# Request #: 475 - COMD - Publication/Article

Language Differentiation using AAC

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**Background**

ABSTRACT Purpose: Children with severe speech and language impairments growing up in dual-language environments may communicate in more than one language using augmentative and alternative communication (AAC). This study investigated predictors of bilingual children's ability to differentiate between Spanish and English using an AAC iPad app during a cued language switching task and examined whether switching between languages using AAC incurred a cognitive cost.

Method: Participants were 58 Spanish-English bilingual children ages 4;0 - 6;11 (23 with language impairments). Children received standardized language and cognitive assessments and completed an experimental language switching task in which they were asked to differentiate between languages using an AAC iPad app containing English and Spanish vocabulary layouts paired with voice output.

Results: Results of a binary logistic regression indicated that when controlling for age, processing speed significantly predicted whether children were classified as high or low performers on the experimental task. Nonparametric tests indicated that switching between languages did not incur a cognitive cost as evidenced by similar response times on trials where participants were required to switch between languages compared to trials where they did not switch.

Conclusions: This study contributes to the understanding of how young bilingual children with and without language impairments conceptualize and discriminate between languages represented in a visual-graphic modality paired with speech output.

**Sample**

all data collected

**Hypothesis**

I'm working on a resubmission of this manuscript. The AE would like me to use a continuous variable instead of a categorical variable for "language experience". Language experience in this case refers to the child's level of bilingualism measured by the average percent of exposure and use of the language (per parent report). We predicted that on a continuum of language experience (e.g., low English experience/high Spanish experience to high English experience/low Spanish experience), children at both ends of the distribution would have more difficulty with the task. Initially we used a categorical variable describe language experience categorizing children as either "balanced" or "unbalanced" bilinguals. Children's language experience was considered "balanced" if their average English or Spanish input and output was between 40{%} and 60{%}, and "unbalanced" if their average Spanish or English input and output was greater than 60{%} or less than 40{%}.

Since I'm hypothesizing that the relationship between language experience and the dependent variable (whether children were high or low performers on the experimental task) is not linear, I would appreciate your guidance on how to approach this issue. Can I transform the language experience variable to a polynomial term and include it in the logistic regression?

**Progress**

This is the second round of revisions to this manuscript.

**Request**

consultation regarding analyses. How to include a variable with a quadratic relationship to the DV in a logistic regression model.

**Timeline**

Resubmission due Aug 14