Research Within Reach, Ep. 6: Bilingualism and Executive Functioning

Does being bilingual improve children’s development of inhibitory control?

Introduction

Past research suggests that growing up in a low socioeconomic (low SES) background has a negative impact on a child’s development of executive functioning (EF) skills, which are particularly critical for success in both the K-12 system and later life. Thus, this would suggest that Head Start children are likely to be less prepared for success in school and life due to decreased EF development.

However, there is also research that suggests that bilingualism gives children an advantage in EF development because of the way that their brains must process separate language systems. Researchers from the University of Oregon used data on bilingual, monolingual, and transitioning mono- to bilingual children to determine the impact of bilingualism on low SES children. The results of this study suggest that being bilingual can actually protect low SES children against delayed EF development.

The Basics:

Jimena Santillan and Atika Khurana at the University of Oregon used data from Head Start's Family and Child Experiences 2009 survey (FACES 2009) to compare development of inhibitory control (IC), a critical component of executive functioning, in children with varying levels of bilingualism. They asked: Does bilingual experience play a protective role in IC development in children from lower SES backgrounds?

They compared three groups: monolingual English children, bilingual English-Spanish children, and monolingual Spanish children who became bilingual English-Spanish during the study. Bilingual children, both at start and those who became bilingual, had similar, significant growth in inhibitory control during the course of the study. Monolingual children also had growth in inhibitory control, but experienced slower growth than the bilingual children. These findings lend support to the idea that bilingualism can increase development of inhibitory control, even playing a protective role against decreased development from children in low SES environments.

The Results:

The researchers found that:

- Children who began Head Start English-Spanish bilingual began with the highest levels of IC and experienced steady growth in the 18 months after beginning the program.
- Children who became bilingual during the study began with the lowest levels of IC but experienced the same rate of growth as bilingual children.
- Children who began Head Start monolingual in English began with average levels of inhibitory control and experienced slower growth than either group of bilingual children.
The Implications:

These findings advance our understanding of EF development and the effects that socioeconomic status, language experience, and cultural elements can have on a child's growth. The study reinforces the recent change in the Head Start Program Performance Standards to promote the strengths of bilingualism and to support children in learning both their home language and English. It lays a path for future research to explore the extent to which bilingualism supports development and the mechanisms behind this process to support development or enhancement of programs to improve executive functioning. It also raises questions regarding the age at which children develop bilingualism that future research could answer.

The Limitations:

- This study is an observational study, so its findings are all correlational, not causal.
- The children in this study were all from low SES households, so the findings do not give a picture of bilingualism and inhibitory control in the broader child population.
- The study only measured one dimension of executive functioning: inhibitory control.

The Methodology:

The Sample:

- A subsample of 1146 children from FACES 2009 who entered Head Start at age 4 and came from either English- or Spanish-speaking homes.

The Measures:

- Inhibitory control using the pencil-tapping task in the Preschool Self-Regulation Assessment.
- Language status was determined by parent-report of home language and the language that the child was assessed in.
- Covariates held constant include: child demographics in FACES 2009 (socioeconomic status, sex, race/ethnicity, family structure, and language proficiency), parental warmth as measured by a subset of items from the Child Rearing Practices Report, and classroom quality as measured by a subset of items from the Early Childhood Environment Rating Scale-Revised (ECERS-R).

The Analysis:

- The authors used latent growth curve modeling to measure variation within and among individuals. This was followed up with a Tobit growth curve model because of the ceiling effects demonstrated in the first growth curve model. The authors used differences in assessment time to account for variations in children’s ages at testing.

Do you have any questions, comments, or new ideas? E-mail vjones@nhsa.org

Looking for research NHSA has covered previously? Please visit http://www.nhsa.org/content/research-topic

Our mission is to coalesce, inspire, and support the Head Start field as a leader in early childhood development and education.