998). In the present study, we examine the role of development in short-term phonological memory as well as phonological processing skills in young deaf children who use BSL. To appropriately measure participants' phonological memory and processing skills, a nonsense sign repetition task (NSRT) for BSL was developed. This computer-based task looked specifically at children's processing of single signs with increasing phonological complexity. Forty items were created by manipulating phonological complexity (specifically handshape and movement) in a number of different ways. Performances were compared to participants' motoric control development and lexico-grammatical skills. So far, the test has been administered at 12 UK-based schools to a total of 97 deaf children between the ages of 3 and 11 years. In addition, a group of 54 hearing children without previous exposure to any signs served as control group. Preliminary results from 65 deaf participants show an effect of development, suggested by a strong correlation between age and repetition accuracy. Results also suggest that participants are more likely to make errors that involve handshape (e.g., replacing a marked with an unmarked handshape) than errors related to movement (e.g., replacing a straight path with an arc path, moving in the wrong path direction, adding or deleting hand-internal movement). The number of these error types decreases over age although the number of errors related to handshape remains higher than for movement. Overall, the results suggest children's sign language development is related to phonological processing skills, motor control development and lexico-grammatical growth. More specifically, we see remarkable similarities regarding children's abilities in storing and repeating non-sense signs with the results with non-word repetition tasks despite the difference in modality.

Brentari, D. (1998). *A Prosodic Model of Sign Language Phonology*. Cambridge, MA: MIT Press.