



How do deaf children make signs?

- The Nonsense-Sign Repetition Project

Wolfgang Mann, Chloe Marshall, and Gary Morgan



Phonology is a subfield of linguistics which studies how meaningless units of a language are combined to create larger, meaningful ones (words in spoken languages, signs in signed languages). In a spoken language such as English, these meaningless units are sounds, such as 'n', 'a' and 'p'. Sounds can be put together to create different words, as in 'nap' and 'pan'. The meaningless units of a sign language such as BSL include a range of different parameters such as handshapes, orientations, locations and movements. These parameters are combined in different ways to change meaning. For example, in BSL, a meaningless unit would be the location of the sign in NAME (forehead) and AFTERNOON (chin).

Just as in English children find some sounds harder to learn than others ('th' and 'r' are particularly difficult), in BSL some aspects of signs are harder to learn than others. With regards to handshape, for example, some handshapes are very common, easy to produce, and easily distinguishable from other handshapes. These are readily learnt, even by young children. Other handshapes are less common, and are harder to produce and to perceive, so they are learnt later. Linguists call easy handshapes 'unmarked' and more difficult ones 'marked'.

For instance, take the sign for MIRROR shown in figure #1. Mirror uses an unmarked handshape, with the thumb and all fingers extended.

Figure 1



An example of a marked handshape is in the sign for NEW YORK (see figure #2)

Figure 2



In BSL, unmarked handshapes (see figure #3) are found in half of all signs.

Figure 3



Another aspect of signs that can be difficult to learn is when a sign contains two simultaneous movements, known as a 'movement cluster' (e.g., THROW). Sometimes young children delete one of the movements or produce them one after the other instead of at the same time. And you can imagine that signs with a marked handshape and a movement cluster, which are really complex, would be particularly difficult for young children to learn!

We are interested in studying how deaf children between the ages of 3 and 10 years learn different aspects of phonology, such as marked handshapes and movement clusters, in order to understand more about the nature of BSL and how it is acquired.

The Nonsense-Sign Repetition Task:

For our study, we developed a quick assessment test specifically for children who are deaf and who are learning BSL. In this computer-based test, participants are shown a series of nonsense signs (signs that could be real signs of BSL but have no meaning) and have to repeat them with a brief delay. This task requires perception and production skills from the deaf participants, as well as the ability to remember each sign for a short time until they are asked to repeat it. Respondents are videoed while repeating the signs and we later score how accurately they repeated different phonological aspects of the sign, such as handshape and movement (for examples of nonsense signs, see figures 4 & 5)

Figure 4



Figure 5



One of our long-term goals is that this tool could become a useful assessment tool for speech and language therapists who work with deaf children. Currently, there are very few language assessment tests that are appropriate for deaf children, and none that specifically target phonology.

For our project, we collected data from 100 deaf children aged 3-10 years at schools/services for the Deaf throughout the UK. In addition to the Nonsense-Sign Repetition Task, we administered two motoric skills tasks and compared the results in order to see whether fine motor skills predict sign language ability. In one task participants were asked to thread a number of beads on a string. In the other, they used their thumbs/index fingers to do the 'itsy-bitsy-spider'. Both tasks were timed. Each child was tested individually, and the testing took between 15 and 20 minutes. Children's performance on the Nonsense-Sign Repetition task was also compared to their results from a BSL comprehension test (BSL Receptive Skills Test, Herman et al., 1999) that is regularly administered by most schools.

Over the summer we have been scoring and analysing the data from all our deaf participants. The first results show that children repeat nonsense-signs more accurately as they get older, which is not surprising. However, they find it harder to repeat handshapes than hand internal or path movements. Furthermore, as nonsense-signs increase in phonological complexity, children find them harder to repeat. Findings also indicate a relationship between deaf children's ability to repeat nonsense-signs, their scores on the BSL comprehension test and their fine motor control. Overall, the results suggest that the acquisition of phonology and fine motor control are very important for children's sign language development.

References:

Herman, R., Holmes, S. & B. Woll (1999). **Assessing BSL Development - Receptive Skills Test**. Coleford, UK: The Forest Bookshop.

Contact Info: Wolfgang Mann, Deafness Cognition and Language Research Centre, 49 Gordon Square, WC1H 0PD, London, email: wmann@ucl.ac.uk.

