Dr. Stephen Lindsay

Editor in Chief, *Psychological Science*

April 6, 2016

Dear Dr. Lindsay,

My co-authors and I would like to submit an original research article entitled "Real-time lexical comprehension in young children learning American Sign Language" to be considered for publication in *Psychological Science*.

Finding meaning in a spoken or a signed language is a fundamental human language skill that requires learning to establish reference during real-time interaction – relying on audition to interpret spoken words, and on vision to interpret manual signs. Many studies have used children’s eye gaze as an index of the time-course of spoken language comprehension (e.g., Fernald et. al., 2006), demonstrating remarkable continuities between individual differences in real-time processing efficiency in children as young as 18 months and language and cognitive outcomes later in life (Marchman & Fernald, 2008). The fundamental role of real-time language information processing has also been documented in diverse populations of Spanish speakers (Weisleder & Fernald, 2013) and children from at-risk groups (Marchman et al., 2015). Are these advantages of early processing efficiency only restricted to human learners of spoken languages in the auditory domain? Until now, no previous research has established the significance of language processing skill in young children learning a *visual* *language*.

Here, we ask whether children learning American Sign Language (ASL) develop skill in real-time processing of signs in ways that are parallel to children learning spoken language. We show that ASL learners’ become more efficient at comprehending signs in real time over the 2nd and 3rd years of life. More importantly, those early comprehension skills are associated with vocabulary size, revealing meaningful links between real-time ASL processing and language learning. Finally, we show that deaf and hearing ASL learners process ASL in a qualitatively similar way, suggesting that these skills are driven by experience with a visual language, and not by deafness. These novel findings show striking parallels between the development of language comprehension in visual language learners and in children learning spoken languages.

We believe that this manuscript is appropriate for publication in *Psychological Science* because this is the first study to use highly precise measures of language processing, traditionally developed for spoken languages, with children learning a visual-manual language. The striking parallels suggest that processing efficiency is a fundamental skill that forms the foundation for learning regardless of language modality. We think our findings are of interest to those readers interested in basic human cognitive processes, as well as those who study language development, sign languages, deafness, and language comprehension.

This manuscript has not been published and is not under consideration for publication elsewhere. Please note that Dr. Fernald has served as a consultant on a grant with Rachel Mayberry, so we suggest that Rachel Mayberry, Amy Lieberman, and Arielle Borovsky not serve as reviewers. Instead, we recommend Laura-Ann Pettito and Carol Padden for this role.

Thank you for your consideration.

Sincerely,

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