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Effects of home environment and center-based child care quality on children's language, communication, and literacy outcomes☆

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ABSTRACT

This study examined the joint effects of home environment and center-based child care quality on children's language, communication, and early literacy development, while also considering prior developmental level. Participants were 95 children (46 boys), assessed as toddlers (mean age = 26.33 months; Time 1) and preschoolers (mean age = 68.71 months; Time 2) and their families. At both times, children attended center-based child care classrooms in the metropolitan area of Porto, Portugal. Results from hierarchical linear models indicated that home environment and preschool quality, but not center-based toddler child care quality, were associated with children's language and literacy outcomes at Time 2. Moreover, the quality of preschool classrooms moderated the association between home environment quality and children's language and early literacy skills – but not communication skills – at Time 2, suggesting the positive cumulative effects of home environment and preschool quality. Findings further support the existence of a detrimental effect of low preschool quality on children's language and early literacy outcomes: positive associations among home environment quality and children's developmental outcomes were found to reduce substantially when children attended low-quality preschool classrooms.

1. Effects of home environment and center-based child care quality on children's language, communication, and literacy outcomes

The demand for early childhood education and care (ECEC) outside the family context in Portugal has grown in response to the increase in the proportion of working mothers. Portugal has the highest rate of mothers working full time in the European Union. In 2005, 69.1% of mothers with children under 2 years and 71.8% of mothers with children between 3 and 5 were employed (Organization for Economic Co-operation and Development [OECD], 2007).

Over the past two decades, substantial efforts have been made by the Portuguese government to increase the coverage rate of ECEC services. Sociopolitical changes that occurred in Portugal, mainly following the 1974 revolution, increased women's access to labor and restarted the debate on ECEC. In 1975, a report from the United Nations Educational, Scientific, and Cultural Organization (UNESCO), highlighted the precarious state of preschool services in Portugal and stated the need to create 12,000 new classrooms for ECEC (UNESCO, 1982). This report influenced the adoption of a public law recommending the implementation of a network of public preschool services (Bairrão, Leal, Abreu-Lima, & Morgado, 1997; Vasconcelos, Orey, Homem, & Cabral, 2002). Until 1981, official data on infant-toddler child care and preschool services in Portugal were scarce and unreliable. In the last two decades, the coverage rate for children between 4 months and 3 years of age has increased drastically from 5.8% in 1984 (Vasconcelos et al., 2002) to 30.2% in 2008 (Gabinete de Estratégia e Planeamento, 2009). In the mainland, the coverage rate of educational services for children between 3 and 6 years has increased from 32% in 1984 (Vasconcelos et al., 2002) to 78.8% in 2008 (Ministério da Educação, 2010). However, state-funded early educational services are still insufficient (Conselho Nacional de Educação, 2011).

As previously mentioned in a Portuguese study by Pessanha, Aguiar, and Bairrão (2007), ECEC services for children between 4 months and 3 years of age are all dependent on the Ministry of Solidarity and Social Security and are set up either by the Ministry itself or by other private entities (e.g., individuals, cooperatives, or non-profit organizations) (Bairrão, Barbosa, Borges, Cruz,

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& Macedo-Pinto, 1990; Vasconcelos et al., 2002). Regarding ECEC services for children from 3 to 6 years of age, public and private preschool services form a national network under the responsibility of the Ministry of Education, whose aim is to extend preschool education provision to all children of this age group (Bairrão et al., 1990; Ministério da Educação, 2000).

In recent years, Portugal has made notable progress in the formulation and implementation of ECEC policy with increased enrollment rates, the expansion of publicly funded preschool programs, and recognition of the critical role of early educational experiences. According to the OECD, almost 90% of children aged 5–6 years were enrolled in ECEC in 2006. More recently, the central government has mandated universal preschool for 5-year-olds (Ministério da Educação, 2009).

Considering the research findings on the compensatory effects of high-quality ECEC for disadvantaged children (see Peisner-Feinberg & Yazejian, 2010), it can be argued that the quality of preschool contexts is of crucial relevance in Portugal, where the risk of poverty is around 17.9% for the overall population and over 20.6% for families with children (Instituto Nacional de Estatística, 2010). Moreover, maternal education is low when compared to other European Union countries, with 70% of mothers having completed less than upper secondary education (OECD, 2008).

Over the past decades, the increase in the number of infants, toddlers, and preschoolers receiving ECEC has generated an abundance of research on the effects of early child care experiences on children's developmental outcomes. A considerable number of studies have demonstrated the short and long-term effects of developmentally appropriate, high-quality ECEC on children's cognitive, language, and social outcomes as well as on later school achievement (Burchinal, Roberts, Nabors, & Bryant, 1996; Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Howes et al., 2008; Mashburn et al., 2008; Pessanha, 2008; Vandell, Belsky, Burchinal, Steinberg, & Vandergrift, 2010). For example, the large-scale National Institute on Child Health and Human Development [NICHD] child care study (1997, 1998a, 1998b, 2000, 2006) investigated the interactions between child, home environment, and ECEC characteristics to help explain how children developed over time. The results were generally consistent with findings from other studies and demonstrate that the quality of both the home and ECEC environments matter. When care environments were more stimulating and well organized, children had better vocabulary, more advanced attention and memory skills, and peer relationships. Furthermore, in the preschool years, children who spent more hours in center-based child care displayed more advanced language and cognitive skills.

Given previous findings on the positive effects of preschool experience on primary school performance (see Sammons et al., 2002, 2003), the first major European longitudinal study – Effective Provision of Pre-School Education (EPPE; Sylva, Melhuish, Sammons, Siraj-Blatchford, & Taggart, 2008) – was conducted to analyze the long-term influence of preschool on children's performance in school. EPPE measured preschool quality using the Early Childhood Environment Rating Scale-Revised (ECERS-R; Harms, Clifford, & Cryer, 1998) and the Early Childhood Environment Rating Scale-Extension (ECERS-E; Sylva, Siraj-Blatchford, & Taggart, 2003) with a sample of 3–7 year old children. The study identified a relationship between high-quality preschool and higher intellectual and social/behavioral development in children, with subsequent positive outcomes in mathematics and reading. However, despite earlier findings suggesting that all preschool experience was beneficial, EPPE participants who attended low-quality preschool did not show cognitive benefits in primary school, and their outcomes did not significantly differ from the children who did not attend preschool (Sylva et al., 2008).

According to Ahnert and Lamb (2004), cognitive theorists have maintained a more positive view of ECEC, emphasizing the positive impact of well-planned learning environments on the cognitive and communicative development of children. However, these authors underline that, rather than considering child care effects as universal, the influence of several factors (e.g., cultural, family, and child characteristics) should be taken into account when analyzing the association between the quality of early childhood environments and children's development.

Although there is a great deal of evidence suggesting that ECEC can have a long-lasting influence on child outcomes, the home environment is widely recognized as the most important influence on children's adjustment (e.g., NICHD, 1998b), with family characteristics such as maternal education consistently emerging as strong predictors of children's academic and cognitive outcomes (e.g., Abreu-Lima, Leal, Cadima, & Gamelas, 2012). However, the quality of the home learning environment has been found to be more important for children's intellectual and social development than parental occupation, education, or income (Sylva et al., 2008).

While single factors have been looked at in a number of studies, evidence regarding the interaction effects of home and ECEC quality on children's outcomes is scarce and the inconsistency of what is available suggests the need for additional research. For example, in the NICHD child care study (1997, 1998a, 1998b, 2000, 2006), significant interaction effects between quality of home environment and ECEC quality were found, indicating that children were less likely to be secure when low maternal sensitivity/responsiveness was combined with poor-quality child care. Further, Watamura, Phillips, Morrissey, McCartney, and Bub (2011) found cross-context influences on children's social-emotional outcomes, reporting both detrimental effects of double jeopardy (i.e., low-quality home and ECEC environments) and compensatory effects of attending high-quality ECEC for children from lower-quality home environments. Bradley, McKelvey, and Whiteside-Mansell (2011) reported a predominance of additive effects of the home environment and ECEC. However, the authors found small moderating effects of home environment features on the impact of ECEC, with ECEC sometimes compensating for low levels of stimulation and warmth in the home environment, but rarely potentiating the effects of high-quality home environments. With a focus on early literacy skills, Anders et al. (2011) found that children from medium-quality home environments benefited from attending high-quality preschool whereas children from low-quality home environments did not. The authors acknowledge a diverse pattern of results, possibly specific to Germany. However, this furthers the argument for continued research on the interplay of home and ECEC experiences across diverse samples.

This study aims to help fill this gap by analyzing both the direct and joint effects of home environment and ECEC quality in a Portuguese sample. Considering the low quality of Portuguese toddler center-based child care, reported in previous studies (Barros & Aguiar, 2010; Pessanha et al., 2007), as well as the specific cultural background of the present study's participants, results may provide additive value to understanding the complicated and contextual nature of young children's early care and education experiences.

This paper is based on a data set from the first two data points of a longitudinal study on young children's engagement. In the first phase of the study, predictors of child engagement and development were identified in 1–3 year-olds, namely setting characteristics (i.e., home environment and center-based toddler child care), adult's interactive behaviors, and child characteristics. In the second phase of the study, a follow-up of these children at ages 4–6 years was carried out in order to analyze the influence of engagement, as observed in toddler child care classrooms, on children's later adaptation. Both data points included a considerable number of measures, with similar instruments utilized for