Effects of an English Kindergarten Vocabulary Intervention on the Word Knowledge of Spanish-speaking English Learners

Introduction

Converging research indicates that English learners (ELs) can perform as well as their English-only (EOs) peers on word-level skills such as decoding, word recognition, and spelling (Baker S.K. & Baker, 2008). However, ELs do not attain the same levels of performance on text-level skills such as reading comprehension and writing mainly due to their low vocabulary knowledge, listening comprehension, and syntactic skills (Farnia & Geva, 2011).

Moreover, some studies suggest that effects of early interventions depend, in part, on student level of native language proficiency. For example, Nakamoto, Lindsey and Manis (2012) found that Spanish decoding and oral language proficiency in first grade mediated the effect of phonological awareness/decoding in kindergarten and third grade English reading comprehension. Baker, Park, and Baker (2013) found that reading comprehension in English at the end of second grade depended, in part, on student level of English and Spanish oral reading fluency initial status and growth during first and second grades. None of these studies, however, examined the moderating effect of Spanish and English receptive vocabulary knowledge on English vocabulary outcomes.

Thus, the purpose of this paper is to present the effects of a Tier 2 vocabulary intervention designed to be implemented within an RTI approach on the vocabulary knowledge and literacy achievement of kindergarten ELs. The study is part of a larger IES funded longitudinal vocabulary program of research that also includes English only students. Research questions include:

1. What was the impact of the Early Vocabulary Intervention (EVI) on the language and literacy achievement of Kindergarten ELs at-risk for language and learning disabilities?

2. Does initial Spanish or English vocabulary knowledge moderate the impact of the EVI intervention on the language and literacy achievement of Kindergarten ELs?

Method

Research design

All kindergarten students, including all ELs, were screened on the Peabody Picture Vocabulary Test (PPVT; Dunn & Dunn, 2007). Students (i.e., ELs and EOs) performing below the 30% compared to national norms were then randomly assigned within classrooms to treatment or control conditions. Students in the treatment condition \( n=825 \) students received Tier I classroom vocabulary instruction using Elements of Reading (Beck & McKeown, 2004) as well as the researcher developed Tier II Early Vocabulary Intervention. Students in the control condition \( n=780 \) students received only Tier I classroom vocabulary instruction. After the random assignment, we identified Hispanic ELs in each group and assessed them on the Test de Vocabulario en Imágenes (TVIP, Dunn, Padilla, Lugo, & Dunn, 1986).

Participants

The sample for the current study consisted of 351 Spanish ELs at risk for language disabilities, and who spoke Spanish in the home. Students attended urban and
rural schools that served large percentages of students at risk for language and learning difficulties in Oregon, Connecticut, and Rhode Island.

**Description of the EVI intervention**

EVI is a Tier II research-based vocabulary intervention in English designed to supplement Tier I classroom vocabulary instruction for kindergarten students who are at-risk for language and learning disabilities. The intervention was implemented by school-based interventionists in small groups of 3-4 students for 20 minutes per day, 4 days per week over 22 weeks. EVI re-introduced students to the target vocabulary taught during Tier I instruction. Interventionists provided the target word, a student-friendly definition, and an anchor picture and sentence that represent the target word. All other activities were designed to reinforce target word learning, support sentence level comprehension, and develop metalinguistic awareness.

**Measures**
- Experimenter developed measures of expressive (ETW) and receptive (RTW) target word knowledge.
- Standardized measures of receptive English vocabulary (Peabody Picture Vocabulary Test-IV, PPVT) and Spanish vocabulary (Test de Vocabulario en Imágenes, TVIP).

**Data Analysis Procedure**

We conducted a series of three level multilevel models in which students were nested within clusters and clusters were nested within schools. First, we ran an initial set of multilevel models in which we modeled the effects of treatment, language status, and their interaction on ETW knowledge. Next, we ran a series of multilevel models in which PPVT score, treatment group, and TVIP score predicted ETW knowledge. In the second set of models, we examined four outcome variables: ETW knowledge and RTW knowledge at the end of kindergarten and first grade.

**Results**

Results indicated that overall, students in the treatment group scored 10 points higher than students in the control group on the end of year ETW measure. ELs scored, on average, 1.75 points lower than EOs. However, this difference was not statistically significant indicating that the treatment effect was of equal magnitude for ELs and EOs.

Our second set of analyses examined whether PPVT and TVIP scores helped explain the outcome vocabulary measures and moderated the effect of the EVI treatment on outcomes. Findings indicated that both PPVT and TVIP positively predicted ETW scores at the end of kindergarten. ELs with high TVIP scores outscored other ELs by 4.2 points, which is approximately .40 standard deviation units. At the end of first grade, treatment ELs still outscored ELs in the control group, and high TVIP ELs outscored other ELs. There was no evidence of an interaction effect of treatment by TVIP or treatment by PPVT. Therefore, there was no evidence of moderation; the treatment appeared to be equally effective for ELs with high and low TVIP scores. Results for the RTW outcome measure were generally consistent with the ETW analyses.

**Conclusion**
Findings suggest that (a) English vocabulary interventions in kindergarten also benefit English learners, and (b) both, English and native language vocabulary knowledge are related to response to English vocabulary instruction and should be considered when evaluating the efficacy of English vocabulary interventions.

References


