Examining the Relationship Between Language Proficiency and Executive Functioning in Bilingual and Monolingual Children

Maria Borjas - Department of Psychology, University of Houston, Houston, Texas
Vanessa Diaz*- Department of Psychology, Virginia Tech, Blacksburg, Virginia

Introduction

- Bilinguals have an executive function advantage which is assumed to come from managing different linguistic representations.[1,7]
- A relationship between language proficiency and executive functioning in monolingual adults and children and bilingual adults has been identified.[5,10,11]
- Longitudinal studies assessing the relationship between language proficiency and executive function have not been conducted with bilingual children.[9]
- No other study, to our knowledge has analyzed the direction of this relationship for monolingual and bilingual children across two time points.

Research Questions

1. Is there a relationship between language proficiency, as measured by receptive vocabulary, and executive functioning over time?
2. Are there any identifiable differences in the relationship between language proficiency and executive functioning for monolingual and bilingual children?

Participants

Time 1

- n = 40 Spanish-English bilingual
  - Age: *M* = 49.29 months, *SD* = 7.38 months
- n = 38 English monolingual
  - Age: *M* = 47.75 months, *SD* = 6.86 months

Time 2

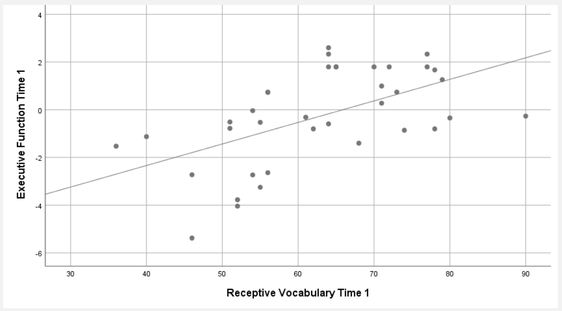
- n = 22 Spanish-English bilingual
  - Age: *M* = 56.56 months, *SD* = 5.22 months
- n = 25 English monolingual
  - Age: *M* = 56.85 months, *SD*= 6.58 months

Results

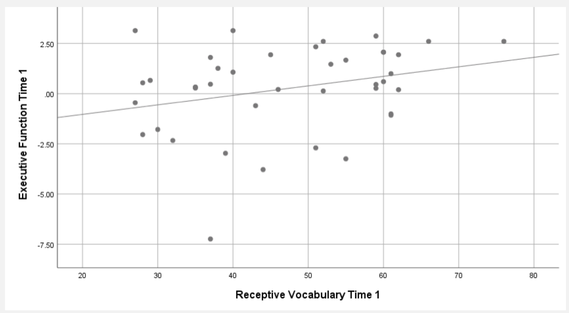
Time 1

- Language proficiency was significantly correlated with the executive function composite score for the monolingual group only ($r(34)= .41$, $p < .05$).
- No significant correlation was found for the bilingual children.
- A distinction between groups was identified.

Monolingual



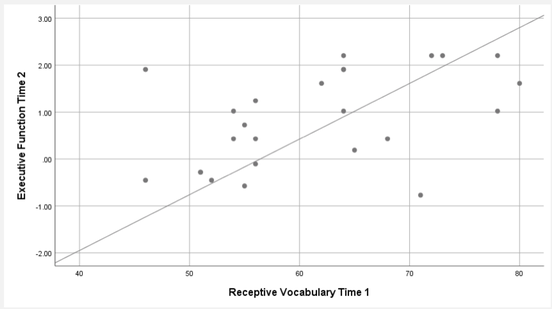
Bilingual



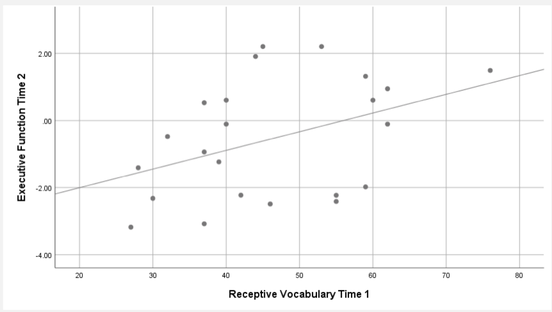
Relations (Time 1 to Time 2)

- Language proficiency at Time 1 predicted executive functioning at Time 2, when controlling for executive functioning at Time 1 ($r(20)=.57$, $p < .01$).
- Executive functioning at Time 1 did not predict language proficiency at Time 2, when controlling for the effects of language proficiency at Time 1.
- No two-way relationship was identified.
- This relationship was only found for the monolingual group, as no significant correlation was established for the bilingual group.

Monolingual



Bilingual



Time 2

- Similarly to Time 1, receptive vocabulary was significantly correlated with the executive function composite score for the monolingual group only ($r(22)= .48$, $p < .05$).
- No significant correlation was found for the bilingual children.

Measures

- **Executive Functioning Composite:**
  - Bear/Dragon Task: used to measure child's inhibitory control [8]
  - Happy/Sad Task: used to measure child's inhibitory control [6]
  - Dimensional Change Card Sort Task: used to measure child's cognitive flexibility [3]
- **Language Proficiency:**
  - Receptive One Word Picture Vocabulary Test [4]

Conclusion

- A correlation between language proficiency and executive functioning was only identified for the monolingual group.
- These results show that language proficiency, as measured by receptive vocabulary, predicts executive functioning for monolingual children but not vice versa.
- This relationship did not exist for the bilinguals, suggesting that there is an unidentified variable affecting executive functioning in bilingual children.
- Future research on this topic should include a larger sample of both monolingual and bilingual children and more measures of language proficiency.

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*Direct correspondence to vdiaz@vt.edu