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THE ROLE OF EARLY CHILDHOOD EDUCATION IN PROMOTING EARLY LITERACY

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The view that early childhood education plays a key role in enabling children to learn to read and write is supported in both preschool settings and the home environment. This chapter provides a comprehensive review of the research on early childhood education, the home literacy environment and early literacy intervention programmes, as well as their relations to children’s early literacy development. The chapter begins with a description of the importance of early childhood education in language and literacy learning. I further discuss how early childhood education influences children’s literacy skills. The chapter also reviews home learning environment and the effects of early literacy intervention programmes across orthographies on early literacy acquisition. Finally, educational implications are provided for parents, caregivers/teachers and policy-makers. Overall, I argue that not only is early childhood education enrolment a key factor for early literacy development, but the programme’s intensity, quality and type also play vital roles in children’s early literacy acquisition. Further, home literacy environment and early interventions are also important for literacy development in the first years. For future, I anticipate that the mechanism by which early childhood education influences early language learning and their relationships with home literacy environment will be investigated in future studies among different age groups across the world.

Introduction

Early childhood is a critical and rapid period of development. Early childhood education (ECE) generally refers to the teaching of young children up to eight years. Prior research has shown that stronger language proficiency before formal schooling is linked to steeper growth in academic achievement (Burns and Helman, 2009; Geva, 2006; Halle et al., 2012; Sparks et al., 2014) and better socio-emotional skills, approaches to learning and prosocial skills as well as a lower likelihood of being a victim of aggression (Chang et al., 2007; Han et al., 2012). These factors in turn are related to subsequent trajectories of academic skills (Grimm et al., 2010; Li-Grining et al., 2010). There is strong continuity between the skills acquired during kindergarten and later academic performance. Kindergartners who enter
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school behind their peers remain so as they move through school (Lee and Burkham, 2002). However, children who enter kindergarten with well-prepared pre-reading skills are more likely to have academic success throughout school (Downer and Pianta, 2006; Lara-Cinisomo et al., 2008). Thus, early childhood education and early literacy skills prior to formal schooling are important foundations for subsequent literacy growth. The knowledge, skills and behaviours acquired during early childhood lay the foundation for lifelong learning and development.

Both human and animal studies highlight the critical importance of experiences in the earliest years of life for establishing the brain architecture that will shape future cognitive, social and emotional development, as well as physical and mental health (Knudsen et al., 2006; Sapolsky, 2004). Moreover, research on the malleability of cognitive abilities finds these skills to be highly responsive to environmental enrichment during the early childhood period (Nelson and Sheridan, 2011).

There is a positive relationship between receiving early childhood education (ECE) and language skills in both developed and developing countries (Engle et al., 2011; Rao et al., 2014; Sylva et al., 2006; Yoshikawa et al., 2013). Yoshikawa et al. (2013) summarized the short- and long-term benefits of early childhood education in the United States for cognitive/attainment, socio-emotional and health outcomes. They found that one to two years of centre-based ECE was associated with improvements in early language and literacy skills in three- and four-year-olds. Scientific evidence on the impact of ECE on early literacy development could also be found from the Head Start programme, which now provides comprehensive early childhood education to almost a million three- and four-year-old low-income children. After one academic year in the ECE programme, four-year-olds who enrolled in Head Start gained significantly more in six language and literacy areas than control-group children, with the effects ranging from .09 to .31 standard deviations (US Department of Health and Human Services, 2005). In contrast, there were few programme impacts on maths skills or on children’s attention, socio-emotional or mental health problems.

In addition, home literacy environment and parental mediation also play an important and positive role in children’s early literacy development and long-term language skills acquisition across orthographies (Farver et al., 2013; Korat et al., 2012; Levin and Aram, 2012; McBride-Chang et al., 2010; Neumann and Neumann, 2010; Niklas and Schneider, 2013; Reese et al., 2010). Thus, by promoting early language and literacy development, ECE may positively relate to children’s longer-term development, especially for children in poverty, many of whom do not have access to adequate language and literacy experiences at home (Alexander et al., 1997; Wasik et al., 2006).

Better understanding of these issues is critical, because early childhood education plays a pivotal role in providing children with optimal environments for early language and literacy learning, and because children’s later literacy skill and school achievement rely heavily upon early language and literacy skills.

The relation between ECE and early literacy

Constructivism is ‘the process by which we observe, document, and interpret what children know, what they do, how they reason, and how the activities and instructional practices in the classroom facilitate or impede their learning’ (Devries et al., 2002: 53). In other words, people learn by doing. Piaget (1985) viewed cognitive processes as continual construction and reorganization of knowledge, with the learner taking responsibility. According to Vygotsky
Ying Wang (1978), cognitive learning is a continual process that involves movement from a current intellectual level to a higher level (ZPD). Thus, a child as an active learner constructs his or her own knowledge. Teachers, caregivers and parents may help the child construct knowledge by providing new opportunities for learning and growth. Early childhood education that offers children quality learning opportunities and experiences gives children the knowledge necessary for early literacy skills.

Based on Bronfenbrenner’s ecological systems framework, events occurring within specific settings affect children’s development. Both family and preschool programmes constitute the child’s early microsystem for promoting developmental outcomes (Bronfenbrenner, 2005). From a neuroscience perspective, many brain circuits are particularly sensitive to the influence of early experience during early life, and specific neural circuits are most plastic at this time. Experience during early childhood can have a significant and lasting impact on a range of important adult outcomes (Knudsen et al., 2006). Heckman (2006) also argued that life-cycle skill formation is a dynamic process in which early inputs strongly affect the productivity of later inputs. Early experience plays an important role in child, adolescent and adult achievement. Moreover, early mastery of language and literacy skills forms the foundations of later attainment.

The relation between ECE and early literacy skill has been a major area of research over the past few decades. ECE experience has been considered one of the most important predictors of school readiness and later academic achievement (Chien et al., 2010; Larson et al., 2015). Research regarding the effects of ECE on child development, particularly early language and literacy skills, mostly focuses on at least four fundamental parameters of the ECE experience: (a) attendance, (b) intensity, (c) quality and (d) type of care. Howes et al. (2008) found that pre-kindergarten children made small gains in standardized measures of language and literacy skills. The small gains may be related to the amount of time the child spends in the programme, the quality of instruction and the teacher to student ratio. Prekindergarten programmes that are not organized do not provide students with the tools necessary for kindergarten readiness (Hughes, 2010).

### Attendance

As shown in large-scale national projects, ECE programme attendance has come to play a key role in the early literacy development of a majority of children in developed countries. For instance, by using data from Early Childhood Longitudinal Study-Kindergarten (ECLS-K), researchers have found that children who attended centre-based care demonstrated better reading skill after controlling for a wide range of background factors, such as family socioeconomic status (Loeb et al., 2007). The Longitudinal Study of Australian Children (LSAC; Australian Institute of Family Studies, N = 5,107) reported that participation in preschool programmes was associated with enhanced literacy skills in comparison to children not attending preschool programmes, but all the early academic benefits acquired from ECE programmes showed rapid fade-out by middle childhood (Claessens and Garrett, 2014; Smart et al., 2008). A longitudinal study of Australian children (LSAC) also demonstrated that children from disadvantaged groups were less likely to be using kindergarten than their peers. However, attendance in high-quality early childhood education and care (ECEC) has been shown to have a positive influence on young children’s language development and life chances, especially for children from disadvantaged backgrounds (Wong et al., 2014). Moreover, using a large national sample from the Effective Pre-School and Primary Education
3–11 project in England, researchers found that preschool attendance has a positive and long-term impact on children’s attainment in language and emergent literacy skills; the positive impact continued to influence outcomes throughout primary school, especially if it was of high quality (Taggart et al., 2015; Sylva et al., 2004).

### Intensity

Intensity is defined as the numbers of hours per day/days per week of a given programme. Clearly there is a need to move beyond assessing the effects of whether or not a child attends ECE on child literacy development to examining the effects of programme intensity on early literacy skills. The National Institute of Child Health and Human Development (NICHD) Study of Early Child Care in the USA found that both the intensity and duration of centre-based care affected children’s language and literacy development. Longer hours of attendance were associated with greater language benefits (Loeb et al., 2007; Magnuson et al., 2007). Results from the ECLS-K indicated that children who attended full-time childcare programmes recorded greater gains in reading skills than those who attended part-time childcare (Votruba-Drzal et al., 2008).

The total time children spend in preschool also affects early literacy development. Children who started ECE at ages 2–3 showed greater gains in reading improvement than those who started when they were either below two or over three years (Loeb et al., 2007). Three-year-olds who received two years of ECE at the Chicago Child–Parent Centers showed higher language scores than those who only attended one year of the programme, but these group differences were no longer significant in first grade (Clements et al., 2004). Consistent with US studies, the Longitudinal Study of Australian Children (LSAC; N = 5,107) also found that greater duration and intensity of exposure to centre ECE settings predicted heightened language and literacy skills of children in first grade (Coley et al., 2015).

### Quality

Quality of early childhood education traditionally has been defined and measured in two basic aspects – structural and process quality (Peisner-Feinberg and Yazejian, 2010; Vandell and Wolfe, 2000). Structural quality variables are the more basic and objectively measured aspects of quality, such as teacher education and credentials, teacher–child ratios and group size. Process quality represents the direct experiences of children in early childhood settings, and therefore requires more in-depth observation and standardized instruments to measure. Key aspects of process quality include the sensitivity and responsiveness of caregivers, the available learning materials and the interactions with the teacher and peers (Peisner-Feinberg et al., 2014). Evidence summarized by the 2008 National Early Literacy Panel report suggests that what one would observe in ‘a really good preschool’ (Neuman, 1999: 301) should be responsiveness to the strengths and needs of individual real children in the classroom, including, for example, playing with sounds in words, and engaging in meaningful and extended language interactions with the teacher (Lonigan and Shanahan, 2010).

ECE programmes are critically important for children’s early literacy development, despite the fact that these programmes are not always implemented with high quality. Research has uncovered significant differences between early education programmes in how they work with children on language and literacy activities (Administration for Children and Families, 2003; Administration for Children, Youth, and Families, 2000; Gest et al.). Thus, in addition to attendance and intensity, programme quality also matters for children’s early literacy.
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Development. Notably, large-scale studies in the United States have found that high-quality preschool care is related to better language and pre-academic outcomes at the end of the preschool period (Li et al., 2013). Analyses of data from children from low-income families in pre-kindergartens in 11 states indicate that the quality of instruction only predicts reading skills when instructional quality is high (Burchinal et al., 2010). The large-scale Effective Provision of Pre-school Education (EPPE) project in England also found strong, positive relationships between preschool quality and children’s literacy skills (Sylva, Melhuish et al., 2011). In Denmark, based on a sample of 30,444 children, Bauchmuller et al. (2014) concluded that preschool quality significantly correlated with children’s language skills.

Type

Research suggests that ECE affects children differently, depending on the types of ECE programmes, as well. Extensive evidence suggests that centre-based ECE programmes are related to small to moderate growth in children’s literacy skills in comparison to informal ECE or parent care, particularly for children who enter ECE programmes with fewer resources and lower skills, such as children from low-income and low-education families (Gormley et al., 2005; Loeb et al., 2007; Magnuson et al., 2004; Morrissey, 2010; Votruba-Drzal et al., 2013). In addition, centre-based early education programmes have been found to be especially important for subgroups of children, for example children from immigrant families. Votruba-Drzal et al. (2015) demonstrated clear associations between centre-based early education programmes attendance and heightened reading and expressive language skills for children of immigrants in comparison to children of non-immigrant parents. Compared to informal relative care and home-based early education and care (EEC) settings, centre-based ECE tends to provide more highly trained caregivers, peer interaction opportunities, and structured and varied language curricula. Centre programmes also tend to score higher on measures of process quality, which assess factors such as the quality of language interactions, learning materials and experiences, and organization (Dowsett et al., 2008; Fuller et al., 2004; Maccoby and Lewis, 2003).

Family influence on children’s literacy skills

During the early years, family is perhaps the most influential environment for children’s development. The home literacy environment influences aspects of children’s early literacy development such as reading recognition, vocabulary knowledge, print knowledge and reading interests (Farver et al., 2013; Roberts et al., 2005; Sylva, Chan et al., 2011; Weigel et al., 2006). Storybook exposure independently explains children’s oral-language skills of vocabulary and listening comprehension, which in turn directly relate to children’s reading in grade 3 (Sénéchal and LeFevre, 2002). In contrast, parent teaching of reading and writing explains children’s written-language skills, which influence their subsequent reading skills (Sénéchal and LeFevre, 2002). Lin et al. (2009) showed that maternal mediation of writing was uniquely associated with Chinese-word-reading skill. For children from low-socioeconomic status (SES) families, data from the Head Start programme showed that the home learning environment mediates the association between SES and children’s emergent literacy competence (Foster et al., 2005).

In addition to the correlational studies, several experimental studies have also suggested causal relations between parent-child reading activity and children’s literacy skills. Dialogic reading, for example, is a special parent-child reading method that involves high levels of
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interactions between parents and children when they share a book together (Whitehurst et al., 1988). It aims to empower children to become storytellers themselves, or at least to talk a lot about the stories they are sharing with their parents/caregivers. For example, they are encouraged to relate their own experiences and ideas to the books. Researchers (e.g. Chow et al., 2008; Whitehurst et al., 1994; Whitehurst et al., 1999) have shown that after 8–12 weeks, children in the group whose parents practised the dialogic reading technique tend to demonstrate stronger vocabulary knowledge than those whose parents simply read the stories in a traditional way. Aram and Levin (2004) also demonstrated that mothers’ strategies for promoting word-writing in their preschoolers at home are linked to subsequent reading and writing performance in children 2.5 years later, even controlling for previous writing skills. This suggests that parent–child joint literacy activity is essential for early literacy development. Lin et al. (2009) also showed that more analytic strategies, including attention to morphological and orthographic features within Chinese characters in mother–child joint activities, were linked to better Chinese-word reading among kindergarteners. Neuman (1999) further suggested that young children need not only rich and diverse reading materials, but that these need to be interactively shared with more knowledgeable others, in order to acquire the complex set of attitudes, skills and behaviours associated with early literacy development.

Recently, home literacy environment has been investigated in a broader way. The Baltimore Early Childhood Project aimed to investigate the relations between children’s home experiences, including parental beliefs, recurrent activities and interactive processes, and their early literacy development. Sonnenschein et al. (2010) found that parental beliefs and enjoyable interactions with their children in reading activities influence children’s early literacy development. They also showed that children whose literacy skills improved during early elementary school more frequently participated in daily and varied reading activities at home, went to the library and played with educational toys.

Hence, the important roles of home learning environment and parental beliefs in early years in promoting their children’s literacy development should be noted. These can even narrow literacy gaps at an initial stage. Practically, these findings have implications for ways to assist parents in facilitating their children’s early literacy development.

Early literacy instruction and interventions

Early literacy development is influenced by various aspects of early childhood education, including play and learning activities, the language-learning environment, and interactions between experienced adults and young children. Early literacy instruction and interventions have powerful influences on literacy development prior to school entry. Existing intervention programmes in relation to children’s early literacy development mainly include (1) reading activities focused on print; (2) environmental print exposure; (3) combined programmes of literacy activity and language knowledge.

Reading activities focused on print acquisition emphasize incorporating print awareness, including words in print, print recognition and letter/character knowledge, into reading activities and daily routines. Justice and Ezell (2002) carried out English book-reading sessions in small groups to stimulate preschool children’s print awareness for eight weeks, and they found that three–five-year-old children who participated in print-focused shared reading sessions had a greater increase in print and word awareness than those in the control group who experienced picture-focused reading. This finding implies that direct and adult-mediated interventions focused on printed words stimulate young children’s print awareness and
alphabetic knowledge. The evidence supports the idea that training programmes that focus on print and letter knowledge during storybook reading are beneficial to children’s print awareness related to early reading and writing skill. Even though print concepts are not the main or typical part of storybook reading, explicitly introducing print knowledge within books, including the position and size of print, print directionality, and font types and sizes, will effectively enhance children’s early literacy skills.

Environmental print exposure during early literacy instruction can further enhance children’s print awareness and perhaps their literacy skills. Justice and Pullen’s study (2003) indicated that a child’s understanding of print concepts is one of the necessary foundations for reading and writing. As an important extrinsic factor, a print-rich environment is helpful for children’s print awareness. In a 20-month-long programme, Yaden et al. (2000) created a rich literacy environment with many books, reading activities, writing centres and book-lending library for English-speaking and Spanish-speaking preschoolers. Children in this programme outscored their peers on letter and word concepts, print awareness and letter recognition. Neuman (1999) also examined the impact of a one-year comprehensive programme involving rich literacy activities and external factors in economically disadvantaged preschool children. Results supported the idea that the physical environment of the classroom, literacy-related interactions between teachers and children, and storybook reading activities enhance young children’s literacy development. These integrated programmes usually last for a long time and are targeted to more disadvantaged children. In a broader perspective, Larson and Marsh (2007) indicated that children could learn skills through everyday literacy events, such as others’ conversations, as well as reading street signs and store lists.

Combined programmes of literacy activity and language knowledge focus on both literacy activities and metalinguistic knowledge in literacy instruction. Researchers found that combined training programmes significantly promoted children’s early literacy skills. Moreover, the younger children gained significantly more than the older children on receptive vocabulary. This suggests that even very young children can benefit from intensive programme focusing on both writing and language skills (Aram and Biron, 2004). A recent longitudinal study conducted by Levin and Aram (2012) also found significant effects of home-based combined writing mediation on kindergarteners’ literacy skills. In their study, parents who were instructed in specific training implemented different intervention programmes on their children for seven weeks. The results indicated that the writing programme that combined an interactive writing activity with letter knowledge and phonological awareness significantly improved five-year-old kindergarteners’ writing and alphabetic skills in Hebrew. Overall, the series of Hebrew intervention programmes demonstrated that combined programmes consisting of intensive writing activities, related letter knowledge and phonological awareness have an effective influence on young children’s early literacy skills, even in the long term. Similar effects were found in Chinese literacy acquisition. In one study, Chinese kindergarteners in combined groups of writing practice and morphological awareness outperformed other groups on word writing and orthographic awareness (Wang and McBride, unpublished).

In general, literacy intervention programmes that combine several skills tend to yield stronger results than do those that focus on fewer skills. For example, Ball and Blachman (1991) found that a combined programme of letter sound, letter name and phonemic segmentation significantly improved early reading and spelling skills of kindergarteners. In contrast, the other programme, focused on letter sound and letter names alone, failed to significantly improve the early reading or spelling skills of kindergarten children, as compared with the control group. Some longitudinal studies have also found that low-SES preschoolers from
Head Start participating in a combined programme of dialogical reading and phonemic awareness at home and school showed significant progress on a wide range of literacy skills such as print concepts, name writing and PPVT, and the positive effects on writing skill lasted over one year (e.g. Whitehurst et al., 1999). For children at risk for reading and writing disability, researchers have also found that combined programmes tend to yield better literacy learning over time. For example, Schneider et al. (2000) compared the effects of three kindergarten training programmes on children at risk for dyslexia. Findings showed that the 20-week combined training of phonological awareness and letter knowledge produced the strongest effects on reading and spelling skills in Grades 1 and 2. Children at risk in the combined training group even showed no difference as compared with those in the control group in spelling both in the post-test and delayed post-test (four months later).

Early literacy acquisition, thus, sometimes includes intensive and systematic training that involves print knowledge, metalinguistic knowledge and literacy practice. Moreover, long-term comprehensive programmes that involve various literacy-related activities and a print-rich environment also have positive effects on children’s literacy acquisition.

Educational implications and future research directions

Based on the scientific evidence, I offer three major educational implications. First, it is recommended that children attend a high-quality ECE programme prior to formal schooling. This will not only benefit children’s early literacy skill, but also subsequent academic achievement. ECE programme standards and professional development should be put into place given that early education programmes tend to have a significant impact on children. Second, in addition to quality preschool settings, home literacy environment and parental beliefs are important in children’s literacy development. I recommend that parents and caregivers consider children’s early literacy development (especially before the beginning of formal schooling) and seek opportunities to introduce letter and print knowledge in developmentally appropriate ways at home. Third, early childhood educators and the instructional practices they employ are vital for reducing the literacy developmental gaps of children from economically disadvantaged families or those at risk for learning difficulties.

This chapter calls for three considerations for future research. First, it would be helpful to have a larger and more representative population that is typically studied in research studies. Second, controlled intervention studies and observational methods would enhance the conclusions drawn from studies using correlational approaches. Finally, it may also be beneficial to carry out longitudinal studies to see how children who enter ECE below benchmark in early literacy skills perform throughout their school years.

References


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