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Chapter *1*

General Introduction

Cognitive development in children does not occur automatically but needs an abundance of parent input. In her blog ‘Too Small to Fail’, Hillary Clinton (2013) concluded that millions of parents talk too little with their children. In particular, parents raising their child in economically disadvantaged circumstances do not spend sufficient time talking with their babies.

The main aim of BookStart is the promotion of an early start with verbal interaction with babies and young infants in Dutch families. The project, supported by the Dutch Ministry of Education and implemented in the Netherlands since 2008, aims at enhancing the frequency of storytelling, singing songs, and rhyming through baby books. As language input may vary due to other variables than the socio-economic status of the family (Weisleder & Fernald, 2013), BookStart does not focus solely on parents in economically disadvantaged circumstances, unlike most other early interventions. Parents are likely to postpone reading activities until the child is expected to be more receptive to book sharing, in particular when the first attempts to involve the child in reading are distorted by negative child behavior (Karrass, VanDeventer, & Braungart-Rieker, 2003). Children who are temperamentally reactive may be less involved in book sharing and therefore may be particularly at risk of lagging behind in language skills when entering school (Slomkowski, Nelson, Dunn, & Plomin, 1992).

Why reading to babies?

Research with the Language ENvironment Analysis system (LENA) shows large differences between families in parent-child verbal input (Weisleder & Fernald, 2013). Some children hear about 12.000 words during a day, while in other families the number of words does not exceed 670. Language exposure at home and especially verbal interaction with the child can enhance the language development of young children (Hart & Risley, 2003; Ramírez-Esparza & Kuhl, 2014). Sharing books with young children seems a particularly effective way to promote their vocabulary (DeBaryshe, 1993; Payne, Whitehurst, & Angell, 1994). Book reading is found to be more stimulating for language development than playing or daily interactions during eating, drinking, and putting the child to bed (Crain-Thoreson, Dahlin, & Powell, 2001; Landry & Smith, 2006). There is evidence showing that the more complex sentence constructions in books can, in combination with pictures, enhance multi-clause thinking in young children and support young children’s word knowledge (Cameron-Faulkner & Noble, 2013). There is also evidence showing that parents use more complex language during book sharing than in other situations even when the books are simple cardboard or fabric books that barely contain any text.

We expected therefore that, as children are more frequently involved in singing songs, storytelling, or labelling pictures as a result of an early start with book sharing, children's language development as well as their interest in stories may accelerate. When children show more interest, parents are more likely to read to their child. As a consequence, the time spent on book sharing increases and children's language skills advance correspondingly. Raikes and colleagues (2006) used the metaphor of a snowball to explain such effects of an early start with shared book reading.

Efficacy of a low-dosage program like BookStart

In the past decades, center-based interventions have been initiated to promote language development and prevent children lagging behind in language skills when starting school. Since 2002, early and pre-school education programs [Vroeg- en Voorschoolse Educatie (VVE)] - have been financially supported by the Dutch government, even though evaluations did not reveal effects on short or long-term language measures (Leseman, Otter, Blok, & Deckers, 1998; Leseman, Veen, Triesscheijn, & Otter, 1999; Veen, Derriks, & Roeleveld, 2002; Veen, Roeleveld, & Leseman, 2000).

The current research aims to test whether a low-dosage program, like BookStart, targeting verbal interactions in the family can be effective for children's language development (Hoogeveen & Versteegen, 2013). Unlike most other early intervention programs in the family (e.g., Boekenpret [Fun with Books], Reach out and Read, Providence Talks), BookStart does not offer coaching for the parents but mainly offers materials and the opportunity to get advice. When the children are about three months old, the parents receive a letter from the local government. A voucher is attached to this letter that the parents can use to collect a free BookStart case at their local library. In the library, there is an attractive corner with baby reading materials. Information in this corner shows parents how to engage their baby in reading (see www.boekstart.nl). Library employees are trained to welcome parents to the library and to show them where they can find materials for young children. Additionally, librarians inform the nurses at the well-baby clinics about the BookStart project. During the child's 7-month visit to the well-baby clinic, the nurses encourage participation in BookStart by asking parents whether they have already started reading with their baby and whether they have collected the BookStart case at the library. Since the project started in 2008, it has spread rapidly throughout the Netherlands and in 2013 the project had already been adopted by 99% of the local libraries (www.leesmonitor.nu, 2013)

Previous evaluations

Studies into BookStart in the United Kingdom over more than two decades indicate that this project can be of great value for the development of children by making an early start with shared reading (Baily, Harrison, & Brooks, 2002; Hall, 2001; Moore & Wade, 2003; Wade & Moore, 1998). A small-scale study ($N = 41$) showed that BookStart made parents start early with sharing books with their baby and that these parents involved their baby in library visits (Wade & Moore, 1998). Furthermore, the parents became more positive about the possibilities for verbal interaction and shared reading with the baby and its importance for later language development (Vanobbergen, Daems, & Tilburg, 2009). At the start of primary school, BookStart children performed better than their peers in reading according to observations by their teachers (Wade & Moore, 2000). Nevertheless, important questions regarding the effects of BookStart remain unanswered by the research in the United Kingdom. None of the BookStart studies tested whether changes in parental book sharing as a result of BookStart affect children's language development. Furthermore, none of the studies that examined effects on cognitive skills presented data collected with standardized tests.

It should also be noted that the BookStart project in the United Kingdom differs somewhat from the Dutch variant. Parents in the United Kingdom receive a BookStart package with baby books at two time points spread over the first four years of their child's life, starting when the child is eight months old. In the Netherlands, parents of newborn children receive a voucher for a BookStart case with exemplary age-appropriate materials and free access to the library for the baby. Unlike BookStart in the United Kingdom, there is no subsequent follow-up in the Netherlands.

Research questions

The main aim of the current study was to test whether changes in book sharing behavior are due to BookStart and whether an increase in book sharing as a result of BookStart affects children's language development. We were not interested in *direct* effects of BookStart on language development because - given that the study's design is quasi-experimental - such effects may indicate that parents with a natural inclination to verbally interact with the baby and share books from an early age are more inclined to participate in BookStart. These parents read from early on to their child but not because of BookStart. Their children may be more advanced in language skills but not due to activities that result from participating in BookStart.

Secondly, we studied the effects of BookStart in a subsample of children with a difficult temperament (high levels of reactivity and low levels of self-regulation). In

such cases, the parent may be less inclined to involve the child in verbal activities like book reading (Karrass, VanDeventer, & Braungart-Rieker, 2003), because reading to these children is less fun. As a result the child is at risk of language delays. Parents may, as a result of BookStart and despite negative responses from the baby, start to read to their baby at an early age. They may thus offer, through BookStart, an environment that counteracts the negative effects of a difficult temperament. In other words, we tested whether BookStart parents might be more inclined to read to their child despite their child's negative responses and thus promote language development of their baby.

Thirdly, we tested whether parents are more motivated to participate in BookStart when they experience problems interacting with the child. Not all parents accept the invitation from the municipality inviting them to participate in BookStart. About 40% of the parents actually collect the BookStart case from the library. One worst case scenario could be that, in particular, parents who would read anyhow to their child participate in BookStart. A best case scenario on the other hand would be: if parents get the idea that the verbal interaction with their child is not optimal and that their child is at risk of a word gap when starting school, they might be seek advice on how to improve the intensity of parent-child verbal interaction and feel attracted to BookStart. The invitation letter emphasizes the importance of interacting verbally with young children in order to promote children's verbal skills and points out that a word gap may arise when child-directed word exposure at home is insufficient (Weisleder & Fernald, 2013). In other words, problems that parents experience in involving their child in verbal interactions may influence the parents' decision to participate in BookStart. Less educated parents may be less concerned when they are not successful in involving their child in verbal interaction and therefore participate to a lesser extent than highly educated parents.

The research projects

In a large-scale project, parents completed questionnaires about verbal activities at home, children's language development, and their child's temperament. Parents were recruited when the child was aged between six and nine months and they completed three questionnaires at 7-month intervals when children were about 8, 15, and 22 months old. The participants were recruited from 70 cities and villages in the provinces Drenthe, Gelderland, Limburg, Overijssel, Brabant, North Holland and South Holland, and Utrecht. Parents in the BookStart group lived in cities and villages where BookStart was implemented. We only included parents who had collected the BookStart case at the library. Parents in the control group lived in cities and villages where BookStart was not yet implemented and they had neither

received an invitation to participate in BookStart nor collected the BookStart case at a library.

Using the data collected, we tested whether BookStart affects the frequency of book sharing and whether book sharing at 8 months as a result of BookStart predicts the vocabulary of children at 15 and 22 months (Chapter 2). In a second study (Chapter 3), we also tested whether children with high levels of temperamental reactivity (anger, irritation) would benefit more from BookStart than their less reactive peers in terms of reading frequency and vocabulary skills. Effects of BookStart were studied in a group with low scores on temperamental reactivity ($N = 144$) and a group with average or high scores on temperamental reactivity ($N = 440$).

During the 8-month visit to the well-baby clinic, we selected 70 parents to participate in a third study. We recruited a comparable amount of highly-, middle-, and less-educated parents and administered questionnaires orally. These data were used to test whether parents choose to participate in BookStart because they feel that the intensity and quality of verbal interaction in the family needs improvement (Chapter 4).

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