“¿Se hunde?”: Examining Impacts on Head Start Dual Language Learning Children’s Science Outcomes Across Languages

| Project Team: Brooke Rumper (Scholar) and Daryl Greenfield (Mentor/PI) |
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**Project Description**

The present study aims to understand different factors that might affect Dual Language Learning (DLL) children’s science scores. DLL children comprise one fifth of the children served by Head Start, however little is known about their science abilities. The domain of science has recently been recognized on a national level as an area of importance for early childhood education. Science is a key content area for DLL children because it provides opportunities to learn vocabulary, develop social-emotional skills, engage in critical thinking and problem solving. Despite the benefits that science education provides for young DLL children, few, if any studies have examined DLL children’s science scores across languages. Additionally, there is a need to understand the effects of teacher language use during science instruction on Spanish/English DLL children’s science outcomes. The current study examines the aforementioned in sample of teachers and children in Head Start centers across Miami-Dade County.

**Research Questions**

- 1) Are there differences in Spanish/English DLL children’s science scores in English and Spanish?
- 2) Is dominant language associated with DLL children’s science scores?
- 3) Is the amount of English and Spanish academic science language used by teachers is associated with DLL children’s science outcomes?

**Sample**

A total of 255 Latino Spanish/English DLL Head Start children were recruited from 34 classrooms as a part of a larger study. Children ranged in age from 36 months to 63 months ($M = 48.66, SD = 6.61$), of which 47.5% were females. A total of 34 lead teachers and 32 teaching assistants agreed to participate in the study. All teachers reported being female, 92% were Hispanic, and 92% of teachers reported speaking some level of Spanish.

**Methods**

Children were assessed in both English and Spanish using the prelas2000 (Duncan & De Avila, 1998), a language screener, in the fall of 2017. In the spring of 2018, children were assessed in both English and Spanish equivalent forms of a science assessment.

In the spring of 2018, lead teachers and teaching assistants were asked to fill out, the CECER DLL (Hammer, Scarpino, Cycyk, Sawyer, & Jury, 2015), a questionnaire with items pertaining to demographic information, training, classroom characteristics, and classroom language practices.

In the spring of 2018, teachers were asked to go about their normal routines with children using whatever language they normally use. Up to two hours of the morning were video-recorded. Teachers were asked that the 2 hours include 15 to 20 minutes in story time, circle time, free play, and a science lesson.

- Videos were transcribed and verified.
- Transcripts are being coded for the percent of teacher’s English and Spanish use.
- Transcripts will be coded for science academic language use.

To address the research questions, hierarchical linear models will be conducted.
Progress Update

Data collection for this project is complete. Transcripts are currently being coded for academic science language use.

Preliminary analyses, addressing research question one suggest that DLL children are scoring higher on their Spanish science assessment than their English assessment. Analyses examining research question two, indicate that dominant language does not predict children’s scores on science assessments. However, there is an interaction between children’s dominant language and the language of the test. English dominant children did not score differently on English and Spanish science assessments. Spanish dominant scored higher on their Spanish science assessment than their English assessment. English dominant children performed higher on the mismatch dominance assessment than Spanish dominant children (i.e. English dominant children scored higher on the Spanish science test than Spanish dominant children scored on the English science test).

Implications for policy/practice

The proposed study will help practitioners better understand DLL science academic achievement across languages. It will also provide information about what languages teachers are using in the classrooms to support DLL children. Additionally, this study will identify how much science academic language teachers are using and whether that impacts children’s performance on science assessments.

This study also has implications for policymakers. It will provide insight into how to assess DLL children in the domain of science. Findings from this study can impact Head Start at a national level by providing information about how English and Spanish are being supported within classrooms, specifically within the context of science instruction.

Implications for research

The current proposed study’s findings will add to prior research by determining which means of assessment may be more appropriate when examining DLL children’s science knowledge. Furthermore, this study address a need outlined by previous literature to investigate preschool teachers’ use of English and Spanish in various instructional contexts.

Contact
Brooke Rumper
Ph.D. Student
Department of Psychology
University of Miami
305-284-1761
bmr62@miami.edu