Word Recognition in Children who are Deaf and Sign
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Background
How deaf readers recognize written words is not well understood. Deaf college students who sign have been found to use phonological decoding (Hanson & Fowler, 1987), but deaf children who speak have not (Waters & Doehring, 1990). We ask here whether school-age children who are deaf and sign use alternate means to decode written words. Two possibilities are fingerspelling and sign decoding. Both kinds of coding have been observed in adult readers who are deaf and sign (Treiman & Hirsh-Pasek, 1983). Fingerspelling has been found to improve deaf student’s word recognition (Hirsh-Pasek, 1987) and correlate with reading (Padden & Ramsey, 2000). Deaf children have been observed to use fingerspelling as they write (Transler et al., 1999).

Participants
48 students participated who had the following characteristics: (1) Age range from 7 to 16 years; (2) born severely or profoundly deaf; (3) educated with sign and speech since the age of 3; (4) 50% have deaf parents; (5) 50% are girls. Reading levels ranged from grade 1 to 8 as measured by the SAT.

Experiment I: Spelling-Sound Correspondence

Word recognition in relation to spelling-sound correspondence was measured with a lexical decision task. Stimuli were 152 words and nonwords. Words were of 5 spelling-sound categories: Regular (bust, dust); regular inconsistent (brave, cave); irregular consistent (meal, log); irregular inconsistent (flag, hurt); and strange (yacht, laugh) from Waters & Doehring (1990). Word recognition in relation to spelling-sound correspondence was measured with a lexical decision task. Stimuli were 160 words and nonwords. Words were of two translation types: Consistent sign-word relation (flag, hurt); Inconsistent sign-word relation (meal, log); such English words are typically fingerspelled in ASL.

Experiment II: Sign-Word Correspondence

Beginning readers recognized more words with consistent sign-word relations than words with inconsistent relations. More advanced readers (grade 5-8) recognized words equally well, independent of sign-word relationship. This suggests that beginning deaf readers use their sign lexicon in some way as they learn to read.

Experiment III: Fingerspelling and Reading Vocabulary

Word recognition in fingerspelling was measured with a lexical decision task. The stimuli of Experiment II were used but presented in fingerspelling on a computer screen (one letter at a time).

Discussion & Conclusions
Deaf readers who sign do not show sensitivity to spelling-sound correspondence in lexical decision the way hearing readers do. These findings are similar to those for deaf readers who know no sign (Waters & Doehring, 1990). Beginning readers recognize English vocabulary they know in sign before other words up to a grade 3-4 reading level; in lexical decision, they recognize these words more quickly and accurately up to a grade 5-6 reading level. They also show a larger sight vocabulary in print than in fingerspelling up to a grade 3-4 level. Although sign-word correspondence shows effects on beginning written word recognition, it shows no effects on fingerspelling recognition. Together these findings show that written word recognition by children who are deaf and sign is complex and entails multiple forms that become integrated over time with increasing reading proficiency.

References

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