



Individual differences in response to a large-scale language and pre-literacy intervention for preschoolers in Denmark



Philip S. Dale^{a,*}, Jessica Logan^b, Dorte Bleses^c, Anders Højen^c, Laura Justice^b

^a University of New Mexico, United States of America

^b The Ohio State University, United States of America

^c Aarhus University, Denmark

ARTICLE INFO

Keywords:

Language and literacy intervention
Randomized control trial
Response to intervention
Bilingualism
Home literacy environment

ABSTRACT

The focus of the present study is to evaluate individual differences in response to a large (N = 1898 in the two conditions analyzed here), cluster-randomized, 20-week storybook-based language and emergent literacy intervention (SPELL) for 4–6 year old children in Denmark. Immigrant family status, pretest language and emergent literacy skills, and home literacy experience (HLE) were examined. Gains by the intervention group were evaluated using hierarchical linear modeling in comparison with gains made in the comparison condition. The intervention led to significant gains in emergent literacy measures but not language, for children of Immigrant status as well as native Danish children, with non-significant differences between the two groups. For emergent literacy measures there was a significant negative interaction between pretest level and treatment; children who began lower made greater gains than those who began higher. For language measures, although there was an overall negative relation between pretest level and gain, the interaction between pretest level and treatment was nonsignificant. The relatively low-cost and low-intensity SPELL program appears to have been successful in helping two high-priority subgroups: Immigrant children, and children with low initial skills.

1. Introduction

Reading is a core skill addressed within the context of elementary education, with children's reading achievement exerting substantial predictive power for later education and many aspects of life satisfaction following education. A considerable, accumulated research base shows that young children exhibit skills during the preschool period that are strongly predictive of future reading achievement, often referred to as emergent literacy skills (Cabell, Justice, Konold, & McGinty, 2011; Connor, Morrison, & Slominski, 2006; Lonigan, Farver, Phillips, & Clancy-Menchetti, 2011; Puranik, Lonigan, & Kim, 2011). As an umbrella term, emergent literacy encompasses both language abilities (e.g., narrative, vocabulary) and code-based literacy skills, such as phonological awareness and print knowledge (Connor et al., 2006). Given the importance of these skills to future reading, there has been considerable growth in intervention studies focused on improving children's emergent literacy skills, and accumulating evidence for their effectiveness (cf. Bleses, Højen, Jensen, Dybdal, & Andersen, 2017, for a meta-analysis of treatment effects).

Along with rigorous evaluation of the effectiveness of specific interventions overall, there is a need to examine individual differences in

response to these interventions. Studies of individual differences in treatment response address questions concerning 'for whom' and 'under what conditions' interventions show effects, or lack thereof. Variation in response to intervention is substantial and common, and is important for at least two reasons: First, we often have particular subgroups in mind that especially need help, such as children in poverty and other kinds of social risk, and we need to know if they are in fact benefiting from the intervention. Just the opposite can happen: Matthew effects where the children who gain the most are those who are already doing better than the mean (Stanovich, 1986). Second, if variation is predictable on the basis of child characteristics, it may give us clues as to how the intervention might be improved by suggesting prerequisite skills that also need to be addressed in the intervention.

Research focusing on individual differences in intervention responsiveness is most likely to be illuminating when the intervention is administered to a broad range of children. This condition is typically not met in most studies of early intervention, especially within the US, where preschool interventions most often focus on children experiencing low socioeconomic status or developmental vulnerabilities (e.g., DeBaryshe & Gorecki, 2007; Justice, Chow, Capellini, Flanigan, & Colton, 2003; Lonigan, Purpura, Wilson, Walker, & Clancy-Menchetti,

* Corresponding author at: University of New Mexico, Speech & Hearing Sciences, 1300 Lomas Blvd NE, Albuquerque, NM 87131, USA.

E-mail address: dalep@unm.edu (P.S. Dale).

2013). Although there is variation in the samples of these studies with respect to these potential predictors, there is a considerable restriction of range due to the typical emphasis on children with, or at risk for, low skills. Evaluation of predictors of individual differences in response to intervention is also strengthened in the context of randomized designs, which eliminate the possibility that exists in matched designs that unmatched variables might be the important ones for response to intervention while confounded with treatment.

In the present study, we focus on pre-existing language- and literacy-relevant child characteristics as predictors of gain during an emergent literacy intervention, though other characteristics, including nonverbal cognition and social skills, have also been shown to play a role (e.g., Cooper & Lanza, 2014). Two very diverse bodies of research have provided some information on individual differences in response to early childhood interventions, with disparate results. In a comprehensive review of the effects of preschool education, which can be considered a global intervention approach, Pianta, Barnett, Burchinal, and Thornburg (2009) attempted to examine these individual differences, tentatively concluding that children from lower-income families tended to gain more from quality preschool education than do more advantaged children. They also concluded that the difference was not large, with gains for more advantaged children being approximately 75% as large as those for disadvantaged children. They were not able to directly address the question of the relationship of actual pretest skills to benefit from preschool programs. In contrast, research on the effectiveness of children receiving language intervention has most often found an effect in the reverse direction: children whose scores are higher at pretest gain more from the intervention (Justice, Jian, Logan, & Schmitt, 2017; Penno, Wilkinson, & Moore, 2002). These differences in conclusion may be due to the difference between low scores at pretest which reflect a general environmental impoverishment and those which reflect a congenital impairment. However, this can only be speculative, given the differences in samples, measures, and interventions in these two bodies of research.

Another language-related child characteristic which may influence the effectiveness of intervention programs is whether the child is a native speaker of the language of the society (which is typically the language of instruction in the educational program) or is a nonnative speaker ('dual language learner' or DLL). Often, the children of recent immigrants constitute the great majority of the latter category, at least within the context in which this study was conducted (Denmark). Although there is good evidence that language and emergent literacy instruction can benefit DLL children (Buyse, Pesiner-Feinberg, Paez, Hammer, & Knowles, 2014), there is very little research which directly compares the impact of instruction for native speakers of a language and DLLs, despite its social importance. Some research (Lee, 2008) suggests that it is especially DLL children with parents with low education, who benefit the most from Head Start. In one of the largest studies to date on this question, Cooper and Lanza (2014) conducted a secondary analysis of data from the Head Start Impact Study. Latent class analysis on the 3-year-old cohort ($N = 2449$) was used, first to identify subgroups of children based on characteristics of their home environment and caregiver, and to determine if the effects of Head Start on a range of cognitive and behavioral measures over a 2 year period varied across subgroups. English Language Learning (ELL) status was a key defining characteristic for one group (Married, ELL, Low Education), and this group showed the most consistent positive effect of Head Start across the two years of follow-up, with benefits lasting into first grade. The authors concluded that "This finding is consistent with our hypothesis that ELL children of immigrants (particularly those with low education) would benefit most" (Cooper & Lanza, 2014, p. 2332).

These two characteristics, initial language skill and DLL status, are generally correlated, as DLL children are likely to have lower scores in the new language and also in many contexts have parents with lower education. For this reason, it is desirable to examine both characteristics separately and in combination.

1.1. The SPELL study

In the present study, we take advantage of data collected as part of SPELL (Structured Preschool Efforts in Language and Literacy), an intervention program implemented for a large and population-representative sample of preschool-aged children in Denmark, which included language and emergent literacy skill assessment at pretest and posttest (Bleses et al., 2017). Unlike Head Start and other interventions tested in US settings, SPELL can be considered a universal intervention, provided to all children regardless of background characteristics. SPELL, which is further described below, is based on twice a week 30-minute lessons organized around shared bookreading with specific objectives in the domains of vocabulary, narrative competence, print knowledge and phonological awareness. These specific domains were selected for inclusion in the intervention, as they are identified as key predictors of future reading achievement in both word reading (print knowledge, phonological awareness) and reading comprehension (vocabulary, narrative competence) (Cain, Oakhill, & Bryant, 2004; Lindsey, Manis, & Bailey, 2003; Verhoeven & Van Leeuwe, 2008). Although much of the evidence concerning the relations between these skill domains and future reading achievement is correlational, a small set of causally interpretable studies show that improving skills in these domains can lead to improved future reading skill (e.g., Beck, Perfetti, & McKeown, 1982; Piasta, Justice, McGinty, & Kaderavek, 2012).

Like many other emergent-literacy interventions (e.g., Lonigan et al., 2013; Wasik & Bond, 2001), SPELL is implemented via structured teacher-led read-aloud sessions delivered several times each week. Although implemented in whole-class read-aloud sessions in the U.S. (Justice et al., 2010), in the Danish setting the intervention was implemented by teachers in small-group settings of about four to six children. The read-alouds are structured to follow a before-, during-, and after-reading sequence of discussions in which teachers explicitly guide children to acquire certain key understandings aligned to 23 developmental objectives across the four domains (vocabulary, narrative competence, print knowledge, phonological awareness). For instance, to target a narrative competence objective related to understanding certain story-grammar markers, such as setting and characters, teachers help children to identify these markers in a during-reading discussion embedded in a given read-aloud. In addition, teachers provide children with scaffolding learning supports in the context of these discussions on the basis of their individual skill levels; teachers receive training on using three low-support strategies for children with high levels of skill (e.g., generalizing, predicting) and three high-support strategies for children with lower skill levels (e.g., modeling, eliciting). In this regard, the intervention was designed to enact key ingredients of explicit, systematic instruction, including teacher demonstrations and explanations of targeted skills, repeated learning opportunities over time, and ongoing feedback and scaffolding. Prior studies have suggested that teachers' use of scaffolding strategies to differentiate instruction within the read-aloud context are an especially important component of this intervention (Pentimonti et al., 2017; Pentimonti & Justice, 2010). It is particularly interesting to examine the effect of such interventions in the Danish context, as early childhood programs in Denmark have generally not included any kind of emergent literacy or other pre-academic experiences.

Before turning to individual differences, we briefly summarize the overall effects of SPELL. A total of 6483 3- to 6-year-olds were cluster-randomized to a control condition or one of the three variations of SPELL: a base intervention and two enhanced versions including extended professional development or an aligned, home-based program for parents. Pre- to posttest comparisons revealed a significant impact of all three interventions for emergent literacy skills, notably phonological awareness and letter knowledge, but not language skills, with little difference among those conditions. The effect sizes noted in this large-scale effectiveness trial ($d = 0.21$ – 0.27) were smaller than those found in prior efficacy trials (often between $d = 0.4$ and 0.8), but

Download English Version:

<https://daneshyari.com/en/article/11024001>

Download Persian Version:

<https://daneshyari.com/article/11024001>

[Daneshyari.com](https://daneshyari.com)