Metalinguistic skills and vocabulary knowledge in ASL synonyms and antonyms in Deaf children

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Research Question: Are there differences in metalinguistic skills in the error patterns of Deaf Children with Parents (DCDP) versus Deaf Children with Hearing Parents (DCHP)?

What This Study Hoped to Explore

Vocabulary knowledge is one window into furthering our understanding of metalinguistic awareness in language knowledge. It is any natural language that serves communicative needs. ASL, has many synonyms and antonyms. To fully learn these forms, Deaf children require interaction with sign language users and the Deaf community, just as the acquisition of fluency in any language requires interaction with its community of users. The task described in this study has been used to examine the development of synonyms and antonyms in ASL in over 300 Deaf children at two bilingual-bicultural schools for the Deaf in the eastern United States.

There is very little information available on the Deaf children’s ASL vocabulary development and metalinguistic knowledge compared to Hearing children’s English development. An understanding of synonym and antonym knowledge in Deaf children has the potential to provide us with greater insight into both extent and depth of their vocabulary knowledge and the related underlying metalinguistic skills. The goal of this study is to examine metalinguistic judgments of synonyms and antonyms and the error patterns Deaf children make in ASL in order to determine vocabulary knowledge.

Hearing Children’s Knowledge of Synonyms/Antonyms

Research confirms that synonym and antonym development is a complex metalinguistic task that requires understanding of the nuances of a language (Stahl, 1999; Charles, Reed & Derryberry, 1994). Yet, it is a skill most children with access to language generally develop naturally. It is related to metalinguistic ability and possibly theory of mind (Doherty & Perner, 1998).

Vocabulary and Deaf Children

Deaf children have been found to have typical conceptual development and often excel at visual-spatial tasks compared to hearing children. Many studies examining neuropsychological or metalinguistic skills in Deaf students have used English tasks, leading to erroneous conclusions about general language knowledge. Research has demonstrated a link between proficiency in ASL (L1) and English reading (L2) skills in Deaf children (Hoffmeister, 2000, 2005; Strong & Protz, 1997). This evidence supports Cummins’s Common Underlying Proficiency Hypothesis (CUP) which states that interdependence of concepts, skills, and linguistic knowledge make transfer possible between one’s L1 and L2 (Cummins, 1979, 2000). It has been shown that students with stronger ASL skills are also strong academic learners (Cragg, Knobloch, 2004), and better readers (Mayberry, Waters, & Chamberlin, 2001). Mayberry et al. (2001) suggest that the bilingual Deaf students are more prepared to encounter new linguistic structures in their second language than those students who do not have a firm linguistic foundation in ASL.

Metalinguistic Skills in Deaf Children

Deaf children are often tested using linguistic skills tasks that have not been developed using natural properties of signed languages, which have led to erroneous conclusions about their language knowledge because these tasks do not test the children’s actual linguistic capabilities. Due to these poorly designed tasks, previous studies on synonym in Deaf children have falsely concluded that Deaf children are delayed in their metalinguistic abilities and have have “improved semantic representations” which resulted from “improved educational experiences” that led to a lack of word knowledge (Strassman, Kretschmer, & Billiky, 1987, cited in Davie & Kind, 1990, p.224; Norman, Shooner-Fisher, Tayler, Draper, Naudelinck, 1988). These beliefs, based on English word acquisition, were erroneously extended to Deaf children’s general language knowledge. For too long Deaf children have been labeled as not having vocabulary or metalinguistic knowledge and these findings have been used as a factor to support the concept of cognitive and language delay.

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Results

Synonyms

As the students increased in age, their knowledge of ASL synonyms improved. However, the average score for children with hearing parents (DCHP) never passed the score achieved by even the 7-8 year old children with Deaf parents (DCDP). While overall, subjects selected semantic foils most frequently, DCHP, particularly those below the median age of 12.7, were more likely to select foils that were both phonologically and semantic in nature. Older DCDP were likely to select errors that were phonologically related to the correct response, while older DCHP were more likely to select nonsemantic foils. In fact, overall DCDP group more often selected the nonsense foils.

Antonyms

The antonyms task appeared to be more difficult than the synonyms task for both DCDP and DCHP, contrary to data on hearing subjects (Stahl, 1999). As expected, the DCDP consistently outperformed the DCHP and, as with the synonym task, the DCHP never had an average score higher than the average score of the 7-8 year old DCDP. In this test, the most frequent error type was semantic, followed by the foils that were both semantically and phonologically related, as with the synonyms task. It seemed that when subjects were not sure of the answer they were more prone to find something semantically related to the prompt, despite the fact that it often bordered on synony.

Overall Error Analysis

In general across both of the synonym and antonym tasks, there was a significant Age X Parental Status interaction (F=5.32;p<.02). This reflected that younger deaf children with deaf parents performed well on these vocabulary tasks, particularly when compared to their peers who have hearing parents.

Conclusion

In two multiple-choice tests of ASL vocabulary knowledge, errors that reflected semantically related choices were more common than foils that were phonologically related. Error analysis revealed that subjects were more prone to select foils that were more closely related in meaning than foils that were phonologically related in sound. This finding is consistent with previous research (de Jong & Kew, 1992) that found that children with hearing parents were more likely to select foils that were phonologically related to the prompt, whereas children with deaf parents were more likely to select foils that were semantically related to the prompt.

The most important difference between groups is simply that DCDP subjects made less errors than their DCHP peers, even when comparing younger DCDP to older DCHP on the synonyms test. DCDP were also less likely to select nonsense foils than their DCHP peers indicating that even when making errors, children of Deaf parents were using metalinguistic clues to guide their selection process while the children of hearing parents were not.