

## **The Phonological Skills Test for BSL (PST-BSL) – project update**

### **Project background**

We were interested in studying how deaf children between the ages of 3 and 11 years learn different aspects of phonology, such as marked hand shapes and movement clusters, in order to understand more about the nature of BSL and how it is acquired. For our study, we developed a quick assessment test specifically for children who are deaf and who are learning BSL, the Phonological Skills test for BSL (PST-BSL). In this computer-based test, participants were shown a series of nonsense signs (signs that could be real signs of BSL but have no meaning) and had to repeat them with a brief delay. This task required perception and production skills from the deaf participants, as well as the ability to remember each sign for a short time until they were asked to repeat it. Respondents were videoed while repeating the signs and we later scored how accurately they repeated different phonological aspects of the sign, such as hand shape and movement

Following a London-based pilot study, a revised version of the PST-BSL containing 3 practice items and 40 test items was produced and administered to 99 children throughout England and Scotland for standardization. None of the children who participated in the pilot took part in the standardization study. Children previously diagnosed as having additional disabilities were excluded from the sample.

In addition to the PST-BSL, all children completed a timed bead threading task. The purpose of this task was to measure children's fine motor skills and to compare these scores with their performance on the PST-BSL. Children's PST-BSL scores were also compared to their most recent scores on the BSL Receptive Skills Test as a measure of validity of the PST-BSL.

### **Aims**

The aims of this study were:

- to carry out the tests on large numbers of children in order to derive age norms (standardized scores) for the PST-BSL
- to compare test scores of children according to their exposure to BSL or lack thereof (via hearing control group)
- to further investigate the reliability of the test through use of alternate test forms

- to examine the relationship between deaf children's phonological skills and their wider language skills
- to examine the relationship between deaf children's phonological skills and their motor skills

The results of 91 children (60 boys/31 girls) were included in any further analysis. For 6 of the 99 participants, the test was aborted after the child missed more than 5 consecutive items. The two remaining children refused to take the test. All of these participants were in the youngest age group.

## **Results**

Results showed, as in the pilot test, that children made most errors on the most phonologically complex non-signs. There were more errors for hand shape and internal movement than there were for path movement.

### *Test reliability*

We found an overall high Inter-rater agreement (85% for overall score, 88% for Hand shape, 87% for Path Movement, and 83% for Internal Movement).

### *Correlation of PST-BSL scores with BSL Receptive/Bead Threading Test scores*

We investigated whether there was a relationship between children's scores on the PST-BSL and their scores obtained on the BSL Receptive Skills Test and the Bead Threading Task. Even when age was not included in the analysis (because as children get older they are expected to get better at all tasks), there was a significant correlation between PST-BSL scores and BSL Receptive Skills Test scores, and between PST-BSL scores and Bead-Threading Task scores. This shows that phonological abilities are related to more general sign language abilities. The influence of motor skills on children's performance on the PST-BSL was particularly strong amongst younger children. For older children, the motor demands of the PST-BSL are less likely to be an issue.

## **Test standardization**

For the standardization of the PST-BSL, we have converted participants' raw scores converted to standard scores. Currently, we are preparing a test package trial version on DVD to be given to other researchers and the participating schools shortly. Based on the feedback we receive from these groups of users, we plan to revise the test and make it commercially available.

### **Related projects**

Although the non-sign repetition project is finished, we are still running other projects to investigate Deaf children's sign language development. We have three new projects starting up: Wolfgang Mann will be developing an assessment of children's BSL vocabulary, Chloe Marshall will be investigating the relationship between working memory and language ability in Deaf children, and Gary Morgan will be studying Theory of Mind and social cognition in young Deaf children. We also have an ongoing project investigating Specific Language Impairment in Deaf children lead by Katie Mason and Kate Rowley which was introduced during our DCAL information event at the end of last year.

You may have already been directly contacted about some of the new projects or will be approached by us in the near future. At the same time, please feel free to get in touch with us if you would like to know more about the non-sign repetition project or any of the other projects.

Thank you for your continued interest and support of our research!

Wolfgang Mann  
Chloe Marshall  
Gary Morgan