Examining an Executive Functioning and Bilingual Advantage Among Latino DLL Children in Head Start: A Strength-Based Approach

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Grant Number: 90YR0084

Period of Funding: September 30, 2015 to September 30, 2017

Project Description

The purpose of this study is to examine bidirectional associations between cognitive and bilingual language development in a sample of young Latino Dual Language Learners (DLLs) attending Head Start. Existing research suggests that these children may experience cognitive benefits from being bilingual. The current project will build on this research by examining how both cognitive (i.e., executive functioning) and Spanish and English language skills develop together across the year in this unique group of preschool-aged children, and if these relationships lead to increased science achievement at the end of the year. Additionally, this study will examine contextual factors by determining how teacher support for DLLs in the classroom impact the relationships between cognitive skills, language ability, and science achievement across the year. This study can add to a powerful paradigm shift for young Latino children, away from a deficit model towards a framework in which the unique strengths that develop from learning two languages are recognized and utilized.

Research Questions

1. Is there a bidirectional relationship between bilingual ability and executive functioning (EF) across the school year?
2. Do bilingual ability and EF predict science readiness across the year, controlling for baseline levels of children's ability across all outcomes?
3. Does classroom support for DLLs moderate the relationship between bilingual ability and EF (in both directions) across the school year?

Sample

Participants included 424 Spanish and English-speaking Latino children attending Head Start in Miami-Dade County (52% female; mean age = 4.5 years). These children were screened and sampled from 38 classrooms across nine Head Start centers. Participating centers were chosen for the current study based on their enrollment of a large number of Hispanic children.

Methods

This study used both direct assessments of child outcomes and classroom observations of support for DLLs to achieve the stated goals. All children were assessed on computerized assessments of English and Spanish language, EF, and science at two time points (fall and spring) across the 2015-16 school year. EF and science assessments were conducted in the child's dominant language. Classroom observations were conducted in the winter. The following direct assessments were used:

- *Quick Interactive Language Screener – Spanish-English Version* (QUILS-SE; Golinkoff, Hirsh-Pasek, De Villiers, & Iglesias, 2017). The QUILS measures language product (knowledge at time of testing) and process (strategies for learning new language) in both Spanish and English.
- *Executive Functioning Early Childhood Computer Task* (EFECCT; Alexander, White, & Greenfield 2016). EFECCT measures children's executive functioning, by presenting a total of 48 congruent and incongruent items that vary on color or form. The assessment contains an English and Spanish version.
- *Lens on Science/Enfoque en Ciencia* (Greenfield, 2015). The Lens on Science/Enfoque en Ciencia measure is a direct measure of children's science content knowledge and practice skills. Linked versions exist in English and Spanish.
- Classroom Support for DLLs. *Classroom Assessment of Supports for Emergent Bilingual Acquisition* (CASEBA; Freedson, Figueras-Daniel, & Frede, 2014). The CASEBA is an observational measure that assesses support for language and literacy development in both the home language and English in classrooms with a high number of DLLs.

Progress Update
All data was successfully collected in Year 1 of grant funding. Year 2 activities involved extensive retrieving, cleaning, and organizing of the data, in addition to data analysis. Final analyses are currently being conducted to address the three research questions.

Significant Findings
Preliminary results confirm hypotheses for the first research question, such that fall EF ability significantly and positively predicted spring bilingual ability, controlling for fall levels of bilingual ability and age (β=.213, $p \leq .001$), and fall bilingual ability predicted spring EF ability, controlling for fall levels of EF ability and age (β=.213, $p \leq .001$). These results provide preliminary support for a bidirectional relationship between EF and bilingual ability across the school year for young Latino DLLs in Head Start.

Implications for Policy/Practice
Findings can help inform early educators and policymakers about the importance of intentionally supporting bilingualism *and* EF for young Latino DLLs in early childhood classrooms, especially in the context of science teaching. Findings from this study can help design early education practices that intentionally target EF development for young DLLs, with the goal of promoting their bilingual development *and* academic achievement in early childhood.

Implications for Research
Results from this study will further our understanding of the promising findings on the bilingual advantage in young Latino DLLs. By using a cross-lag technique with longitudinal data in a structural equation modeling framework, the analyses proposed for the current study have the potential to highlight the mechanisms behind the bilingual-EF relationship, identify factors that promote language learning and cognitive development in Latino DLLs, and determine how this relates to children's science achievement. In addition, using a multilevel modeling technique will help determine the influences of the classroom on these complex relationships.

For More Information
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