

## Language Experience and the Development of the Approximate Number System

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### Abstract

The approximate number system (ANS) allows our ability to estimate and track quantity without the use of symbols or counting. Unlike formal, symbolic mathematics, heavily imbedded in icons and language, the ANS operates independent of language. However, language may in fact shape and refine this seemingly non-linguistic numerical system. Here, we present evidence from the Study of Language and Math, a large-scale study of deaf and hard of hearing children that supports the role of language experience (timing of access and modality of language) in refining ANS acuity. Specifically, we show that children with access to language from birth (both hearing and deaf) outperform children with later access to language, and English speakers outperform ASL speakers supporting research suggesting that ANS development is tied to language.

*Keywords: numerical cognition, language, deaf and hard of hearing, American Sign Language, approximate number system*