




www.ijres.net

Demands in Early Childhood Education: Montessori Pedagogy, Prepared Environment, and Teacher Training

Aida Macià-Gual 

University of Vic – Central University of Catalonia (UVic-UCC) & Montessori-Palau International Research and Training Center (MIRTC), Spain

Laura Domingo-Peñafiel 

University of Vic – Central University of Catalonia (UVic-UCC), Spain

To cite this article:

Macià-Gual, A., & Domingo-Peñafiel, L. (2021). Demands in early childhood education: Montessori pedagogy, prepared environment, and teacher training. *International Journal of Research in Education and Science (IJRES)*, 7(1), 144-162. <https://doi.org/10.46328/ijres.1272>

The International Journal of Research in Education and Science (IJRES) is a peer-reviewed scholarly online journal. This article may be used for research, teaching, and private study purposes. Authors alone are responsible for the contents of their articles. The journal owns the copyright of the articles. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of the research material. All authors are requested to disclose any actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations regarding the submitted work.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.



International Journal of Research in Education and Science (IJRES) is affiliated with the **[International Society for Technology, Education, and Science \(ISTES\): www.istes.org](http://www.istes.org)**

Demands in Early Childhood Education: Montessori Pedagogy, Prepared Environment, and Teacher Training

Aida Macià-Gual, Laura Domingo-Peñañiel

Article Info

Article History

Received:

08 June 2020

Accepted:

13 September 2020

Keywords

Early childhood

Prepared environment

Teacher training

Children development

Montessori

Abstract

Recognizing the inherent attention in examining how educational practices affect our future, there is little known about society's demands related to early childhood education. This paper aims to analyze the current preschool enrolment situation in the Euro-Western world and the demands of society, focusing attention on the characteristics needed in the prepared environment and in teacher training practices that inclusive education offers. Different socio-cultural theories have been analyzed, and practices regarding human development have been presented as they guarantee an integral development of the child, one which respects infant developmental stages and offers the right scaffolding and environment to stimulate a child's interest and potential. All these aspects are claimed in society, and are reflected in the Montessori Pedagogy principles, where thanks to the observation and knowledge regarding children's needs, educators can prepare stimulating environments that lead to personal formative development.

Introduction

Evidence has shown that the early education children receive is correlated to future academic success (Bainbridge et al., 2005), in particular, in the development of social and emotional competencies (Halle & Darling-Churchill, 2016; Kirk & Jay, 2018). For this reason, there is an increasing awareness in work-life policies as family commitments and professional obligations are sometimes incompatible (Adame-Sánchez, González-Cruz & Martínez-Fuentes, 2016). Consequently, families are considering how to manage their parenting responsibilities along with childcare centers during their working day. Simultaneously, educators are questioning their practices as children's rights are becoming more important in society. It is now considered that human development is no longer regarded as a universal phenomenon (Vogler, Crivello & Woodhead, 2008), so strategies such as biological age for readiness or aged curricula are considered barriers for child development and children's rights.

Considering these barriers and the traditional homogenous education, the aim of this paper is to analyze the current enrolment situation in the Euro-Western world and identify societal demands when they contemplate childcare centers, as there is an increasing awareness related to children's academic success, which depends on early childhood development (Bainbridge et al., 2005). Inclusive practices from 0 to 6 years old that focus on

respecting every child and offering them an individual and relevant education to achieve individual goals and promote a constant acquisition of abilities and capacities are analyzed, as they are principles sought after in our society. Analyzing these demands and in an effort to conduct this literature review, pedagogical contributions from Bronfenbrenner, Vygotsky and Piaget, further deepening in Montessori approach were analyzed to find which principles guarantee an education that respects the natural development of the child. Furthermore, we researched all relevant authors related to the investigation which accomplished the requirements of presenting evidence of promoting children rights in early childhood education.

Firstly, the enrolment situation in childcare centers in the Euro-Western world was presented, then, society's demands related to early childhood education were analyzed, which provided a deepened review of both the children's environment and teacher training, as both are considered the two main aspects that interact with children. The following section discusses which aspects should be considered in the prepared environment where a child grows, respecting their development and safeguarding their rights, focusing on Montessori principles regarded as an approach that respects societal demands. To achieve the respect of children's rights and to create an adequate environment for children, teacher training should be in consonance with it. For this reason, a theoretical debate was presented about the requirements and preparation teachers need to attend to a group of infants, focusing our attention on the importance of the first six years of life. Finally, the conclusions have provided a unifying basis of the Montessori principles that ensure the respect of every child and their rights, offering future research prospects to analyses the concerns of the society in matters of development.

Methodology

A research strategy was used to review all literature which presented demands in early childhood education, including work-life policies (Allen, 2013; Brown & Clark, 2017) and the situation in the Euro-Western world; inclusive practices that promoted individual child development (Francesconi & Heckman, 2016); prepared environment (Jung Park & Hyo Chang, 2019); teacher training (Totenhagen et al., 2016); and scaffolding. Two research questions guided this literature review: (1) What do families consider when they look for an early childhood institution? (2) How are these demands represented in educational practices? To answer these questions peer-reviewed articles and grey literature were researched between September 2018 and August 2020 in electronic data bases including SCOPUS (Elsevier), Grey literature and websites of international organizations and conferences including the US Census Bureau and the Australian Bureau of Statistics, Institute of Medicine of the National Academies, National Institute of Child Health and Human Development (NICHD) and United Nations Committee of the Right of the Child, as well as book literature from Montessori Pedagogy.

A repeatable approach to identify relevant publications describing the contents of interest was done. This included the use of precisely selected words and terms that allowed for a more inclusive search of articles in the database. Pedagogical contributions from Bronfenbrenner, Piaget, Vygotsky, and specifically Montessori have been considered to respond to our second research question, due to provide a deepened analysis in how societal demands are being achieved in educational practices.

The Context of the Euro-Western World and Its Enrolment in Childcare Centers

The aim of this report is to analyze the principles that promote inclusive educational practices attending to early childhood education. To debate this issue, the understanding of the current situation of parenthood, work and school enrolment from the present day is needed. Throughout the past decade, there has been greater attention placed in management and work-life fields as there are cross-national contests and different assumptions considering the individual, organizational and national levels of work-life policies (Ollier-Malaterre et al., 2013). Moreover, they influence not only individuals and families, but also businesses, work positions in companies and society, which all interact in the work life balance (WLB) (Allen, 2013). WLB is an individual's perception of the fit between work and family roles (Allen, 2013) that finds conflicts to engage both spheres as roles are not compatible with each other (Greenhaus & Beutell, 1985).

Regardless, this awareness started in the 20th century, the occupational flexibility between work and home remained reconciled for professionals of all genders in the 21st century (Southworth, 2014) and this has determined new families' ideologies. According to the American Community Survey of the US Census Bureau (2017), households and families are smaller, as is occurring in Europe, where there is a low fertility rate (Van Bavel & Różanska-Putek, 2010). Research has evidenced a major concern in achieving better education and higher income wages in family's perspectives (Adame-Sánchez et al., 2016; Fernández, 2018; Greenberg, 2011; Rupert & Zanella, 2018). WLB reviews and meta-analytic studies (e.g., Kossek et al., 2011) have explored individual factors including dispositions, number of children, marital status; or organizational factors such as, spending long working journeys, where some exceed forty hours per week. Considering all these variables, families need to manage the education of their infants when they are not with them. This aspect leads to investigating where these children are during the first years when the education is not compulsory. Rupert and Zanella (2018) have shown that in the US child care on the first order is provided by grandparents and day care attendance is in the second order as in Europe, were just the 23% of 0 to 2 years old enrol in nurseries (Van Bavel & Różanska-Putek, 2010). Even though the Australian Bureau of Statistics has shown decreased attendance in formal and non-formal care in the past years (52.2% in 2011 and 49.3% in 2017), there is quite a difference comparing the other two geographic areas mentioned before. In this case, the most common types of care for children who do not attend school are long day care (36.9%) and grandparents (25.8%), where children under 1 year are less likely to attend care and they start when they are aged 2 or 3 years old.

A possible reason for this low enrolment is presented by Van Bavel and Różanska-Putek (2010), who agreed that in Europe, there is an insufficient availability of childcare facilities and Bainbridge et al. (2005) added that one of the factors of low enrolment in the US are the high rates of childcare institutions. The availability of childcare, and, in particular, good quality childcare, is a phenomenon with which many parents struggle (Berk & Meyers, 2015). Even though the Euro-western world was analyzed, there is an aspect that affects any society. From the mid1990s onwards, the migration phenomenon has arisen again (Parrilli, Montresor & Trippi, 2018) as people are seeking for better places to live, job opportunities, etc. This produces new hierarchical social positions, statuses or stratifications (Vertovec, 2017) and radically transforms the cultural, social, institutional and economic fabric of both *home* and *host* countries (Parrilli, Montresor & Trippi, 2018). Considering this

impact in societies, it might be also seen in childcare centers or in schools, where groups are becoming more multicultural and teachers need to attend to all of these diversities.

Consequently, teacher training needs to provide a wide range of knowledge to attend this heterogeneity and universities have the obligation to provide this. Francesconi and Heckman (2016) have already presented the necessity for a dynamic skill formation, which would include the multiplicity of skills, considering critical and sensitive periods in the life of a child for different skills and concepts of complementarity; all concepts accounting for a variety of empirical regularities that describe the process of human development. Although there is training, not all care centers have the same requirements when looking to employ teachers. Government marks the minimum requirements needed to work with children, but they can differ from the typology of the care center (private or state) and from the state policies. In the Australian case, staff working with children aged five or over must have university qualifications and most jurisdictions allow staff with a wide range of qualifications to be employed in services for younger children. Although the Statistics Bureau (2017) shows that of 60000 staff employed in Commonwealth-funded long day care centers the 46% held no formal qualifications, the 38% held a Child Care Certificate or Diploma of Child Care, 12% held teaching qualifications, 4% held nursing qualifications and 7% held other relevant qualifications (Australian Bureau of Statistics). Therefore, we can appreciate that adults working in these institutions are concerned about child development and they enrol to get these certifications. In the same perspective there is the US and Europe, where governmental laws only require a high school diploma, but private centers are asking for degrees in early childhood education.

Some theorists demonstrate that family environments during the early years, especially parenting, are major determinants of human development because they shape the foundation for lifetime skills development formed before children enter formal schooling (Francesconi & Heckman, 2016). Albeit, the importance of early childhood education and care has been demonstrated as a long-term effect in child development and future success and positive life outcomes (Halle & Darling-Churchill, 2016; Kirk & Jay, 2018) there is little needed to work on in this first period of life. Despite being one of the most important periods of life, adults working in contact with infants from birth to six years old do not need to be highly qualified, that in sense, should be totally the opposite. Wilke, Hachfeld and Anders (2017) have shown that adults who interact daily with children, like parents, grandparents or teachers play key roles in their socialization and development, for this reason our society is demanding for quality practices when children are enrolled in childcare centers.

Demands from Society in Early Childhood Education

The following section analyses which demands are being requested in our constant and emerging society, specifically what families look for in childcare centers or which knowledge should educators have. First of all, society is looking for quality childcare centers, kindergarten and preschool programs as they lead to better development outcomes and later schooling (National Institute of Child Health and Human Development, 2003; Sylva et al., 2010). Indeed, as it has been mentioned, practices centered in the entire human development (Francesconi & Heckman, 2016), which promote the progress of the whole child through age-appropriate socioemotional and cognitive skills shows a significant improvement in the child outcomes (Lillard et al. 2017)

too. Nevertheless, Peisner-Feinberg and Burchinal (1997) indicated that this correlation between child and outcomes has stronger positive effects in children from more at-risk backgrounds. At the same time, they proved that there was no evidence that children from more advantaged families were buffered from the effects of poor-quality childcare centers.

Although early education promotes future outcomes and schooling, the question lies in the fact of what we mean of a quality childcare education. Different studies have presented variables which are being sought after in our society:

- 1) The importance of the environment (Jung Park & Hyo Chang, 2019) as a key factor that promotes children's physical, cognitive, and social development. This study, which was a literature review, reached five conclusions related to offering a natural ecosystem to increase children's concentration and provide a pleasant environment; the need for open space to promote a convenient observation and monitoring; the possibility to enjoy various sensory experiences related to nature; the spatial design must be interesting and familiar using natural elements; and the need of hiding places considering the children's stage of development and learning ability.
- 2) The conception of not considering human development as a universal phenomenon (Vogler, Crivello & Woodhead, 2008), although there is compelling evidence for critical and sensitive periods in the development of a child (Francesconi & Heckman, 2016). The acquisition of skills shows differential malleability at different stages of the life cycle (see Knudsen et al., 2006; Thompson & Nelson, 2001; and the body of evidence summarised in Cunha et al., 2006; and Heckman & Mosso (2014)). Consequently, between the homogenous practices, society is claiming heterogeneity as each child needs to be seen as a unique and individual person.
- 3) The need for high-quality, educated and stable workforce in child care centers (Totenhagen et al., 2016) as adults who interact with children play key roles in their development and socialization (Wilke, Hachfeld & Anders, 2017). The importance of how children are being attended to, talked to, provided with opportunities to participate, emancipate considering their abilities are qualities which are being demanded in early childhood practices.

Taking into account these three majors variables, the following section will provide a literature review, mainly centered in Montessori principles, as they assume these societal demands as they are the foundation of their approach. The following Montessori principles guarantee children rights and human development as aspects that guide meaningful and inclusive practices in early childhood education, as a consequence, promote quality childcare programs.

Almost 100 years ago, Maria Montessori (1998) conceived the child as a unique and natural being, which had to be seen with new eyes in the adult sight. This new conception that she manifested treated each person as someone different, unrepeatable and with a personal background, characteristics of all human rights. Furthermore, she supported a new philosophy that treated the child as an individual, consequently, the adults who guided this child to increase their own development need to guide one by one (Montessori, 2006) in a common environment. In this point the homogeneity is conceived for the common environment, while the heterogeneity is achieved by the individual attendance, variables demanded in society. However, while

centering on the singular child may be desirable for a social policy and children's rights perspective, it does not reflect the multiple priorities of many of the systems in which children participate (Vogler, Crivello & Woodhead, 2008). Looking for appropriate child care environments when it is required, is more prevalent in families with higher levels of maternal education, as the mother obtains an advanced knowledge of child development (Greenberg, 2011) and can appreciate differences in childcare centers. However, as compulsory enrolment differs in many states, children do not need to attend a childcare center if the family does not want to. In these cases, and after the school time, a supportive family environment is crucial to a child's developmental trajectories and future pathways (Wilke, Hachfeld & Anders, 2017). Considering this, children from families with lower levels of education and less supportive environments would be at a disadvantage: first, they would benefit less from educational materials and practices that parents could promote for school readiness; and second, they are less likely to attend educationally enriching early childhood practices (Magnuson et al., 2004). Considering the contributions exposed before from Jung Park and Hyo Chang (2019) where the environment is considered important and has an influence on any child, any activity that teachers' offer to infants may cause this impact too. Children play during their first years of life, so this aspect is being pursued when education takes part in it. Pramling and Asplund (2008) showed that young children are active *by nature* and constantly *on-going*. This puts new demands on any teacher, because not only every child must turn as a person – an individual in his or her own right – but also capturing a child's interest to promote activities that increase their own development. Moreover, this investigation added that from a children's own perspective, play and learning are not always separate in practice during early years (Pramling & Asplund, 2008) and this is correlated in one of the major principles of Montessori Pedagogy. Montessori (2006) defended that children were always working, as any activity was promoting their future development.

At the same, not all children need to do the same activity simultaneously as this does not come from an inner interest and does not respect their developmental rhythm. Carson et al. (2016) have shown that children spend approximately 50 % of their time at childcare sitting, but sitting is not what they really need, as sedentary activities do not promote movement acquisitions. Montessori (1998) and Montanaro (1991) defended that by moving, children learn, as the brain and body are working in unison. Reductions in sitting time in childcare should be promoted to reduce sedentary behaviors (Ellis et al., 2018) and to contribute to this, the Institute of Medicine of the National Academies from Washington developed a recommendation for childcare providers. They stated that young children should be allowed to move freely and sitting or standing still should be limited to 30 minutes at a time (Institute of Medicine, 2011). However, nearly 50 % of pre-schoolers do not meet this recommendation while they are in the childcare center (Ellis et al., 2018), for this reason is a principle that society may consider when it is time to choose a childcare institution and this it is done when they offer approaches that promote movement.

Different pedagogies, such as Froebel (1989) and Montessori (1998) agree that the activity of any child comes from an inner drive, seen as a biological instinct. Mani and Ackermann (2018) added curiosity-driven learning and intrinsic motivation as aspects that influence the acquisition of different skills, such as language. However, the environment must be prepared to guide this interest (Lillard et al., 2017), because during the first six years of life they need to develop the basis for their future, everything that is required to be able to take part actively in

society as an adult with their own opinions and personality. In this way, we respect their rights and we offer the basis upon which to develop the future adult.

Debating the different ways in which children learn, Montessori (1998) appreciated that children learn differently during these first six years, then as they do when they are an adult, and this is something that parents have in mind, especially when they show interest in the care center. When families' demands are responded to, the family feels confident in a new secure environment, which, in turn, is transmitted to the child (Alpi, 2003). Considering this major influence, Montessori (1998) manifested an *absorbent mind* in every child from birth to six years. This meant that children under six years old absorbed everything from the environment as if they were taking a picture, but in every brain, the information was acquired differently, so no one could control this last process. Furthermore, all these impressions do not only penetrate in their mind, they also form it (Montessori, 2006). For adults these mechanisms work differently as they are like recipients, where all the impressions are set, we remember and with different mechanisms that we control, we store all the information (Montessori, 1998).

The Montessori approach offers guided experiences to lead to an inclusive practice, as every child is respected as a unique being; at the same time to formative assessment strategies, as individuals are fully involved in the process (Florian & Beaton, 2017). Children are free to choose with which previously presented materials they want to work with and for how long. At the same time, every material has an error control, so from their own evaluation they can see if they are doing the task correctly or not (Montessori, 1998). This provides self-assessment from the very first years, as children assess their own learning and make decisions about their work (Black & Wiliam, 1998). Children are considered agents of assessment rather than objects to be assessed (Black & Wiliam, 2009), consequently they have the opportunity to learn in an interactive way (Sadler, 1989). Thanks to these practices, children gain self-esteem as they assume their personal goals and they try to achieve them (Black & Wiliam, 1998) with their own abilities and capacities. At the same time, adults give them the reins of their own development and they fully respect them.

All these aspects are considered when child's education is in the parents' mind. However, the effort to educate not only falls in the families' hands, but also with the care centers (Alpi, 2003). Considering this idea, both institutions need to consider that in the first six years of life, the human brain undergoes marked development, and gene expression produces changes to appear to be permanent due to the interactions with the environment (Lillard et al., 2017; Zhang & Meaney, 2010).

As education, parenthood and care centers cannot be despised, two main aspects that interact in children's education are presented: the prepared environment and teacher training, as they are considered as external influences during the first six years of life, which mound and create the infant. These two aspects surround the child in every moment and as their brain obtains information during these early years, the impact of them is immeasurable. For this reason, the preparation of both of them can increase and empower child development in the early years if adults have firm concepts of these aspects.

Considerations of the Prepared Environment, a Created Place to Attend to Children's Needs

As Jung Park and Hyo Chang (2019) have exposed, the environment and its characteristics have a major impact in child development (Francesconi & Heckman, 2016). Pedagogical theorists like Bronfenbrenner (1979), Montessori (1998), Piaget (1978) and Vygotsky (1978) focused their attention on how a child learnt and related this capacity to the environment. Some points of their theory had elements in common but other points differed, consequently the following section present a discussion with new contributions (i.e. İslamoğlu, 2017; Kirk & Jay, 2018; Nganga, 2015; Pramling & Asplund, 2008; Vogler, Crivello & Woodhead, 2008). In this debate, the prepared environment is defined by considering two main points: spatial design (Jung Park & Hyo Chang, 2019) or the physical element (architecture and structural design and materials and/or toys set in class) and the process (psychological relations) that happen there (Ishimine & Tayler, 2014; Kirk & Jay, 2018). In any case, high quality environments promote young children's development and also positive short- and long-term academic benefits (Bainbridge et al., 2005), ensuring a constant and evolving acquisition of abilities and capacities.

These acquisitions of early childhood goals are defined in the curricula but must also be in the teacher's mind. This means that the way a teacher constructs the environment needs to provide experiences and learning opportunities to the child to make sense of the world around them (Pramling & Asplund, 2008), ensuring meaningful and relevant practices to promote education. As Jung Park and Hyo Chang (2019) demonstrated the connection with the nature that surrounds the child, not only giving activities but also with natural materials. Possibilities, in any place, in the environment must be seen as opportunities for apprenticeship (Montessori, 1998). Woodhead (2006) added that apprenticeship and optimal human development could be achieved through a wide range of family settings, childcare practices and pedagogic approaches. One of these capacities is cooperation, children that have the possibility to participate in domestic activities, such as sweeping the floor, watering the garden, preparing food and others – as they do in Montessori schools –, provide a range of practical life tasks, which are absorbed and persist for a long time, under no coercion or pressure from the adults (Bone, 2017). All practices provided in the environment need to develop the child's integrity, respecting their rights and offering meaningful experiences to achieve the necessary abilities to adapt in this world. Consequently, one of society's demands which were promoting the integral human development in a familiar environment (Francesconi & Heckman, 2016) is being achieved considering the culture and the environment where the infant grows up.

One of these practices is the Vygotskian sociocultural approach, which recognized all aspects of childhood as shaped by social, cultural and economic processes. This principle also applies to children's environments, any environment in which the children grow up (Vogler, Crivello & Woodhead, 2008). Vygotsky (1978) and Piaget (1978) agreed that children were active agents in their own environment, engaging them with the experiences of the world. However, Bronfenbrenner (1979) defended the environment as an external influence in any human, and child development follows inner rules (Montessori, 1998) and is not comparable to any other child. However, schooling centers are assumed as a universal feature of childhood and this does not respect the different development rhythms, for example, when biological age is widely treated as a proxy for readiness,

maturity and competence (Vogler, Crivello & Woodhead, 2008). Lansdown (2005) also agreed that school structures with fixed age-grade systems and associated aged-linked curricula did not respect the diversity of children's development, nor their variations in the evolving abilities and capacities.

Considering this evidence, Montessori (1998) exposed that full development held the clue in the prepared environment and in the guiding activity from the adult. Adults need the willingness to engage with children on their own terms (Florian & Beaton, 2017) to assume what they really need to increase their development. This exemplifies the tradition of child-led learning articulated by the Reggio Emilia philosophy, which positions education as a relationship (Malaguzzi, 1994), and views a pedagogy of listening as essential to learn (Rinaldi, 2001). At the same time, this idea breaks with the traditional models that ignore the interaction of parents and children in the process of development (Francesconi & Heckman, 2016), or in other terms, treating the child as a passive being whose skills are known to the parent or to the adult. They assumed that the adult fully internalises the child's utility as her own and the child's utility function is that of the adults. Opposite to that, Heckman and Mosso (2014) and Garcia and Heckman (2015) discussed mentor-child interactions which in Montessori (2006) terms would be the guiding activity.

However, Montessori (1998) defended that all experiences offered to a child should be considered after thorough and accurate observations of that particular child. After observation, the adult is able to provide the child with the environment needed. Montessori (2006) defended that it needs the right type of materials and the right level of mental stimulation (Lillard, 2018) to be in consonance with the development stages (Montessori, 2012) that children go through as it has been presented as different stages of the life cycle where children are more malleable to certain skills (Heckman & Mosso, 2014; Knudsen et al., 2006; Thompson & Nelson, 2001). Like this, society's demand of respecting children's rights and infant's development life cycle will be guaranteed.

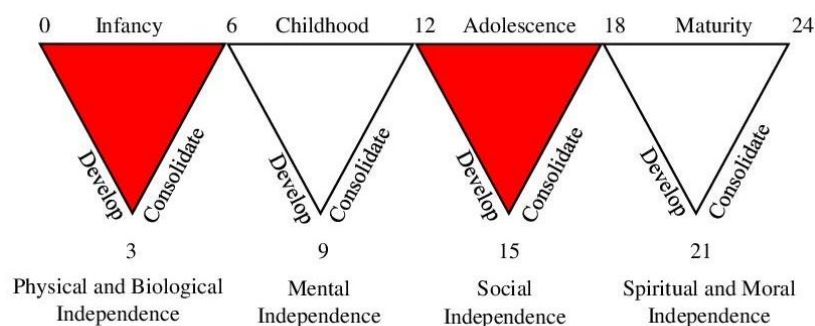


Figure 1. Montessori's Stages of Development (adapted from Montessori, 2012)

These sensitive periods (Francesconi & Heckman, 2016), or life cycles as it has been mentioned, are also assumed in the Montessori Pedagogy. The stages of Montessori development (see Figure 1) are grouped into six-year blocks, which at the same time are divided into three years. This is also happening in the multi-age classrooms spanning three years (Edwards, 2002), which allows a first environment to develop a wide range of abilities and a second environment to consolidate these abilities. Specifically, the early childhood environments in the Montessori (1998) approach are set in three groups: the *nido*, from birth to sixteen months approximately;

the *infant community* from sixteen months to three years old; and *casa dei bambini* from three to six years old (Montessori, 1998). Even though there are three spaces to attend 6 years of life, in this case it is so, as the first three years of life children change rapidly and their motor acquisitions are enormous. For this reason, in *nido* there are children who do not walk and when they march with confidence they change to the *infant community*.

Every environment consists of a physical part and a psychological part, that occurs through the process and interactions that take place. For example, from birth to three years old, is the time from the *unconscious absorbent mind* and from three to six from the *conscious absorbent mind*. In this case, Montessori (1998) creates an environment to respond to this inner demand of the child and provide it with the materials – mostly wooden or made of natural materials – that allow children to see their own mistakes and learn by voluntary repetition (Lillard, 2018). Traditional approaches fail in this aspect and the transition from teacher-supplied feedback to learner self-monitoring is not something that comes about automatically (Sadler, 1989). Meaningful practices promote children's opinions and creativity, so children need to assume their goals as something personal, and then this will play a significant part in the voluntary regulation of their performance (Black & Wiliam, 2009).

If psychological needs are to be met in any environment, the physical part needs to be in consonance in order to promote this development. Thereby, the architecturally designed spaces are motivating and a directing path in education, and this spatial adaptation based on a particular educational approach which directly affects the quality of the education provided (Chan, 1988; Jung Park & Hyo Chang, 2019). In this space, furniture, materials, objects and toys are set. When the background of early years' education in terms of play and learning is scrutinized, Pramling and Asplund (2008) found that from child's perspective play and learning are done simultaneously. For this reason, these psychological acquisitions in their minds take place in every moment and in any peer or adult interaction. Heller et al. (2012) added that teacher-child interactions and teacher behaviour reinforce a positive social and emotional environment that can enhance children's social-emotional competences. Social-problem solving can be trained and learned in the early years and form the social and emotional abilities. Lillard (2012) found that social problem-solving strategies, such as justice and considering another person's goals, were gained when in classrooms there was only one set of each material (Montessori, 1998). This creates frequent needs to consider how to solve conflicts over limited resources.

With all this evidence, the relation between the physical part, that is guaranteed when we set an environment, and the intrinsic psychological effects that take part in every child is appreciated. Like this, early childhood environments need to ensure children's well-being, health, learning and play (Vogler, Crivello & Woodhead, 2008). As a result, the impact from the environment in these first years is absorbed with no filter and the child cannot distinguish what is really needed from what is not (Montessori, 2006). For this reason, this idea is important when it comes to see that the changes in the child appear to be permanent as the environment interacts with gene expression producing changes (Zhang & Meaney, 2010). For this reason, as it is a concern for society, families look for quality child care institutions where both areas share a common aim. The person responsible for this environment is the adult, and they act as the link between the child and the environment, as they promote activities with the materials and space in which the child participates. Furthermore, the method in

which the educator has been trained is relevant in regard to the practices and experiences offered in the childcare center, so analyzing this aspect, can offer a theoretical debate to develop training programs.

Teacher Training, Placing the Child at the Center of the Education

The purpose of this section is to distinguish the demands of the governmental policies that regulate teacher training and to unify all these bases to assume which knowledge should guarantee any training program, as one of the society demands was the need for high-quality, educated and stable workforce in child care institutions (Totenhagen et al., 2016). Early years training plays a key role in the adult formation as they influence child development and socialization (Wilke, Hachfeld & Anders, 2017). As a consequence, early childhood training needs to promote an inclusive education that guarantees the attendance of every child. The following practices present the respect for different rhythms of development and place the child at the center of the education.

As previously mentioned, teacher training depends on governmental and educational policies. However, practices in early childhood education have been a catalyst for empirical and theoretical studies originating within a wide range of disciplines. It is agreed that, practices and pedagogies have been shaped by generations of human activity and creativity, different circumstances, opportunities and constraints, and informed by multiple discourses about children's needs and nature (Woodhead, 2006). All these influences have shaped teacher training and governmental policies in the Euro-Western world, but they do not seek a universal teacher training that can lead to the worldwide community of education.

Even though the approaches are numerous, this article is focused on the social and cultural paradigm because it emphasizes the respect in which early childhood contests and processes are shaped by human action and cultural processes. Cultural views in children's needs, related to their individuality, gender, ethnicity and a host of many other factors (Woodhead, 2006) are included. This paradigm supports human rights and avoids the principle of homogenizing children and allows for individuality, gender differences and diversity. Considering this, any teacher training should promote these principles, as the recognition of young children's universal human rights would be assumed. In the United Nations Committee of the Right of the Child (2005) they state that, all children – including the youngest – must be respected as persons in their own right.

As migration is increasing rapidly nowadays, the US Census Bureau has proven that classrooms are becoming more racially and ethnically diverse, consequently teachers must be prepared to respond positively to these new demands. Florian and Beaton (2017) presented the inclusive pedagogical approach, where they respond differently in front of individualities, avoiding the marginalization that can occur with differentiation strategies that are designed only considering individual needs. This means that children cannot be excluded from opportunities to participate in collaborative or group activities (Slee, 2010). Adults need to offer a variety of experiences and the opportunity to choose what they would like to do. At the same time, training centers are looking for more interdisciplinary programs, which break from traditional discipline-based studies that not only fragment the child, but also the professional specialisms (Woodhead & Montgomery, 2003).

This is already being applied in some European Countries, where teachers receive training in all the developmental aspects that affect early childhood and, in all subjects, when they teach from six to twelve years old. Woodhead (2006) defended the importance of such interdisciplinary childhood studies as a way where diverse perspectives of early childhood can meet. Moreover, this can promote more coordinated policies, integrated services and is increasingly underpinned by a holistic view of children's interdependent rights. Florian and Beaton (2017) added that sharing practices and approaches with several professionals could involve a long and in-depth analysis of the complex practice of teaching. This could enhance the capacity to develop practice either in any teacher, but also in those who prepare them (Brown & McIntyre, 1992). Consequently, teacher training would be reinforced and early childhood educators could have quality organizational characteristics, opportunities, job satisfaction and a continuous education and training that would benefit early childhood centers (Totenhagen et al., 2016); ergo, this means that society's demands are being achieved.

Training should be done permanently as new demands are appearing every day but also to reflect on one's own practice. Ota et al. (2006), proved that pre and post training showed significant gains in the categories of facilitating social development, positive caregiving behaviors and interactions between children and adults. Moreover, the Developmentally Appropriate Practices (DAP) founded by Bredekamp (1987) have begun to train pre-service teachers and it has appeared to have a positive impact on the beliefs and practices of teachers who were already sympathetic to developmental philosophy (Haupt et al., 1995). These advances positively affect both teacher practices, relationships and the child, for this reason every child needs to be conceived as unique.

Most training centers consider the necessity for teacher training to attend to diversity and a multicultural curriculum, well documented by Banks (1996). Howard (1999) and Nieto (2002) further added that professional development should provide educators with opportunities to learn more about their student's cultures, language and these should be done through making learning styles meaningful and relevant for them. The most important aspect is teachers need to know that the child is in the center of all this process and they are constantly transforming their abilities and capacities to achieve their personal goals (Montessori, 1998). Teachers need the skills to organize children's learning processes (Pramling & Asplund, 2008) and this signifies:

- Awareness of child perspectives and teachers' perspectives;
- Necessity to be (teacher and child) involved in the learning process;
- Teacher's goal direction and sensitivity to the child's perspective need to work simultaneously; and
- Need of communication and interaction between teachers and children and between peers should be provided on a daily basis.

The outcome of the training should allow teachers to assume that attitudes, knowledge, interactions and environment are intertwined into a totality (Pramling & Asplund, 2008), but also consider every child as a natural and unique being (Montessori, 1998). As a consequence, society's demands cannot be conceived separately, as a connection between them is apparent. Black and Wiliam (2009) added that the teacher is responsible for designing and implementing an effective learning environment, and the learner is responsible for the learning within that environment. Taking this into account, more evidence is presented with the connection

of families' demands, as the environment and education offered are intertwined. In Montessori schools, teachers and the environment allow freedom to choose a material to work with. However, there are norms and limits that are clear in the environment: children are allowed to work with any material that the teacher has presented previously through a demonstration (Montessori, 1998). In this case, adult training is centered in offering a quality observation (Montessori, 2006) to detect children's level of development and later, to promote individual activities to provide opportunities for the child to explore and learn (İslamoğlu, 2017) and to achieve their own potential. These strategies assume the need for high-quality child care centers (Totenhagen et al., 2016) as children are observed and treated as individuals.

This places demands on the teacher. Firstly, the teacher must have general knowledge about child development and about every particular child in her/his class. Also, the teacher needs to have the ability to observe and listen to the children (Montessori, 1998; Pramling & Asplund, 2008), to show respect for every child and all their experiences, knowledge and competences. As children are actively involved, the teacher's attention is focused on what she/he can learn about the student's thinking from their response (Black & Wiliam, 2009). A constant observation (Montessori, 1998) is needed to understand a child's needs and development, and to avoid interpreting what is seen in the first instance. To assume and respect every child, the classroom cannot be given in the same way to all children, this is why Montessori (1998) offers a differentiated instruction that can naturally support different levels of executive functions (Lillard et al., 2017). At the same time, teacher training is organized specifically to develop a range of abilities to guide the development of the child in every specific age as demonstrated by Thompson and Nelson (2001) and Knudsen et al. (2006) with its life cycles or sensitive periods to acquire specific skills. There are some organizations that offer this training but we will focus on Association Montessori Internationale (AMI), which requires a high standard for entering in the program to become a Montessori teacher. This course involves nine months of lectures and practice training, creating several albums that include specific notes of Montessori curriculum, and a final examination (Lillard et al., 2017) focused just in the Montessori system. Arnett (1989) showed that caregivers with specialized training in early childhood education showed a higher frequency of positive social interaction with children. At the same time, as adults are models of children, the way they act, in grace and courtesy, is absorbed by the observant child.

Moreover, Montessori teachers break with the traditional method of having a teacher who is giving a master class, as they believe that internal guides propel children toward activities that benefit their own development (Montessori, 1998). Teachers need to develop guided participation (Kirk & Jay, 2018), a way of considering interpersonal interactions and arrangements due to examine all the processes and contribute to children's development, like social knowledge and emotional understandings (Kirk & Jay, 2018). Moreover, Post-Vygotskian researches develop the idea of scaffolding to capture the assistance children received from adult instructors and their peers in reaching new developmental goals (Wood, Bruner & Ross, 1976). In this case, we cannot fall into being teacher regulated, an idea that comes when adults constantly regulate children. It is necessary to create teacher-child relationships sustained by shared thinking (Kirk & Jay, 2018) and to engage child-guided activity to provide a connection between the environment and relationships. For this reason, training matters as caregivers get knowledge and practices to promote all of these experiences. Arnett (1989)

proved that training is related to the attitudes and behaviours of caregivers and she added that teachers with longer periods of training had a variety of responses in early childhood situations, consequently, they were less authoritarian and interacted more positively with children.

Considering this study, educational policies should pose higher standards in teacher training as the highest rates of return on educational investments in human capital appear to be through preschool programs (Heckman, 2006) and this is why our forces need to be focused in creating these quality practices. Even though, there exist a wide range of pedagogies, where all – or several – principles respect this teacher training and a prepared environment for the child, Montessori principles assume the aim of this theoretical debate and presupposes a meaningful education related to children's needs and interests and providing the elements for every child to achieve their inner potential in every aspect of their development and offering right solutions for societal demands.

Conclusions

Evidence has shown that there is increasing awareness in the first six years of life as children absorb everything in their environment and form their neuronal mass. For this reason, early childhood investigations have centered all their efforts to prove which practices have long-term benefits in preschool programs. This theoretical paper analyzed societal demands when looking for an early childhood center and evidence shows that institutions regulated under the Montessori Pedagogy could meet families' demands, as they match with the principles of respecting children's rights and developmental rhythms through meaningful and inclusive educational practices. A prepared environment and teacher training are the two interrelated aspects that provide positive child care experiences and must be conceived as being integral due to the mutual dependency of each element.

When children are in a prepared environment that stimulates them, they can develop their abilities with no barriers and this means that higher goals can be achieved. For this reason, a Montessori education provides complete child development, integrating cognitive and social growth for a healthy independent functioning (Lillard et al., 2017; Montessori, 1998), guiding every child differently as they cannot be taught in a universal way. At the same time, the teacher plays the role of linking the environment and the materials with the child in an atmosphere of productive calm (Edwards, 2002). The teacher's goal is to encourage children, allowing them to gain confidence to take part in society, for this reason children participate in practical life activities, which help them to take care of themselves and their environment thanks to domestic activities (Bone, 2017). As both the environment and the adult play an essential role when they interact with children, educational policies should have higher standards to prepare future teachers as they are working with the most vulnerable people of our society. There is still no evidence, whether learning multiple theories or a single one creates better teachers, but as research has shown, teacher-training has a positive impact on teachers as they reflect and acquire a broader set of knowledge.

In debate we focused on Montessori principles as they give a clear response to all three societal demands when considering child care centers. However, as with any other pedagogical approach, Montessori can be

implemented in several ways because humans create and remodel practices to be adapted to recent times. There is little known about how the fidelity of a pedagogy implementation affects long term benefits, especially when the existence of Montessori schools is such a reduced number in comparison to traditional schools, at least in Spain. Research in the area of early childhood institutions is moving in the direction of a more focused analysis of the dimensions of quality whose principles determine children's experiences in day care (Arnett, 1989). Further research should be conducted on training programs for caregivers and its long-term effects in educational practices, as adults are responsible for children's environments. In addition, which basis should consider any school environment to attend children rights and developmental rhythms should be analysed as in early childhood education the basis of our future is set.

Acknowledgements

This paper is part of an Industrial PhD program (more information in <http://doctoratsindustrials.gencat.cat/>) supported by Montessori-Palau International Research and Training Center (MIRTC), Complex Cultural Esportiu Montessori Palau (Girona) and University of Vic – Central University of Catalonia (UVic-UCC) under the Agency of Management of University and Research Grants (AGAUR). The authors also acknowledge the additional support provided by Jennifer Cooper for its revision work.

References

- Adame-Sánchez, C., González-Cruz, T., Martín-Fuentes, C. (2016). Do firms implement work-life balance policies to benefit their workers or themselves? *Journal of Business Research*, 69, 5519–5523. doi: 10.1016/j.busres02016.04.164
- Allen, T. D. (2013). *The work-family role interface: A synthesis of the research from industrial and organizational psychology*. In N. W. Schmitt, S. Highhouse, & I. B. Weiner (Eds.), *Handbook of psychology: Industrial and organizational psychology* (p. 698–718). John Wiley & Sons Inc.
- Alpi, L. (2003) *Adaptación a la escuela infantil. Niños, familias y educadores al comenzar la escuela*. [Adaptation to the nursery school. Children, families and teachers when they start school]. Madrid: Narcea.
- Arnett, J. (1989). Caregivers in day-care centers: Does training matter? *Journal of Applied Developmental Psychology*, 10 (4), 541–552. doi:10.1016/0193-3973(89)90026-9
- Australian Bureau of Statistics (2017). Statistics and Census [Data base]. Retrieved from <http://www.abs.gov.au>
- Bainbridge, J., Meyers, M.K., Tanaka, S., & Waldfogel, J. (2005). Who gets an Early Education? Family Income and the Enrolment of Three- to Five- Years- Olds from 1968 to 2000. *Social Science Quarterly*, 86 (3), 724–745.
- Banks, J.A. (1996). *Multicultural education, Transformative knowledge and Action: Historical and Contemporary Perspective*. New York: Teachers College Press.
- Berk, L. E., & Meyers, A. B. (2015). *Infants, children, and adolescents* (8th ed.). Boston, MA: Pearson.
- Black, P. & Wiliam, D. (1998). Inside the Black Box: Raising Standards through Classroom Assessment. *Phi Delta Kappan*, 80 (2), 139–144.

- Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability*, 21(1), 5–31. doi:10.1007/s11092-008-9068-5
- Bone, J. (2017). Maria Montessori as domestic goddess: iconic early childhood education and material girl. *Gender and Education*. doi: 10.1080/09540253.2017.1396293
- Bredenkamp, S. (1987). *Developmentally appropriate practice in programs serving children from birth through age 8*. Washington, D.C.: National Association for the Education of Young Children.
- Bronfenbrenner, U. (1979). *The Ecology of Human Development*. Cambridge, MA: Harvard University Press.
- Brown, T. & Clark, C. (2017). Employed parents of children with disabilities and work family life balance: A literature review. *Child youth care Forum*, 46, 857–876. doi: 10.1007/s10566-017-9407-0
- Brown, S. & McIntyre, D. (1992). *Making Sense of Teaching*. Aberdeen: University of Aberdeen.
- Carson, V., Salmon, J., Crawford, D., Hinkley, T., & Hesketh, K. D. (2016). Longitudinal levels and bouts of objectively measured sedentary time among young Australian children in the HAPPY study. *Journal of Science and Medicine in Sport*, 19 (3), 232–236. doi:10.1016/j.jsams.2015.01.009
- Chan, T.C. (1988). The aesthetic environment and student learning. *School Business Affairs*, 54 (1), 26–27.
- Cunha, F., Heckman, J.J., Lochner, L.J. & Masterov, D.V. (2006). *Interpreting the evidence on life cycle skill formation*, in (E.A. Hanushek and F. Welch, eds.), *Handbook of the Economics of Education*, ch. 12, pp. 697–812. Amsterdam: North-Holland.
- Edwards, C.P. (2002). Three Approaches from Europe: Waldorf, Montessori, and Reggio Emilia. *Early Childhood Research & Practice* 4, (1).
- Ellis, Y.G., Cliff, D.P., Howard, S.J. & Okely, A.D. (2018). Feasibility, acceptability, and potential efficacy of a childcare-based intervention to reduce sitting time among preschoolers: A pilot randomised controlled trial. *Journal of Sports Sciences*, 1, 10. doi: 10.1080/02640414.2018.1486362
- Fernández, I. (2018). Finding time for children. Fatherhood, Jobs and Available Time in Spain, 2003-2010. *Revista Internacional de Sociología*, 76 (3), e104. doi: 10.3989/ris.2018.76.3.17.84
- Florian, L. & Beaton, M. (2017). Inclusive pedagogy in action: getting it right for every child. *International Journal of Inclusive Education*, 22 (8), 870–884. doi:10.1080/13603116.2017.1412513
- Francesconi, M. & Heckman, J.J. (2016). Child Development and Parental Investment: Introduction. *The Economic Journal*, 126 (596), 1–27. doi: 10.1111/econj.12388
- Fröbel, F. (1989). *La educación del hombre*. [The education from the man]. Barcelona: Eumo.
- García, J.L. & Heckman, J.J. (2015). *Parenting, skills, and social mobility*. University of Chicago, Department of Economics.
- Greenberg, J.P. (2011). The impact of maternal education on children's enrolment in early childhood education and care. *Children and Youth Services Review* 33, 1049–1057. doi: 10.1016/j.childyouth.2011.01.016
- Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review*, 10 (1), 76–88.
- Halle, T.G., & Darling-Churchill, K.E. (2016). Review of measures of social and emotional development. *Journal of Applied Developmental Psychology*, 45, 8–18. doi: 10.1016/j.appdev.2016.02.003
- Haupt, J. H., Larsen, J. M., Robinson, C. C. & Hart, C. H. (1995). The Impact of DAP Inservice Training on the Beliefs and Practices of Kindergarten Teachers. *Journal of Early Childhood Teacher Education*, 16 (2), 12–18. doi:10.1080/1090102950160204


- Heckman, J.J. (2006). Skill formation and the economics of investing in disadvantaged children. *Science* 312, 1900–1902. doi: 10.1126/science.112.8898
- Heckman, J.J. & Mosso, S. (2014). The economics of human development and social mobility. *Annual Review of Economics*, 6 (1), 689–733.
- Heller, S.S., Rice, J. Boothe, A., Sidell, M., Vaughn, K., Keyes, A., & Nagle, G. (2012). Social-emotional development, school readiness, teacher-child interactions, and classroom environment. *Early Education and Development*, 23 (6), 919–944. doi: 10.1080/10409289.2011.626387
- Howard, G.R. (1999). *We can't teach what we don't know: White teachers, multiracial schools*. New York: Teachers College Press.
- Institute of Medicine of the National Academies. (2011). Early childhood obesity prevention policies from institute of medicine. Retrieved January 3, 2019, from <http://www.nationalacademies.org/>
- Ishimine, K., & Tayler, C. (2014). Assessing quality in early childhood education and care. *European journal of Education*, 49 (2), 272–290. doi: doi.org/10.1111/ejed.12043
- İslamoğlu, Ö. (2017). Interaction between Educational Approach and Space: The case of Montessori. *EURASIA Journal of Mathematics, Science and Technology Education*, 14, (1), 265–274. doi: 10.12973/ejmste/79799
- Jung Park, S. & Hyo Chang, L. (2019). Spatial design of childcare facilities based on biophilic design patterns. *Sustainability*, 11, 2851. doi: 10.3390/su11102851
- Kirk, G. & Jay, J. (2018). Supporting Kindergarten Children's Social and Emotional Development: Examining the Synergetic Role of Environments, Play, and Relationships. *Journal of Research in Childhood Education*, 32 (4), 472–485. doi: 10.1080/02568543.2018.1495671
- Knudsen, E.I., Heckman, J.J., Cameron, J. & Shonkoff, J.P. (2006). Economic, neurobiological, and behavioral perspectives on building America's future workforce. *Proceedings of the National Academy of Sciences*, 103 (27), 10155–62.
- Kossek, E. E., Pichler, S., Bodner, T., & Hammer, L. B. (2011). Workplace social support and work–family conflict: A meta-analysis clarifying the influence of general and work–family-specific supervisor and organizational support. *Personnel Psychology*, 64 (2), 289–313. doi:10.1111/j.1744-6570.2011.01211.
- Lansdown, G. (2005). The evolving capacities of children. Implications for the exercise of rights. Florence: UNICEF Innocenti Research Center.
- Lillard, A.S. (2012). Preschool children's development in classic Montessori, supplemented Montessori, and conventional programs. *Journal of School Psychology*, 50, 379–401. doi: 10.1016/j.jsp.2012.01.001
- Lillard A.S., Heise M.J., Richey E.M., Tong X., Hart A., & Bray P.M. (2017). Montessori Preschool Elevates and Equalizes Child Outcomes: A Longitudinal Study. *Front. Psychol.* 8:1783. doi: 10.3389/fpsyg.2017.01783
- Lillard, A.S. (2018). Rethinking Education: Montessori's Approach. *Association for Psychological Science*, 1–6. doi: 10.1177/0963721418769878
- Magnuson, K., Meyers, M. K., Ruhm, C., & Waldfogel, J. (2004). Inequality in preschool education and school readiness. *American Educational Research Journal*, 41 (1), 115–157. doi: 10.3102/00028312041001115
- Malaguzzi, L. (1994). Your Image of the Child: Where Teaching Begins. *Early Childhood Educational Exchange* 96, 52–61.

- Mani, N. & Ackermann, L. (2018). Why Do Children Learn the Words They Do? *Child Development Perspectives*, 1–5. doi:10.1111/cdep.12295
- Montanaro, S.Q. (1991). *Un ser Humano. La importancia de los primeros tres años de vida*. [A human being: the importance of the first three years of life]. Chile: Cuatro Vientos.
- Montessori, M. (1998) *La mente absorbente del niño*. [The absorbent mind] Mexico: Diana.
- Montessori, M. (2006) *El niño, el secreto de la infancia*. [The child, the secret of the infancy] Mexico: Diana.
- Montessori, M. (2012). *The 1976 London lectures* (The Montessori Series Vol.17). Amsterdam, The Netherlands: Montessori- Pierson.
- National Institute of Child Health and Human Development, E. C. C. R. N. [NICHD]. (2003). Does quality of child care affect child outcomes at age 4 1/2? *Developmental Psychology*, 39 (3), 451–469. doi:10.1037/0012-1649.39.3.451
- Nganga, L. (2015). Multicultural Curriculum in Rural Early Childhood Programs. *Journal of Praxis in Multicultural Education* 9 (1). doi: 10.9741/2161-2978.1073
- Nieto, S. (2002). *Language, culture and teaching: Critical perspectives for a new century*. Mahwah, NJ: LEA.
- Ollier-Malaterre, A., Valcour, M., Den Dulk, L., & Ernst, E. (2013). Theorizing national context to develop comparative work-life research: A review and research agenda. *European Management Journal*, 31, 433–447. doi: 10.1016/j.emj.2013.05.002
- Ota, C., DiCarlo, C. F., Burts, D. C., Laird, R. & Gioe, C. (2006). The Impact of Training on Caregiver Responsiveness. *Journal of Early Childhood Teacher Education*, 27 (2), 149–160. doi:10.1080/10901020600675117
- Parrilli, M.D., Montresor, S. & Trippi, M. (2018). A new approach to migrations: communities-on-the-move as assets. *Regional Studies*, 53, (1), 1–5. doi: 10.1080/00343404.2018.1536821
- Peisner-Feinberg, E. & Burchinal, M. (1997). Relations between preschool children’s child care experiences and concurrent development: The cost, quality and outcomes study. *Merrill–Palmer Quarterly*, 43(3), 451–477.
- Piaget, J. (1978). *The Equilibration of Cognitive Structures*. Oxford: Blackwell.
- Pramling, I. & Asplund, M. (2008). The Playing Learning Child: Towards a Pedagogy of Early Childhood. *Scandinavian Journal of Educational Research*, 52 (6), 623–641. doi: 10.1080/00313830802497265
- Rinaldi, C. (2001). A Pedagogy of Listening. *Children in Europe* 1, 2–5.
- Rupert, P. & Zanella, G. (2018). Grandchildren and their grandparents’ labor supply. *Journal of Public Economics*, 159, 89–103. doi: 10.1016/j.jpubeco.2017.12.013
- Sadler, D. R. (1989). Formative assessment and the design of instructional systems. *Instructional Science*, 18 (2), 119–144. doi:10.1007/bf00117714
- Slee, R. (2010). *The Irregular School: Exclusion, Schooling and Inclusive Education*. London: Routledge.
- Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I. & Taggart, B. (2010). *Early Childhood Matters, Evidence from the Effective Pre-school and Primary Project, 1st Edition*. London: Routledge.
- Southworth, E.M. (2014). Shedding gender stigmas: Work-life balance equity in the 21st century. *Business Horizons*, 57, 97–106. doi: 10.1016/j.bushor.2013.10.003
- Thompson, R.A. & Nelson, C.A. (2001). Developmental science and the media: early brain development. *American Psychologist*, 56 (1), 5–15.

- Totenhagen, C.J., Hawkins, S.A., Casper, D.M., Bosch, L.A., Hawkey, K.R. & Borden, L.M. (2016). Retaining Early Childhood Education workers: A review of empirical literature. *Journal of Research in Childhood Education, 30* (4), 585–599. doi: 10.1080/02568543.2016.1214652
- United Nations Committee of the Right of the Child (2005) *Implementing Child Rights in Early Childhood*, General Comment 7, Geneva, OHCHR [CRC/C/GC/7]. Retrieved January 3, 2019, from <http://ohchr.org>
- US Census Bureau (2017). American Community Survey [Data base]. Retrieved January 3, 2019 from <https://www.census.gov/programs-surveys/acs/>
- Van Bavel, J. & Róžańska-Putek, J. (2010). Second birth rates across Europe: interactions between women's level of education and child care enrolment. *Vienna Yearbook of Population Research 8*, 107–138. doi: 10.1553/populationyearbook2010s107
- Vertovec, S. (2017). Talking around super-diversity. *Ethnic and Racial Studies, 42* (1), 125–139. doi: 10.1080/01419870.2017.1406128
- Vogler, P., Crivello, G., & Woodhead, M. (2008). Early Childhood Transitions research: A review of concepts, theory and practice. Working paper No. 48. The Hague: Bernard van Leer Foundation.
- Vygotsky, L.S. (1978). *Mind in society. The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wilke, F., Hachfeld, A. & Anders, Y. (2017). How is participation in parent-child-interaction-focused and parenting-skills-focused courses associated with child development? *Early Years, an International Research Journal*. doi: 10.1080/09575146.2017.1288089
- Wood, D., Bruner, J.S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry 17* (2): 89–100.
- Woodhead, M. (2006). Changing perspectives on early childhood: theory, research and policy. *International Journal of Equity and Innovation in Early Childhood, 4* (2), 1–43.
- Woodhead, M., & Montgomery, H. (2003). *Understanding Childhood: An Interdisciplinary Approach*, Chichester, Wiley.
- Zhang, T., & Meaney, M. (2010). Epigenetics and environmental regulation of the genome and its function. *Annu. Rev. Psychol. 61*, 439–466. doi: 10.1146/annurev.psych.60.110707.163625

Author Information

Aida Macià-Gual

 <https://orcid.org/0000-0002-3099-702X>

University of Vic – Central University of Catalonia
(UVic-UCC)

Carrer de la Sagrada Família, 7, 08500 Vic

Spain

Contact e-mail: aida.macia@uvic.cat

Laura Domingo-Peñañiel

 <https://orcid.org/0000-0002-7934-3094>

University of Vic – Central University of Catalonia
(UVic-UCC)

Carrer de la Sagrada Família, 7, 08500 Vic

Spain