Joint attention and parent–child book reading

Keys to help close gaps in early language development, school readiness and academic achievement

Brad M. Farrant

Good language development is an integral component of school readiness and academic achievement (Brinkman, Sayers, Goldfeld, & Kline, 2009; Hoff, 2012; Janus & Offord, 2007). It is also a key facilitator of the social skills that optimise an individual’s capability to participate at the social, economic and civic levels (Zubrick et al., 2009). Language development therefore has a central role to play in efforts to enhance the wellbeing and capability of individuals and populations. There is also an increasing recognition of the importance of research into early childhood development—the years before school in particular—to provide access to a better understanding of human development and as a means to address policy and practice concerns around issues such as the intergenerational transmission of disadvantage (e.g., Halfon, Russ, Oberklaid, Bertrand, & Eisenstadt, 2009; Huston, 2008). This paper describes, integrates and elaborates on the results of studies at the nexus of these important issues, using data from Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC).

Although the success that most children have in acquiring their native language is remarkable, it is not magical; it depends on the amount and quality of language they are exposed to (Hoff, 2012), as well as the interpersonal context in which this occurs. Joint attention and parent–child book reading have long been considered to be among the most important interpersonal contexts that facilitate children’s early vocabulary development in Western societies (e.g., Bruner, 1975; Highberger & Brooks, 1973; Ninio & Bruner, 1978). Joint or shared attention refers to the practice of sharing attention (usually visual) by following the focus of another person’s attention or by drawing their attention to one’s own focus of attention (Williams, Whiten, Suddendorf, & Perrett, 2001).

Tomasello and Todd (1983) argued that when adults say the appropriate word during episodes of joint attention with children (i.e., when both adult and child are looking at the same thing) it provides an effective way for children to learn what that word refers to (word–object
Joint attention is thought to play a pivotal role in the “vocabulary explosion” that occurs in children at around 18 to 20 months of age (Baldwin, 1995). Parent–child picture book reading simultaneously involves joint attention, pointing gestures and verbal labelling (Durkin, 1995) and therefore provides an opportunity for children to learn word–object mappings in a more structured, reciprocal setting. Indeed, the beneficial effects of parent–child book reading continue into later development where it provides opportunities for children to learn the meanings of new words in terms of their existing vocabulary.

The findings of research with typically developing children, children with specific language impairment, and children with autism indicate that joint attention plays an important role in facilitating the development of language and communication skills (Charman, 2003; Charman et al., 2003; Farrant, Maybery, & Fletcher, 2011; Peek, 1998; Poon, 2005; Whalen, Schreibman, & Ingersoll, 2006). There is also evidence supporting the idea that joint attention is particularly important for vocabulary development (Dunham, Dunham, & Curwin, 1993; Kiernan & Gray, 1998; Saxon, 1997; Tomasello & Todd, 1983). Similarly, the findings of two major reviews of the evidence (meta-analyses) support the importance of parent–child book reading as a means of promoting the vocabulary development of children in Western societies (Bus, van Ijzendoorn, & Pellegrini, 1995; Mol, Bus, de Jong, & Smeets, 2008).

Thus, there is fairly solid evidence that joint attention and parent–child book reading play important roles in children’s vocabulary development. What has not been so clear is whether the differences in children’s vocabulary development that research has observed as a function of socio-economic status (SES) (e.g., Arriaga, Fenson, Cronan, & Pethick, 1998) are a result of differences in the levels of joint attention and parent–child book reading. Another gap in the research is the extent to which low levels of joint attention and parent–child book reading increase the risk of children having poor vocabulary development when they start school. Answering these questions is important, as it will enable the development of evidence-based policy and practice to improve children’s school readiness, particularly for those from disadvantaged backgrounds.

**Australian research using LSAC data**

Using data from the LSAC, Farrant and Zubrick (2011) found that the effect of maternal education on Australian children’s vocabulary development at 34 months of age was completely mediated by the level of parent–child book reading (see Box 1). That is, having a more educated mother facilitates child vocabulary development because more educated mothers engage in more parent–child book reading. This study also found that the effect of the number of siblings in the home was completely mediated by the levels of joint attention and parent–child book reading; having more siblings in the home constrains vocabulary development because it decreases joint attention and parent–child book reading.

Hence the results of this study indicate that differences in the levels of joint attention and parent-child book reading help to explain the disadvantage in early vocabulary development experienced by children from low SES backgrounds. This is consistent with and extends international research, which found that differences in parent–child book reading...

**Box 1: Farrant and Zubrick (2011)**

Using data from the LSAC, this study brought a bioecological approach to children’s early vocabulary development. Complete sets of the relevant data were available for 2,188 children (1,119 male) who had a median age of 9 months ($M = 9.3$ months, $SD = 2.1$ months) at Wave 1 and a median age of 34 months ($M = 34.2$ months, $SD = 2.5$ months) at Wave 2. Child joint attention and parent–child book reading were assessed via maternal report at Waves 1 and 1.5 respectively, and child vocabulary was measured at Wave 2 using the MacArthur Communicative Development Inventory III (MCDI-III) (Fenson et al., 2006). Joint attention and parent–child book reading significantly predicted Wave 2 vocabulary scores in a multiple regression analysis that controlled for a range of child, maternal and family characteristics. The results of mediation analyses supported the argument that the effects of individual (e.g., parent) and environmental (context) characteristics are primarily indirect, mediated through their effect on ongoing reciprocal social interactions (proximal processes) (Bronfenbrenner, 1995) such as joint attention and parent–child book reading.
played a role in SES differences in vocabulary development at 18 and 30 months of age, and that these differences were related to children’s school readiness (Forget-Dubois et al., 2009).

The question of the extent to which low levels of joint attention and parent–child book reading increase the risk of Australian children having poor vocabulary development when they start school was investigated by Farrant and Zubrick (2012) using data from the LSAC (see Box 2). Children who had low levels of joint attention in infancy were significantly more likely to have poor vocabulary development. Around 16% of the children with low- and mid-level joint attention scores in infancy (at about 9 months of age) had poor vocabulary around the time of school entry (at about 58 months of age), compared to 11% of the children in the high joint attention group. Furthermore, the risk of poor vocabulary development was significantly increased for children who had experienced low levels of parent–child book reading (10 or fewer minutes/day). Nearly a quarter of the children who had low levels of parent–child book reading across early childhood had poor vocabulary around the time of school entry.

The findings of Farrant and Zubrick (2012) suggest that it should be possible to improve children’s early vocabulary development by increasing the levels of joint attention and parent–child book reading. Furthermore, when taken together, the results of these two studies (Farrant & Zubrick, 2011; 2012) suggest the possibility of helping to close the gaps in school readiness (in terms of vocabulary/language development) experienced by Australian children from disadvantaged backgrounds by implementing interventions that target joint attention and parent–child book reading.

**International intervention research**

Indeed, there is international evidence that interventions that target parent–child book reading enhance children’s language development. Perhaps most importantly, instruction that increases the frequency and quality of parent–child book reading has a positive effect on the vocabulary development of children from families with low levels of income and maternal education (e.g., Taverne & Sheridan, 1995) and the facilitative effects of family literacy programs for disadvantaged children continue in the years following intervention (Phillips, Hayden, & Norris, 2006). Furthermore, the fact that parents of kindergarten and school-aged children often miss opportunities to explain novel words when reading with their children (Evans, Reynolds, Shaw, & Pursoo, 2011) opens up the possibility of improving the effectiveness of parent–child book reading. Indeed, there are a number of dialogic book reading training programs (e.g., Whitehurst et al., 1994) that have been found to change adults’ book reading style and facilitate children’s vocabulary development (see Mol et al., 2008, for a meta-analysis) as well as children’s language development more broadly (see Reese, Sparks, & Leyva, 2010, for a review). Similarly, instructing parents or teachers in adult–child book reading enhances the language development of children with language delays (Crain-Thoreson & Dale, 1999).

International research has also found that joint attention training for mothers (see Box 3) improves children’s language development (Bjorn, Kakkuri, Karvonen, & Leppanen, 2012), and that training child care staff increases the amount of staff–child joint attention and enhances children’s language development (Cain, Rudd, & Saxon, 2007; 2011).

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**Box 2: Farrant and Zubrick (2012)**

This study used data from the LSAC to investigate the extent to which low levels of joint attention in infancy and parent–child book reading across early childhood increase the risk of children having poor vocabulary around the time of school entry. Complete sets of the relevant data were available for 2,369 children (1,211 boys), who had a median age of 9 months ($M = 9.3$ months, $SD = 2.1$ months) at Wave 1 and a median age of 58 months ($M = 58.0$ months, $SD = 2.5$ months) at Wave 3. Child joint attention and parent–child book reading were assessed via maternal report and child vocabulary was measured at Wave 3 using a short version of the Peabody Picture Vocabulary Test-III (PPVT-III) (Dunn & Dunn, 1997) adapted for use in the LSAC study (Rothman, 2003). The results of a multinomial logistic regression that included a range of child, maternal and family characteristics indicated that children who had low levels of joint attention at Wave 1 were significantly more likely to have poor receptive vocabulary at Wave 3. This analysis also revealed that children who had low levels of parent–child book reading across early childhood (10 or fewer minutes/day) were two and a half times more likely to have poor vocabulary at Wave 3.
Box 3: Joint attention training

Interventions designed to help parents and other carers foster joint attention typically involve instructing the adult(s) in how to establish joint attention with the child before providing a suitable language model. Instruction is provided on how to follow the child’s focus of attention and/or how to gain the child’s attention as well as how to engage with and direct the child’s focus of attention during games and other episodes of adult–child interaction. Because children’s attention is limited, adults are instructed to follow the child’s lead as much as possible. Joint attention interventions that focus on children typically encourage engagement with other people and teach children (using reinforcement etc.) how to respond to joint attention bids from others (e.g., pointing), how to initiate episodes of joint attention, and how to engage in turn-taking, involving switching between responding to and initiating joint attention.

Sources: Bjorn et al. (2012); Cain et al. (2007); Isaksen and Holth (2009); Jones et al. (2006); Kasari et al. (2008); Rocha et al. (2007); Whalen et al. (2006).

Rudd, 2003). Joint attention training also improves the language and communicative abilities of children with autism (Isaksen & Holth, 2009; Jones, Carr, & Feeley, 2006; Kasari, Paparella, Freeman, & Jahromi, 2008; Rocha, Schreibman, & Stahmer, 2007; Whalen et al., 2006). Thus, there is evidence that joint attention is important for children’s vocabulary development and that interventions can improve the success that parents and other carers have in fostering joint attention.

Foundations in early development

Joint attention has developmental foundations in patterns of parent–child socio-emotional engagement in early infancy (Farrant et al., 2011; Greenspan & Shanker, 2007; Racine & Carpendale, 2007) and parents continue to play a pivotal role in the development of joint attention throughout early childhood. For sighted children, eye contact is an important component of socio-emotional engagement and joint attention (Beier & Spelke, 2012). From their earliest interactions, parents seek to establish eye contact with their infants (Keller & Gauda, 1987; Keller & Zach, 1993). Infants are sensitive to direct eye contact and respond by increasing the amount of time they spend looking and gazing at their caregivers between birth and around 3–4 months of age (Keller & Zach, 1993). Eye gaze during face-to-face interactions facilitates the development of socio-emotional reciprocity between infant and caregiver at around 6–8 weeks of age (Adamson, 1995). Bateson (1971; 1975; 1979) called these early socio-emotional interactions “proto-conversations” because of their importance as a foundation for the development of communication and language skills. Furthermore, these patterns of parent–infant eye contact and socio-emotional reciprocity underpin the mutual regulation of emotions and interests, which allows objects to be increasingly incorporated into parent–infant routines and games between 3 and 6 months of age (Trevarthen & Hubley, 1978). Routines and games that include objects allow infants to develop the ability to follow other people’s head-turns to a target in the infant’s visual field (Leekam & Moore, 2001).

Ongoing engagement means that by around 9 months of age these skills are developed further such that infants can follow other people’s points or head-turns to a target that is out of their visual field (Butterworth, 1991; Butterworth & Cochran, 1980; Corkum & Moore, 1998; Scaife & Bruner, 1975). Children can follow an adult’s focus of visual attention to an object in order to find the target of the adult’s emotional outburst and make mappings between objects and emotional states by around 12 months of age (Moses, Baldwin, Rosicky, & Tidball, 2001). By around 16 months of age most children are able to learn what a word refers to (word–object mappings) when an adult follows the child’s focus of visual attention to the object before uttering the word (Baldwin, 1991; 1993b). Around 20 to 24 months of age, after hearing an adult say a novel word, children can follow the adult’s focus of visual attention to an object and learn word–object mappings (Baldwin, 1993a; 1993b; Baldwin, Markman, Bill, Desjardins, & Irwin, 1996). Baldwin (1995) argued that this joint attention skill underpins the “vocabulary explosion” that also occurs at this age.

Improving outcomes

Thus research has demonstrated that, beginning with parent–infant eye contact in early neonatal life, there are multiple points at which practitioners can help parents facilitate and monitor the development of joint attention and provide evidence-based interventions as necessary. Furthermore, encouraging parents and carers to start reading picture books to
children from an early age offers an excellent way to foster joint attention and language development (Farrant & Zubrick, 2011) because it simultaneously involves socio-emotional engagement, pointing gestures, joint attention and verbal labelling in a more structured setting (Durkin, 1995). Nevertheless, although most parents likely come across messages about the importance of parent–child book reading for early child development many times in the media, at the library and at the doctor’s/paediatrician’s office (Reese et al., 2010), it is unlikely that these messages alone are enough to close the gaps in outcomes.

The findings of Australian and international research also make it clear that targeting interventions to geographic areas that have high rates of disadvantage means that we fail to reach most of the vulnerable children because, although middle class children are less likely to be vulnerable, the size of this group means that the majority of vulnerable children live in middle SES areas (Brinkman et al., 2009; Lynch, Law, Brinkman, Chittleborough, & Sawyer, 2010; McCain & Mustard, 1999; McCain, Mustard, & Shanker, 2007; Offord, Kraemer, Kazdin, Jensen, & Harrington, 1998). Furthermore, positive patterns of parent–child interaction matter to every child and most parents could benefit from programs that improve their parenting skills and knowledge about child development (Chao & Willms, 2002). Therefore, to be more effective and efficient, programs need to take a universal prevention approach (McCain et al., 2007; Moore & Goldfeld, 2006).

Indeed, it has been argued that in order to improve outcomes for vulnerable children and prevent referral bottlenecks, services for young children and families in Australia need to be reconfigured from an unintegrated system of limited universal services and scarce targeted and treatment services into an integrated and tiered system of universal/primary, secondary and tertiary services (see Moore & Goldfeld, 2006). This kind of integrated system has the potential to maximise the benefits of early prevention and intervention via efficient referral pathways and universal/primary and secondary early childhood professionals that have sufficient knowledge and skills to identify and respond to emerging problems before they become entrenched (Moore & Goldfeld, 2006).

Thus, from this perspective it is important that universal/primary early childhood professionals, including nurses in community child and family health centres and child care staff, have adequate knowledge about dialogic parent–child book reading as well as joint attention and its developmental precursors. Secondary services could be provided by suitably trained professionals involved in an Australian version of the Nurse–Family Partnership (Olds et al., 2004) intensive home visiting program. Such a program could draw on those recently developed and trialled with disadvantaged families in New South Wales (Kemp et al., 2008; Kemp et al., 2011) and with Aboriginal families in South Australia (Sivak, Arney, & Lewig, 2008). These universal/primary and secondary services should have strong relationships with and streamlined referral pathways to tertiary professionals (Moore & Goldfeld, 2006). They could also be integrated with Child and Parent Centres on school sites to provide seamless support for families and children from the prenatal period all the way up to and through the school years.

Because every child and family is different, it is imperative that early childhood professionals have sufficient knowledge and skills to be able to adapt their practice accordingly. Indeed, because contextual factors such as parenting stress and general hassles have been found to have negative effects on the amount of parent–child book reading (Karrass, VanDeventer, & Braungart-Rieker, 2003), it is crucial that practitioners adopt a holistic approach to working with families and children. Another relevant contextual consideration is that, because the amount of non-parental care is increasing in early childhood, it is important that structures and programs in child care

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settings foster language development by providing sufficient opportunities for carer-child joint attention and dialogic book reading (Hargrave & Senechal, 2000; Nyland, 2004). Dialogic book reading is a practice that actively involves the child in shared book reading by encouraging the child to participate, providing feedback to the child, and adapting the adult’s reading style as the child’s linguistic skills develop (Hargrave & Senechal, 2000).

There is also an increasing recognition that, to be effective in culturally diverse settings, practitioners and programs need to be culturally aware and culturally appropriate. For example, the Family Home Visiting program in South Australia includes Aboriginal staff as Indigenous Cultural Consultants that visit Aboriginal families in partnership with nurses (Sivak et al., 2008). Participating Aboriginal families have identified the involvement of Indigenous Cultural Consultants as a key reason for the success of the program (Sivak et al., 2008). Another key recommendation was the provision of ongoing cultural awareness training to staff at all levels (Sivak et al., 2008).

Practitioners working with Aboriginal families need to recognise the importance of the oral storytelling tradition as a culturally appropriate foundation for language and literacy development (McKeough et al., 2008). There is also international evidence that, for children whose first language is other than the dominant language of the broader community, dual instruction in both the dominant (e.g., English) and heritage languages is associated with better academic achievement (e.g., Genesee & Lindholm-Leary, 2012). Indeed, after reviewing the available literature, Hoff (2012) recently argued that, given the obvious cultural, social and economic benefits of bilingualism and the fact that many bilingual children begin school with levels of English proficiency that are an obstacle to academic achievement in standard educational programs, it is important that curricula and teaching practices are improved to meet the needs of children from culturally and linguistically diverse backgrounds. Consistent with the findings of earlier research (e.g., Collins & Lea, 1999; Devlin, 1995; Murtagh, 1982), the results of more recent Australian (Devlin, 2011; Grimes, 2009) and international (Freeman, 2007; Human Development Network, 2006; World Bank, 2005) reviews identify many benefits that well designed bilingual instruction can deliver and, conversely, the many downsides associated with English-only education policies.

It is also important to understand that there are differences in parent-child book reading styles and practices across a range of cultures (Chow, McBride-Chang, Cheung, & Chow, 2008; Murase, Dale, Ogura, Yamashita, & Mahieu, 2005). Similarly, cultural differences in the occurrence of specific joint attention behaviours as well as in the purpose of sharing attention have been observed (Bakeman, Adamson, Konner, & Barr, 1990). Unfortunately, there is a lack of literature addressing how these factors differ among Australian Aboriginal and Torres Strait Islander cultures. Future research in this area has the potential to greatly enhance the effectiveness of culturally appropriate programs aimed at closing gaps in language, school readiness and academic achievement.

Conclusions

Language development in early childhood plays a critical role in school readiness and subsequent academic achievement (Brinkman et al., 2009; Hoff, 2012; Janus & Offord, 2007). The findings of Australian (Farrant & Zubrick, 2011; 2012) and international research indicate that joint attention and parent-child book reading are important interpersonal contexts that facilitate children’s early language development in Western societies. Research has also demonstrated that interventions that target joint attention and parent-child book reading enhance children’s language development.

Incorporating what we know about joint attention and parent-child book reading into universal/primary and secondary/targeted early childhood services, and integrating these with Child and Parent Centres on school sites, could provide the seamless ongoing support families and children need to help them stop the intergenerational transmission of disadvantage.

References


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