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Dialogue and Interaction in Early Childhood Education: A Systematic Review

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Date of publication: February 15th, 2016

Edition period: February 2016 - June 2016

To cite this article: García-Carrión, R., & Villardón-Gallego, L. (2016). Dialogue and Interaction in Early Childhood Education: A Systematic Review. *REMIE – Multidisciplinary Journal of Educational Research*, 6(1), 51-76. doi:10.17583/remie.2016.1919

To link this article: <http://dx.doi.org/10.17583/remie.2016.1919>

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Dialogue and Interaction in Early Childhood Education: A Systematic Review

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Abstract

There is solid evidence that high quality Early Childhood Education (ECE hereafter) have substantial impact on later life outcomes. A growing literature suggests that interventions that develop social competency as well as cognitive, language and academic skills in the earliest years play a role in later educational, social and economic success. Less is known about the most conducive interactions –verbal and non-verbal- underpinning such pedagogical practices in early childhood education. This article aims at reviewing the last decade’s early childhood education with a twofold objective: (a) to describe how dialogue and interaction take place in high-quality early childhood education settings; (b) to identify the effects, if any, on children’s learning and development as a result of implementing dialogue-based interventions in ECE. The studies were identified through systematic search of electronic databases and analyzed accordingly. Several types of interactions given in high quality ECE programs and its short and long-term effects are discerned in this review.

Keywords: early childhood education, dialogue, interaction, learning outcomes

El Diálogo y la Interacción en Educación Infantil: Una Revisión Sistemática

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Resumen

Existen evidencias sólidas de que la educación infantil de alta calidad tiene un impacto sustancial en los resultados a lo largo de la vida. Una amplia literatura sugiere que las intervenciones que se desarrollan la competencia social y cognitiva, el lenguaje y las habilidades académicas en los primeros años de vida desempeñan un papel en el éxito educativo, social y económico posterior. Se ha explorado en menor medida cuáles son las interacciones más propicias -verbales y no verbales- que sustentan esas prácticas pedagógicas en la educación infantil. Este artículo tiene como objetivo revisar la literatura sobre educación infantil de la última década, con un doble objetivo: (a) describir cómo se desarrolla el diálogo y la interacción en contextos de educación infantil de alta calidad; (b) identificar los efectos, si los hubiera, en el aprendizaje y desarrollo de los niños como resultado de la implementación de las intervenciones basadas en el diálogo en la educación infantil. Los estudios se identificaron mediante una búsqueda sistemática en las bases de datos electrónicas y se analizaron de acuerdo a los objetivos planteados. Se distinguen varios tipos de interacciones como resultado de esta revisión, así como intervenciones de aula que se desarrollan los programas de educación infantil de calidad y su efecto a corto y largo plazo en el aprendizaje y desarrollo de los más pequeños.

Palabras clave: educación infantil, diálogo, interacción, resultados de aprendizaje



Early experiences and learning environments where children grow and develop can have substantial impacts on later life outcomes. Emotional, social and cognitive skills emerge in the early years and are important prerequisites for success in school, employment, earnings and healthy behaviors (Heckman, Moon, Pinto, Savelyev, & Yavitz, 2010). Such beneficial impact is dependent on the quality of early childhood education (ECE hereafter), which should provide a learning environment for all children to succeed in acquiring social, emotional, cognitive and linguistic skills. However, the availability of affordable and high-quality early childhood education and care is still a challenge across some of the EU countries. According to the *Education and Training Monitor 2015* (European Commission, 2015), participation rates of children at age of 4, which is currently 93.9%, are close to achieve the benchmark of 95% established by 2020. Nevertheless, these participation rates are considerably low amongst the most disadvantaged children, and only eight European countries provide a place in Early Childhood Education and Care (ECEC) for all children after their birth and guarantee the right to education from early age (European Commission/EACEA/Eurydice/Eurostat, 2014).

Increasing participation rates in early childhood education would contribute to reduce inequalities due to the especially sensitive period for the brain development that takes place from birth up to the age of three, both at the cognitive and emotional levels (Leseman & Slot, 2014). This effect is mediated by the quality of the early childhood education provided; particularly, high-quality interventions promote and support cognitive-linguistic skills to prevent educational inequalities among children from different social backgrounds. The influential study conducted by Hart & Risley (1995) demonstrated that significant discrepancies in language acquisition start from a very early age are influenced by parent-child interactions. Their unprecedented results showed that children from high-income families were exposed to 30 million more words than children from families on welfare. Such large differences in the size of children's vocabulary have lasting impacts on children's performance as disparities persist and increase later in life (Magnuson, Meyers, Ruhm, & Waldfogel, 2004).

As inequalities are generated from a very early age and consequences may be irreversible, school is often the only second chance many children have. Therefore, offering such unique opportunity during the first years of life is even more critical. One of the largest longitudinal studies on pre-school education conducted in England, showed that pre-school education has a similar impact on achievement at the age of 11, like any of the other socioeconomic factors such as parents' income or educational level (Sammons et al., 2007). The longitudinal study (1997 – 2014) *Effective Pre-school, Primary and Secondary Education Project* (EPPSE), investigated the influence of pre-school on children's academic and social-behavioral outcomes, and compiled measures of pre-school quality. Using multilevel modeling to determine the influence of pre-school, Sylva and colleagues (Sylva, Melhuish, Sammons, Siraj-Blatchford, & Taggart, 2011) demonstrated that pre-school has a positive and long term impact on children's attainment, progress and social-behavioral development; but, this positive influence on children's outcomes continues throughout primary school, especially, if preschool is of high quality. Furthermore, high quality pre-school is particularly beneficial for pupils with Special Education Needs (SEN) and those from disadvantaged backgrounds (Taggart et al., 2006).

Watanabe and colleagues (2011) showed the benefits of high-quality early childhood education for counteracting the negative effects of low quality home environments; their study indicated the relevance of increasing positive interactions between parents and children's caregivers (Watanabe et al., 2011). This seems to be particularly beneficial for the healthy development of all children. Such foundations for a successful later learning, behavior and health are established in the first years of life through interaction between the children and adults, a process that has been defined as "serve and return interaction" elsewhere (Center on Developing Child, 2009). From a social conception of cognition, learning and development are inherently social processes. Theories of social learning have traditionally emphasized the importance of social interaction for learning and development from the first years of life (Bruner & Haste, 1987; Vygotsky, 1962). Therefore, infants need to interact directly with another person to enhance learning and to develop, for example, language

skills. Experiments conducted in the laboratory with 9 and 10 months old infants demonstrated that exposure to language, without interpersonal interaction, had no effect in developing new language skills; instead, learning occurs and is enhanced through social interaction (Kuhl, 2007; Kuhl, Tsao, & Liu, 2003).

There is now a general consensus on the social nature of human cognition and the development of each individual's capabilities through social interaction. Research on infant-adult communication have provide evidence of toddlers being 'highly social communicators' capable to engage with others through material, cultural or psychological tools (White, Peter, & Redder, 2015). However, many psychological studies with infants have analyzed dyadic encounters in laboratory settings and less attention has been paid to the significance of these social acts in educational contexts. Our emphasis relies on exploring through the literature how dialogue and interaction take place in educational settings, particularly in high-quality early childhood education.

What constitutes high quality in ECE has been widely discussed in the literature (Mathers et al., 2014) and it is a current debate in European educational systems and policies (European Commission, 2011). Among the several conceptualizations that define quality as a multidimensional construct, different aspects of quality can be identified dependent on whether they assess structural or process quality (Howes et al., 2008; Mathers et al., 2014; Snow & Van Hemel, 2008). Structural quality may refer to those aspects more stable in the environment (e.g., facilities, physical environment, group size, teacher qualifications, teacher-child ratio, etc.). Process quality focuses on the educational experience of the children, particularly on the interactions in the teaching and learning process, leadership and pedagogy (e.g. teacher-child interaction, staff-parents communication, staff-staff communication) (Ishimine & Tayler, 2014). Overall, regardless the aspect of quality that research has focused on, there is a consensus that 'high-quality' ECE boosts and sustains children's outcomes over time. Despite the complexity to measure outcomes, high quality ECE has to provide evidence of fostering children's cognitive, social and emotional skills in the areas of language, literacy, math and science, and support the development of young children's learning-related

socio-emotional skills (Siraj-Blatchford, Taggart, Sylva, Sammons, & Melhuish, 2008), as those key competences will equip children to succeed in education and in their life. Therefore, we agree on defining quality “in terms of relevant and measurable features and interactions that affect children’s outcomes (Siraj-Blatchford & Wong, 1999 cited in Mathers, Singler & Karemaker, 2012, p.10). In this review we admittedly restrict our focus to one particular aspect of the process quality–interactions and dialogue in ECE settings- and its relation with children’s outcomes. We aim to synthesize the literature of the last decade with a particular focus on identifying dialogue-based interventions in ECE and their effects on children’s learning and development.

Firstly, we provide a brief theoretical background aiming at justifying the need for this review; secondly, we describe the methods used to perform the review including the search strategy and analysis of the literature. Results are presented followed by the conclusions.

Background

The role of interactions between infants and adults has been shown as central mechanisms for learning and development. This has been the central thesis of Vygotsky’s (1978) theory of learning and development, which sees a child’s ‘level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers’ (p. 86). His theory recognizes that ‘learning determines development’ and that all learning has social roots. Vygotsky moved the field beyond the established Piagetian theory within which development was seen to determine learning, with less focus on the important influence of language and social interactions. Instead, Vygotsky’s studies demonstrated the social and cultural nature of the development of the higher mental functions during the first years of age and its dependence on cooperation with adults and on instruction. He insisted on ‘the strong influence that instruction can have when the corresponding functions are not fully matured’ (Vygotsky, 1962, p. 200).

Building on the social conception of learning and development, Radziszewska & Rogoff (1991) indicated that the role of adults (parents, mainly) in children's zone of proximal development is unique. There is an important amount of literature which is focused on the impact of adult-child interactions in the cognitive and non-cognitive development of children, indicating the relationship between richness of interactions and stimulus and better or worse cognitive and non-cognitive development. Bruner has been one of the authors detailing the importance of dyads formed by an adult and a child who interact regarding a discussion topic, a play or just during informal observation as social spaces that are central for children's learning and development. In particular, Bruner (1983) analyzed how young children acquire language and develop communicative skills through adult-child interactions, even when those are informal as it often happens with parents during early childhood. Children learn the language using it through activities based on play and games that are practiced through parents and children's interactions (Bruner, 1983).

But it is not only a question of multiplying interaction as quality matters too. In a study focused on mother-child communication to identify growth predictors of toddlers' vocabulary production, Pan and colleagues (2005) found that the diversity of mothers' words (maternal lexical input, language and literacy skills) was positively related to an increase in low-income children's vocabulary. Among the 108 low-income families who participated in the study, children (age 2) whose mothers communicated using diverse vocabularies produced, on average, 33.5 unique words in a 10-minute interaction period compared to only 24.5 unique words for children whose mothers used less diverse vocabularies (Pan et al., 2005). These results are consistent with recent European research that argues the quality of ECEC depends on the type and quality of interactions that children have with diverse adults such as professionals, relatives, and other community members (Urban, Vandenbroeck, Van Laere, Lazzari, & Peeters, 2012), mainly because such communicative interactions are key to acquire functional skills (Popp & Wilcox, 2012). Language is developed in the context of social interaction, and the better the quality of the communicative interactions, the better the language and overall cognitive development.

Yet the benefits of early educational interactions with adults go beyond cognitive gains. Whitebread (2012) has studied the quality of early interactions and their relationship with children's wellbeing, especially in terms of emotional development. In this regard, his research shows that to foster young children's emotional development, the power and quality of the interactions is more important than the number of people educating and caring for children (Whitebread, 2012). Similarly, research on this topic has also emphasized the role of peer interactions in children's emotional and social development.

Furthermore, the characteristics of the contexts and situations in which children interact can modulate their behavior and attitudes. When toddlers interact with peers in collaborative settings that entail sharing resources, altruistic attitudes are promoted (Ulber, Hamann, & Tomasello, 2015). This occurs when they jointly decide the distribution of the resources, and do not do it individually, and when the objects to share were not owned by one of them before. Their results show that the selfish attitudes often attributed to toddlers can be modulated by the social context and the learning environment. Consequently, early childhood education may offer a unique opportunity for young children to engage in social interactions for them to strengthen the acquisition of social skills. This can also be particularly beneficial for children to develop strategies to make friends; therefore they will be more likely to engage in supportive and friendship relationships in the subsequent critical period for a child's life, such as starting school (Danby, Thompson, Theobald, & Thorpe, 2012).

Overall, the present literature underlines the importance of exposing children to rich social interactions from an early age to foster cognitive, social and emotional development.

Methods

Our methodological approach is informed by the systematic review methodology (Gough, Oliver & Thomas, 2013) developed at the EPPI-Centre, part of UCL Institute of Education. We aim at systematically reviewing the literature on dialogic learning and teaching experienced by infants in high-quality educational settings. Consequently, we have

followed a research process to search and synthesize the relevant papers for this purpose. In this section we outline the main stages of this endeavor.

Research Questions

How do dialogue and interaction take place in high-quality early childhood education?

Do early childhood interventions based on a dialogic approach affect children's learning and development?

By answering these questions, we should be able to fulfill the objectives of this paper, that is, to describe how dialogue and interaction take place in high-quality early childhood education settings; and to identify whether implementing dialogue-based interventions in early childhood education has any effects on children's outcomes.

Search Strategy

The literature search for the present review was performed between October-November 2015. The procedure for conducting the search was developed by the authors and included three main electronic databases. These were:

- Web of Science (journals in Social Sciences Citation Index SSCI)
- Educational Resources Information Centre ERIC
- PsycINFO.

Sets of keywords were allocated in two different categories, and their combinations facilitated searches. Boolean logic searches (e.g. "dialogic" OR "dialogism") were used. We also used other validation activities such as 'snowball strategy', that is, we looked through the references of selected works to find other relevant studies.

Table 1
Categories and keywords related to conduct the search

Category	Keywords
1. Educational stage and setting	Early childhood education, preschool, early years
2. Dialogue	Dialogic, dialogic learning, dialogic teaching, dialogism, interaction
3. Provision	High-quality early childhood education, intervention, program

Inclusion and Exclusion Criteria

Applying the inclusion/exclusion criteria allowed us to include only the relevant literature for the purpose of this article. Studies were included if they fulfilled all/some of the following criteria:

- (a) reported on an intervention, program, classroom strategy or pedagogical practice in educational settings
- (b) concerned pre-school, early childhood education (i.e. children aged 2-5 included)
- (c) provided evidence of high-quality early childhood education
- (d) published between 2005 and 2015
- (e) published in peer reviewed journals and written in English

Studies were excluded if they:

- (a) reported on experiments in laboratory settings (i.e. dyadic encounters, mother-child interactions)

- (b) provided theoretical accounts on the relevance of early childhood education without empirical data

Once the studies were selected according to the criteria, we scrutinize them in detail accounting for aspects regarding (a) relevance of the study for the scope of the review (e.g. the study refer to the process quality and outcomes in ECE); (b) aspects of methodological trustworthiness such as appropriateness of method and data collection, claims and evidence.

Results

Final selection of papers has followed several stages to identify and examine those relevant studies that enabled us to answer the research questions. Firstly, as a result of implementing the search strategy, we found potentially relevant literature related to ECE programs, specific interventions based on the implementation of a particular curriculum and/or dialogic strategies. We applied a basic filtering through reading the title (and/or abstract) to remove the clearly irrelevant papers.

As a result, 114 studies were identified 9 of which were excluded due to repetitions. By reading the abstract of 105 studies, 71 studies were excluded because of the inclusion/exclusion criteria, for example, participants were older children (age +6), or the papers addressed topics beyond our scope or they were too specific (e.g. children with speech/language disorders).

After reading the full text of 34 identified studies and applying the inclusion criteria we use 11 studies for a detailed examination and data analysis. For each study, we pay particular attention and extract data referring to:

- (a) the focus of the study, including aims, objectives and/or research questions
- (b) educational settings in which the research took place, taking into account high-quality ECE programs
- (c) methods applied
- (d) country in which research was conducted
- (e) number and characteristics of the participants
- (f) outcomes reported. A brief account of this data is provided in Table 2.

Table 2
Overview and characteristics of the studies

Author	Setting	Country	Focus	Method	Participants
Love et al. 2005	17 Early Head Start programs	USA	Impact on child parenting outcomes	Randomized trial	3001 families
Pianta et al. 2005	238 pre-school classrooms	USA	Predicting quality and teacher–child interactions	Multivariate analyses, hierarchical regression	3 and 4 year-old children, teachers
Mashburn et al 2008	671 pre-k classrooms	USA	Academic, language, and social skills in relation to quality	Randomized trial	2307 children
Burchinal et al. 2010	671 pre-k classrooms Head Start classrooms	USA	Teacher-child interaction	Linear regression / link between quality & child outcomes	1129 children from low-income families
Piasta et al 2012	Learning Language and Loving It–The Hanen Program for Early Childhood Educators	USA	Preschool teachers’ conversational responsivity	Randomized controlled trial	49 preschool teachers, 330 children
Rasku-Puttonen et al 2012	5 preschool classrooms	Finland	Teacher-child interaction	Observational study, video analysis	49 teachers, 10-11 children on average per observation
Lonigan et al. 2013	13 Head Start centers and Title I preschools	USA	Emergent literacy skills	Quasi-experimental study	324 preschoolers, low income backgrounds

Table 2 (cont.'d)
Overview and characteristics of the studies

Author	Setting	Country	Focus	Method	Participants
Stein et al 2013	Educare Chicago Research-Program Partnership. Families & children	USA	School readiness and the transition from early education to the school system	Quantitative & qualitative data. No group control	Six cohorts of children n=172
Towson & Gallagher 2014	3 Head start centers	USA	Dialogic shared book reading	Randomized control study	25 children, age 3, and their parents
Taggart et al 2015	Effective pre-school, primary and secondary education project	UK	Children's academic and social-behavioral outcomes	Longitudinal study (1997 – 2014)	2,800 children from 6 English Local Authorities, 141 pre-school
White et al 2015	High-quality education and care centre	New Zealand	Interactions between infants and teachers	Exploratory study, polyphonic video footage and teacher interviews	2 infants and 2 key teachers

Overview of the High-Quality ECE Programs

Overall, most of the studies referred to long established high-quality programs, widely implemented in the United States of America, such as Head Start (Burchinal, Vandergrift, Pianta, & Mashburn, 2010; Lonigan, Purpura, Wilson, Walker, & Clancy-Menchetti, 2013; Towson & Gallagher, 2014), Early Head Start (Love et al., 2005) or Educare (Stein, Freel, Hanson, Pacchiano, & Eiland-Williford, 2013). The rest of the small-scale studies also focused the research on high quality education and a care centre in New Zealand (White et al., 2015) or in preschool classrooms in Finland

(Rasku-Puttonen, Lerkkänen, Poikkeus, & Siekkinen, 2012). Three studies evaluated the implementation of a particular strategy such as an intervention to develop emergent literacy skills (Lonigan et al., 2013), a dialogic reading program for parents (Towson & Gallagher, 2014) or a professional development on preschool teachers (Piastra et al., 2012). All the studies provided evidence on children's outcomes resulting positive effects in nine out of eleven researches.

The importance of interactions for learning and development appears across the studies and specific instruments were used to measure those interactions. For example, six out of eleven studies used the *Classroom Assessment Scoring System* (CLASS), an observation instrument that assesses the quality of teacher-child interactions in preschool classrooms (Burchinal et al., 2010; Lonigan et al., 2013; Love et al., 2005; Mashburn et al., 2008; Pianta et al., 2005; Piastra et al., 2012). CLASS is a valid and reliable instrument and builds upon educational and developmental theories that support interactions (adult-child). CLASS is also used combined with other internationally recognised observation instruments to measure quality in ECE such as the Early Childhood Environment Rating Scale-Revised (ECERS-R). Pianta and colleagues (2005) used both scales to investigate the features of the classrooms, programs and teachers that predict quality and teacher-child interactions. The Effective Pre-school, Primary and Secondary Education Project (EPPSE), a large-scale study ($n=2800$) conducted in the UK (1997 – 2014) also used the *Early Childhood Environment Rating Scale-Extension* (ECERS-E) and the Child-Care Interaction Scale, to study the influence of preschool on children's learning outcomes and socio-emotional behaviors (Taggart et al., 2015).

Unlike the studies mentioned above, two small-scale studies used video recording and analysis to carefully examine the interaction behavior between children and teacher in a few high-quality classrooms (Rasku-Puttonen et al., 2012; White et al., 2015). It seems particularly relevant that these studies explore dialogic patterns of interactions in five preschools in Finland (Rasku-Puttonen et al., 2012) and analyze the interactions between teachers and infants and the language forms they used in the social event (White et al., 2015).

How do Dialogue and Interaction Take Place in High-Quality Early Childhood Education?

Instructional and emotional interactions. Stemming from the results reported by five of the studies, teacher-children interactions distinguish into two broader dimensions, if they provide *instructional quality* or *emotional support*. CLASS system allowed for researchers to provide evidence of the quality level of the interactions in both dimensions, so that the quality (high/low) can be then linked to academic and social gains (Burchinal et al., 2010; Mashburn et al., 2008). In high quality ECE, teachers combine both dimensions when they (a) use a positive emotional tone and (b) engage infants deliberately in instructional interactions. When dealing with behavior, teachers actively monitor children's behavior (i.e. providing them cues for how to behave) while offering and engaging them in learning activities simultaneously. In the same vein, particular focus on fostering children's learning and thinking (e.g. extending conceptual understanding) emerges in these studies. This instructional interaction includes also quality in the teachers' feedback, which is oriented towards promoting higher order thinking. An example of this occurs when teachers encourage children to communicate in order to develop reasoning skills (Pianta et al., 2005); or they actively participate in conversations with children to elicit their thoughts, and ideas. Those interactions are critical to shape children's use of language and vocabulary (Burchinal et al., 2010).

Effective use of language form and communicative acts. Four studies allowed us to delve into the features of teacher-pupils social interaction and communicative acts (Lonigan et al., 2013; Piasta et al., 2012; Rasku-Puttonen et al., 2012; White et al., 2015). Taking a dialogic approach to study the teachers' interactive style, these studies shed light on detailed interactions teachers promote by (a) using forms of language –verbal and non-verbal- effectively (White et al., 2015), (b) communication-facilitating and language-developing strategies (Piasta et al., 2012), and (c) dialogical patterns (Rasku-Puttonen et al., 2012).

On the other hand, dialogic reading strategies conducted in small groups of children reported the use of particular forms of language such as

complexity of questions asked and the educative feedback provided. This referred to simple “wh-” questions, modeling, and corrective feedback and primarily open-ended questions and extensions (Lonigan et al., 2013).

Two studies are particularly relevant as they provide a detailed analysis of the effective use of dialogue; first, White et al. (2015) analyze the ways in which infants and teachers initiate and respond to dialogue working with two children (under 1 year of age) and their two teachers in a high quality ECEC center in New Zealand; second, Piasta et al. (2012) investigate the impact of teachers’ professional development on children’s linguistic productivity and complexity within small group interactions. Figure 1 summarizes main features of dialogue and social interactions identified in the high quality ECE classrooms presented above.

- Highly responsive interaction to the types of language forms employed by the initiator (teacher or infant).
- Combination of verbal and non-verbal interactions where gesture is central to language meaning; children use their body to initiate and respond to teachers.
- Teachers eagerly observe infants for language cues that they could employ in their responses.
- Teachers’ greater responsiveness to incorporating communication facilitating strategies into small-group interactions.
- Encouraging and involving children in extended conversations through use of expectant pauses, open-ended questions, slow pacing, and comments to cue additional turns.
- Adult-child interactions that involve ‘sustained shared thinking’ and open-ended questioning to extend children’s thinking.
- Teacher’s support for increasing children’s participation.
- Teachers allow space for the child to initiate sharing ideas.

Figure 1. Summary of teacher-infant dialogic interactions and small-group interactions.

Beyond teacher-child interactions: the role of parents.

Notwithstanding most of the studies focus on the teachers’ interactions with children rather than ‘adults’, though parents and family members can also

establish effective interactions in the school and at home. Three studies reported data about the impact of the interventions not only among the children, but also on the parents themselves (Love et al., 2005; Stein et al., 2013; Towson & Gallagher, 2014)

Likewise the teacher-child interactions described above, these studies reported how interactions between families and children were emotionally supportive, provided more language and learning stimulation. Two of the studies agree on the significant impact of providing students with cohesive and coherent interactions between home and school. According to Love and colleagues (2005) parents involved in the Early Head Start created a more supportive learning environment at home and were more likely to read their children. Particularly, this program follows a ‘mixed-approach’ by offering a combination of center-based and home-based services, tailoring families’ needs and achieving larger impacts on the Early Head Start children. Observations of interactions during semi structured play indicated that parent-sustained attention to objects and engagement produced positive impacts on children’s social and emotional functioning (Love et al., 2005). Beyond the parent-child interactions the Educare Chicago Research-Program Partnership (Stein et al., 2013) identified former parents as an ‘unintended resource’ as they were willing to volunteer and engage in interactions with the new ones to help them.

Do Early Childhood Interventions Based on a Dialogic Approach Affect Children’s Learning and Development?

Positive and modest outcomes. Among the eight studies reporting evidence of the effects on children’s learning and socio-behavioral outcomes, six of them presented positive outcomes in children’s learning and development (Burchinal et al., 2010; Lonigan et al., 2013; Love et al., 2005; Mashburn et al., 2008; Piasta et al., 2012; Taggart et al., 2015). Particularly, teacher-child interactions experienced by a large sample ($n=2307$) of 4 years old directly in classrooms resulted to be the measure most consistently and strongly associated with children's cognitive and language development (Mashburn et al., 2008). In addition, quality of

instructional interactions was positively associated with all five measures of academic and language skills.

Two of the studies reported results of a form of interactive shared book reading known as *dialogic reading* and evaluated its impact of children's outcomes (Lonigan et al., 2013; Towson & Gallagher, 2014). Both studies were conducted in Head Start centers. Only one of the studies reported statistically significant effects on children's emergent literacy skills (e.g., oral language skills, vocabulary skills). For the dialogic reading intervention effect sizes ranged from .17 to .21 (Lonigan et al., 2013). Positive effects on the key emergent literacy skills highlight the benefits of focused intervention activities for preschool children at risk later reading difficulties. In contrast, after implementing the dialogic reading strategy with parents (five week intervention) whose children were 3 years old, including children whose primary language was Spanish, there were no significant results in the domains of receptive and expressive vocabulary or pre-literacy skills (Towson & Gallagher, 2014). Several limitations may explain these unexpected results, as dialogic reading strategies have resulted to be successful in increasing children's expressive vocabulary and oral language skills (Hargrave & Sénéchal, 2000). Therefore, two aspects that might have influence are (a) the duration of the intervention period (five weeks) may not have provided enough time to achieve positive effects; (b) the sample size ($n=25$), which was notably smaller than other studies reported here.

Two studies reported clear associations between the quality of teacher-child interactions in pre-kindergarten and preschool and children's gains in academic and social performance across the pre-k year (Burchinal et al., 2010; Taggart et al., 2015). Higher quality of the teacher-child interactions predicted better social skills among children and reduced behavior problems in the classrooms. Similarly, the quality of instructional practices predicted better expressive language among children of 4 years old, and improved mathematics and reading skills (Burchinal et al., 2010).

Interestingly, the preschool classrooms in which adult-child interactions involved 'sustained shared thinking' (Taggart, et al., 2015), as part of effective preschool study in the UK, demonstrated long-term positive impacts on children outcomes at the end of elementary school (age 11) and

in secondary school (age 14). As a result of attending high quality pre-school there were benefits at age 11 for reading/English and mathematics (Effect Size -ES- from 0.29 to 0.34), for the social-behavioral development of boys (ES from 0.28 to 0.45 depending on the outcome), for children with SEN (ES from 0.23 to 0.39), and for children from disadvantaged backgrounds (ES from 0.29 to 0.34) (Taggart et al., 2015, p.10). Therefore, effectiveness of the pre-school was related to outcomes, but also to the quality of the pedagogical practices.

Limitations of the Study

This review focused on ECE with a special emphasis on dialogue and interaction in high quality educational settings during the 2005 – 2015 period. Mainly, teacher-child interactions and its impact on children's learning and development have been examined. It did not focus on other specific activities, such as play, which is also essential to young children's education and related to cognitive development and emotional well-being (Whitebread et al., 2012).

Despite conducting a systematic search and examine the related studies, it might be the case that other relevant studies have not been identified. Our search covers studies for a ten years period and includes eleven studies that have been analyzed in depth, so earlier relevant work may have been omitted. We also acknowledge there are only English-language resources searched systematically; therefore the review does not include non-English written papers.

Discussion and Conclusions

Dialogue and interaction play a crucial role in high-quality early childhood education. Within the framework of a multidimensional definition of quality, we have focused this review on a particular dimension of the 'process quality' (Howes et al., 2008; Mathers et al., 2014), that is, teacher-child interactions and small group interactions in educational settings.

Still, some of the educational debates and practices in early years have neglected the importance of learning interactions, or instructional quality,

within this stage. This review challenges that belief and shows that a considerable amount of research investigating short and long-term impacts of high-quality ECE emphasizes the importance of instructional quality and emotional support from birth (Burchinal et al., 2010; Mashburn et al., 2008; Pianta et al., 2005). This might be controversial and disapproved by scholars who argue against introducing literacy and numeracy skills in early years; the movement ‘Too much too soon’ created in England is an example of it¹. However, although there may be disagreements on this particular point, there is a consensus on the need to offering learning opportunities, including basic skills, and promoting rich and stimulating learning environments from a very early age. Indeed, the studies analyzed in this review provide sound evidences of the benefits that instructional support (i.e. language-rich learning environment, dialogic reading, communication facilitating strategies, warm and responsive interactions with teachers and parents) is for children’s cognitive and socio-behavioral outcomes.

Findings emerging from our review are not far from Vygotsky’s views on the optimal period for learning to read and write. For him and his collaborators it would be natural to transfer the teaching of writing to preschool years. They saw younger children as capable of discovering the symbolic function of writing; then the teaching of writing should be made the responsibility of preschool education. Even more, they argued the teaching of writing comes too late from the psychological point of view ‘The great majority of the children can read at four and a half. Montessori is particularly in favour of teaching reading and writing an earlier age’ (Vygotsky, 1978, p. 116,117).

In addition, instructional and emotional interactions are equally important in high quality ECE. Without the slightest hesitance, teachers in these high-quality ECE classrooms combine both dimensions, for example, when they use a positive emotional tone to engage infants deliberately in instructional interactions (Burchinal et al., 2010). This has implications for teachers working in ECE settings; building upon of this evidence, teachers can foster cognitive and emotional development simultaneously. This aligns with current European research conducted in preschool and elementary schools working as ‘Learning Communities’ where teachers and other adults –including highly disadvantaged communities- engage in

dialogic interactions to foster learning and socio-emotional development (Flecha & Soler, 2013).

Early childhood is a critical period of human development on which later learning, behavior, and health depend. Therefore, providing high-quality education for all at this stage is essential since it can most effectively influence children's development. Most of the studies examined here confirm short and long-term benefits of high quality ECE. However, deepening into how dialogue and interaction take place in those educational settings was less prominent in the studies. Only few studies provided details about the verbal and non-verbal interactions, language forms, and communication facilitating strategies, for example. Some of those studies used video recording of the teacher-child or small-group interactions, which seems to be a powerful methodology for analyzing interactions beyond verbal communication. Further research in this field could explore how successful dialogic learning environments contribute to create rich and stimulating spaces where children grow and develop cognitively, socially and emotionally.

Notes

1. Retrieved from <http://www.toomuchtoosoon.org/>

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