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Montessori Method and Universal Design for Learning: two methodologies in conjunction for inclusive early childhood education

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Abstract

The main aim of this study is to examine the features of two methods, the Montessori Method and the method based on the principles of Universal Design for Learning, in order to highlight the common characteristics of both and their possible application in inclusive early childhood education. The curriculum represents the formative path for a child's learning from the perspective of didactical content and educational organization. A curriculum becomes inclusive when all children's needs are addressed, not only as a group, but also as individual learners. Both the Montessori Method and Universal Design for Learning respect the unique characteristics, learning preferences and true potential of each individual child.

Lo scopo di questo contributo è quello di esaminare le caratteristiche del metodo Montessori e del metodo basato sui principi dell'Universal Design for Learning per evidenziare le caratteristiche comuni e la loro possibile applicazione nell'ambito dell'educazione inclusiva per la prima infanzia. Il curriculum rappresenta un percorso formativo per l'apprendimento del bambino sia nella prospettiva dei contenuti didattici che dell'organizzazione educativa. Un curriculum diventa inclusivo quando risponde ai bisogni di tutti i bambini, considerati non soltanto come gruppo, ma anche come singoli alunni. Entrambi il metodo Montessori e l'Universal Design for Learning rispettano le caratteristiche di unicità, le modalità di apprendimento e le potenzialità di ciascun bambino.

Keywords: Montessori Method; Universal Design; early childhood; learning, environment

Parole chiave: metodo Montessori; progettazione universale; prima infanzia; apprendimento; ambiente

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1. The Montessori Method

Montessori is a method of education that is based on self-directed activity, hands-on learning and collaborative play. In Montessori classrooms, children make creative choices in their learning, while the classroom and the highly trained teacher offer age-appropriate activities to guide the process. According to the Montessori method, an important pedagogical principle was to provide pupils with structure and order in the classroom. Parents were required to become interested parties in their children's education, including participating in parent-teacher conferences (Gutek, 2004). A Montessori classroom was adapted to a child's needs in order to allow for maximum freedom of movement. For example, furniture and washing facilities were made accessible for young children, and as a result, they became responsible for their materials. The aim of this classroom design was to allow for the development of a child's sensory sensitivity and manual ability. This would help the child to maintain structure and order within the classroom, thereby contributing to the child's autonomy and confidence.
It was Montessori's belief that children undergo "sensitive periods" during which children become open to certain kinds of learning, specifically sensory training and language learning, along with motor and social skills. To overcome the lack of motivation typically experienced by learners in traditional schools, Montessori gave learners self-correcting materials of their own choosing. This allowed children to work individually and, in so doing, to develop discipline and reliance in mastering the tasks that they had set for themselves. Overall, Montessori set up a curriculum whereby children were able to develop practical life skills, motor and sensory training, as well as literary and computational abilities (Schocchera, 1993). Montessori elaborated three distinct groups of exercises, the first being life skills, the second being sensory training and the third being language development. According to the Montessori method, these activities are useful if practised in a well-structured environment.

2. Origins of Montessori Method

While teaching as a pediatrician at the medical school of the University of Rome, Montessori came into frequent contact with disadvantaged children at the University's free clinics. Through these experiences, Montessori noted that intelligence presented itself in ways that were not always recognized by traditional schools at that time. In 1900, Montessori became the director of the Orthophrenic School connected to the University of Rome, which served as an asylum for the city's "deficient and insane" children. By today's standards, many of these inmates would be categorized as being autistic or mentally challenged. These children had been placed in desolate settings, uncared for and mistreated by an untrained staff. Montessori recognized that the less disturbed of these children could flourish if given proper stimulation and purposeful activity. During this time, Montessori discovered the ground-breaking work that had been carried out by Itard and Séguin regarding the education of children with disabilities. From these studies, Montessori learned that a child must experience stimulation at critical stages of growth in order to develop normally. Consequently, the concept of "sensitive periods" became an integral part of Montessori's educational methods. All education, Montessori asserted, would benefit from observation and experimentation.

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Montessori drew inspiration from Itard's work with blind children, where skills were methodically broken down into small steps supported by a set of hands-on educational materials. This scientific approach became a fundamental feature of the Montessori method: Montessori carefully observed the responses of the children with disabilities; she taught and monitored their progress as they became more and more functional and independent. Gradually, these children learned to perform routine tasks such as preparing meals and taking care of their environment. Montessori suggested that if such results could be obtained by working with disabled children, the results would be even greater when dealing with children with typical development. This idea led to Montessori's establishing the first "Children's House", where she began to teach economically and socially disadvantaged children with typical development. Here, Montessori introduced some of the same methods she had used with mentally disabled children, including manipulative perceptual discrimination, puzzles and eye-hand manipulative exercises.

3. Life skills in Montessori Method

For Montessori, life skills involved those skills needed in one's everyday life related to eating, washing, dressing, and for functioning as an independent being. Being able to perform these practical skills meant that a child would have the confidence to function without the help of an adult. With this aim in mind, Montessori used household objects such as silverware and cutlery, gardening tools and other hands-on materials. To support the development of these skills, Montessori created the classroom with furniture in proportion to a child's size. Wherever possible, chairs and stools were lightweight and manageable so that children could move them as they wish. Beds and cots were positioned close to the ground so that children could get in and out on their own before the age of one. Trays containing materials were conveniently located and manageable. Wash basins, toilets and benches were made of high-quality materials to allow for the child's comfort and safety (Lupi, 2018). In addition, outside space was equally important to the Montessori method. There was an outdoor garden to allow children to run and play in the fresh air. Children could explore the outdoor environment and learn to appreciate nature. In this way, the children would also understand the importance of taking care of the environment in which they lived. Montessori life skills seem to be in contrast with the modern conception of life skills. The modern idea of life skills includes authentic communication, problem-solving, decision-making, creativity, critical thinking, creating and maintaining relationships with peers and adults, resilience and determination in achieving a certain goal, and self-control (Antonietti & Valenti, 2017). If we analyse the Montessori method life skills, we can see that these can be compared to the modern life skills mentioned above. When the pupils engage in activities involving the use of silverware to set the table, they are utilizing their problem-solving and decision-making skills. When the pupils are required to dress themselves using buttons, zippers and laces, they are developing not only practical skills to become independent from an adult, but also the necessary determination to perform the act of dressing. When children engage in housekeeping and gardening in the Montessori method, they are developing and expressing their creativity to find new ways to use objects.

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The Montessori method is characterized by learning through "trial and error" and little importance is placed on correcting the child's mistakes. This process aids in the development of resilience and determination, both part of modern-day life skills. In the Montessori method, life skills are connected to practical actions that children do in everyday life as described above. In final analysis, the life skills in the Montessori method, while focusing on practical application, are actually connected to modern-day life skills and their development.

4. Sensory training

Montessori recognized the importance of developing a child's ability to distinguish colours, sounds and different kinds of objects. Activities and exercises were designed to cultivate three kinds of skills involving colour and hue, smell and sound, and comparing and contrasting. Montessori established the order in which children were to approach the use of various materials. The children would first work with wooden inserts to be placed in holes of the same size. Then, they were presented with ten wooden cubes to build and rebuild a tower. There were also ten wooden brown prisms and ten red rods that could be made into a long stair. The children were provided with geometric solids such as pyramids, cones and spheres, small boards with a variety of surfaces, weights and colours, and different textures of fabric. The children had a cabinet of drawers containing a variety of geometrical shapes which they removed and replaced in their frames. There were geometrical shapes pasted on cards, there were cylindrical containers that produced different sounds and there were sixty-three little tables in nine shades of seven different colours. There were musical bells to be used with a wooden board representing a musical staff and notes to help to develop the child's ability to discern musical tones. There were boxes with spices and other odours to help develop the child's sense of smell. While the child worked with the different materials, he compared and contrasted these materials and learned to group them according to their similarities and differences. The specific materials used by Montessori and the sensory activities designed by Montessori were a direct result of the research on the sensory period carried out on butterflies by the Dutch biologist De Vries in 1917. Montessori applied the concept of the sensory period, observed by De Vries, to the education of young children. Modern-day neuroscience has confirmed the existence of these sensitive periods during which the child is receptive to certain environmental stimuli rather than others (Regni & Fogassi, 2019, p. 629). Montessori realized the significance of this sensory period during which the child develops a keen interest in the outside world. The child may be capable of achieving extraordinary feats through his dynamic impulses. Once the child has had an intense experience during this period, he matures and reaches a higher level of awareness. It is this sensitivity that allows the child to have an exceptionally intense relationship with the outside world. «All becomes easy, all becomes special, all becomes life» (Montessori, 2016, p. 55). It is the child's interior sensitivity to the variety offered by his environment which drives him to choose the things he needs and the situation necessary for his development. The more intense and active this phase of development is, the more influential the role the environment plays. Montessori discovered that the environment does not play a creative role, but rather, exerts the power to help or hinder development or even cause it to regress. A child's desire to carry out repetitive actions may seem useless to the observer, however, it is because of the child's repeating a chosen set of

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activities over and over again that he is able to reach the next phase in his development. Montessori describes the sensory period by identifying a specific list, which remains current by today's standards. The list includes movements, language, love for one's surroundings, order, and religious sensibility or sensitivity of the soul. According to Montessori, between the ages of six and twelve, the child experiences the sensitive period of culture, abstraction, imagination, morality and cosmic education. Between the ages of twelve and eighteen, when the child becomes an adolescent, he experiences the period of the social infant. It is in this stage when he starts to become an independent adult in search of new forms of freedom and autonomy. He feels the need to work alongside his peers in preparation for the adult life which awaits him in the fourth phase of his development, between eighteen and twenty-four years of age. In this last stage of development, the sensitive periods that preceded the present phase will generate a vocation for study and work which will allow him to become a free and creative actor in society. In the development of personality, there exist special virtues or personal sensibilities different from the sensitive periods. The development of these sensibilities results in what is called "a vocation". Sensory refers to the exterior senses which can be distinguished from the word "sensitive," which refers to interior virtues relating to the development of personality (Montessori, 2012). The sensitive periods, therefore, guide the development which becomes evident through the actions and experiences that the child undergoes during his growth. These periods also guide the child's repetitive actions or his work, as Montessori describes it, which are often deemed useless by adults. The child's repetition within his environment is essential to the child's development. For this reason, his environment needs to be studied, prepared and cared for by the adult. Barriers, obstacles and detours from this repetitive activity result in a distorted development and divert the child from his path to independence. Montessori underlines the fact that the structures guiding psychological growth and development are inborn traits, typical of all human beings. These structures can be developed only through the child's actions on his environment. To facilitate these same actions, the environment itself needs to be prepared to accommodate the child's needs (Montessori, 1999). One of Montessori's greatest achievements was that of identifying the sensitive period for order within the other sensitive periods. This was a revelation on Montessori's part, as the general consensus was that the child exists in a state of disorder. Order, according to Montessori, is of an internal nature, a deep psychological order, but it can be manifested externally. For this reason, the motto for the Children's House is "everything in its place and a place for everything", one of the few rules that must be followed in the Montessori classroom. As Montessori states, order helps the child to find things, and therefore, to find himself. This means the child's being able to orient himself within his environment and possessing it in all its details. The child's love for order leads to a further sensitive period, that is, the child's love for the environment around him. The child observes things passionately and is attracted by all that he sees, especially those actions carried out by the adult. During the sensitive period, a special communicative pathway exists between the child's inner world and his outer world. Montessori claims that there is a relationship between the child's enhanced sensibility and his cognitive activity during this phase. According to Montessori, it is essential for adults to appreciate the special attraction that a child feels towards the world around him: sounds, smells, taste, light, language, rituals, traditions and landscape. This attraction to his environment unites the child with things and can be thought of

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as a love for his environment (Montessori, 2016, p. 137). Love is a force that corresponds to a precise neuro-physiological system and the force of the sensitive period for love of environment is based on brain function. Although Montessori did not possess the neuroscientific knowledge we have today, her keen instincts led her to understand that the child becomes more and more like the environment in which he lives. Through a biological and psycho- chemical transformation, children become «similar to what they love» (Montessori, 1999, p. 105). The child hears the fascinating silent language of space and the voices of things. Objects call out to be touched and their use is understood. As psycho-analysis has shown, the object becomes an intermediary between the inner and the outer world (Winnicot, 1974) Montessori says that the body, the brain, the mind, the soul, the eye, the hand and the sensitive period all work to impel the child to do, and doing is knowing. Learning results from the child's movement within his environment. All human thought and knowledge originate from acting within one's environment. The child must become friends with his environment and go towards it confidently without being shy or fearful. If the child finds a prepared environment with adults able to help him in his extraordinary endeavour of acting within his environment, he will achieve truly surprising results. Consequently, Montessori's focus on the importance of the child's environment becomes clear.

5. The environment in Montessori Method

In Montessori's Children's House, the importance of the prepared environment is reflected in the care and organization of the child's setting. Materials are chosen to appeal to young children and are designed by using wood or metal as opposed to the materials found in traditional pre-schools. Materials are organized according to topics and use and are age-appropriate. In pre-school, materials are specially adapted for the use of hands, the development of the language, the application of art skills, the development of observation, working with quantities, the practical life, etc. In each curriculum area, there is a dedicated space in the prepared environment. The classroom offers a variety of workspaces where the children can choose to carry out their preferred activities using materials available to them on shelves and in compartments. The furniture used in the classroom is child-sized and without a teacher's desk. In the Montessori classroom, repetition of activities and games is encouraged. Materials can be used as much as and as often as desired. The child is free to choose where to sit, what to do and with whom to work. However, the children are responsible for their choices and for the consequences of those choices. All children, regardless of individual ability, must be provided with an environment in which they can become an active participant.

6. Language development in Montessori Method

In the first three years of a child's life, one of the tasks of the Montessori educator is to support the child in his personal language building. According to Montessori, spoken language is produced by a natural mechanism and not by logical reasoning: it is nature acting logically (Montessori, 1999, p. 121). The individuality of the person is constructed in the first three years. The child is focused on himself, on the building of his personality,

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and on his movement. Repetition, followed by the same series of actions, allows the child to develop a mental order, which is fundamental to building conscious language. Language building is closely tied to the consideration that the child is gradually developing of himself. He uses words to express his feelings and opens himself up to the world around him. The child is stimulated to speak about what he knows and about what makes up his world, without basing any discourse on fantasy. In nursery school, language development can be facilitated by the use of simple songs that are connected to real life, short stories that correspond to the child's everyday life, children's books, games of movement, words, etc. Words are learned by using real objects or pictorial representations that the children recognize, such as vegetables, fruit, animals and so on. The purpose of this activity is not only that of developing language, but also that of developing the child's feeling of independence and his self-confidence. At the pre-school level, the doll house is used to initiate the child in conversation and to enrich his language ability. The doll house is made of an empty wooden structure with some small labelled sacks of material containing the furniture for the different rooms in the house and another sack containing the members of the household (mother, grandfather, brothers and sisters).

7. Universal Design for Learning

Universal Design for Learning (UDL) is a "framework for instruction organized around three principles based on the learning science" (Hall, Meyer & Rose, 2012). These principles inspire the design of the curriculum and its development to ensure inclusion and accessibility for each pupil (Rose & Gravel, 2010). Based on the nature of the learning process and on the design of supporting the learning environment, UDL principles focus on three learning processes: recognition, strategic learning and affective learning. As Rose and Mayer stated (Rose & Meyer, 2002) the three UDL principles are the following:

- recognition: teachers should provide different, multiple means of representation to involve the different pupils' style of learning. This means offering flexible and differentiated ways of representation of what is taught and consequently learned;
- strategic learning: this process is facilitated by providing multiple means of expression and actions. Strategic learning involves the use of flexible options to learn according to pupils' differentiated styles and to express what pupils have learned;
- affective learning: this process focuses on evaluating patterns and assigning them an emotional meaning. This process allows students to become engaged with the different learning tasks and with the world around them. Affective learning explains the "why" of learning.

The three above-mentioned processes are separate but closely linked. Take, for example, a child preparing a Mother's Day gift. The recognition process allows the child to choose or create his gift and how the gift will be presented. The strategic process involves the actual creation of the gift and the wrapping of it so that it is ready to give. The affective process is what the child goes through when thinking about his mother's receiving the gift as well as the child's persistence in completing the task, even though this may be difficult for him to do. By understanding how these processes are interdependent, the teacher can appreciate the pupils' individual

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differences. UDL provides education for all learners in all educational contexts. Here, we will focus on UDL in early childhood education, (both general and special) and nursery and preschool (both in class and at home).

8. UDL: the origins and the curriculum

UDL derives from the concept of Universal Design (UD), however, UDL focuses on learning while UD focuses on architecture and product development. First conceptualized by Ron Mace at North Carolina State University, UD reinforced the need for buildings and spaces designed for individuals with disabilities, but that benefit all. UD extends to the communication sector as well, with the development of closed captioning for the hearing impaired (Mace, 1985). This development also benefits those without hearing impediments, such as language learners or travelers at airports. Both UD and UDL have the common goal of providing access to a wide range of individuals. However, the methods to achieve this goal vary, as UDL involves the learning experience rather than the building process. CAST (Center for Applied Special Technology) is made up of a group of researchers working in the fields of learning and technology who investigate the neurology of learning. Their research has yielded significant findings related to UDL: 1) learning in the individual brain is «highly diverse and distributed, and learning among different individuals is also highly diverse and distributed» (Hall, Mayer & Rose, 2012, p. 5). Narrowly created curricula, therefore, will not present the differentiation needed for an optimal learning experience. Whereas previous research focused on practices supporting individuals with learning disabilities, the focus of UDL is on all learners by presenting a comprehensive model to optimize learning for individuals with learning abilities and learning disabilities alike. In terms of curriculum creation, UDL sets clear learning goals that do not raise barriers for any individual learner in accomplishing those goals. In UDL, both formative and summative assessment needs to be designed in accordance with instructional activities and must take into account eventual adjustments for individual learners. Finally, both instructional methods and materials must reflect individual differences and provide all learners with the most effective path to achieve their goals.

9. UDL Guidelines

CAST has set forth UDL guidelines, or tools, in order to help teachers and curriculum developers in planning instruction (CAST, 2009; Meo, 2008). These guidelines are not requirements, but rather provide options to deal with barriers and to ensure learning for all individuals. Neuro-scientific research has shown that students are all different, although they may appear to share skills and abilities. For this reason, the goals, the assessment, the methods and the materials within the curriculum must address each individual student in achieving academic standards. UDL guidelines call for customizing instruction for students as individuals through careful planning from the start, so as to avoid having to make modifications along the way. The UDL framework adheres to the idea of balancing challenge and support. In this way, learning is not made easier, but more challenging, by presenting students with "desirable difficulties" (Bjork & Bjork, 2011) and eliminating "undesirable difficulties", thereby supporting the learning process. The UDL framework envisions the challenges of individual

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learning differences from the perspective of the curriculum. More traditional educational settings have focused on the disabled student or on the underachiever and his failure to respond to the curriculum. Conversely, UDL focuses on "curricular disabilities" when the curriculum fails to meet the learning needs of all individuals. The UDL Guidelines are based on the following three principles:

1. providing multiple means of representation;
2. providing multiple means of action and expression;
3. providing multiple means of engagement (Rose & Gravel, 2010).

These three principles are referred to above as recognition, strategic learning and effective learning, in other words, the "what", the "how" and the "why" of learning. As mentioned previously, these Guidelines address potential barriers and their solutions in designing and implementing a curriculum. In recent decades, UDL has partnered with technology with the aim of facilitating the learning process and enhancing the learning experience. Technology can offer a variety of tools which can create flexible and supportive learning environments (Strangman & Dalton, 2005). These tools may include animation software, graphic design software, and developmental games, among others. Even in low-tech or no-tech pre-primary or nursery classrooms, however, UDL Guidelines can still be applied. According to UDL principles, a well-designed lesson is one which provides both challenge and support so that all learners can succeed toward a learning outcome. While being an important factor, technology is not indispensable to UDL, as UDL instruction can produce excellent outcomes even in a traditional classroom setting. In the traditional education system, expectations tend to be low and learners are viewed as being too disabled to reach higher goals. On the other hand, UDL principles set higher expectations for these same learners, and consequently, for all students. The UDL Guidelines provide an educational framework that can be utilized to understand different kinds of learners by offering tools and strategies to overcome barriers to learning. The successful implementation of UDL Guidelines will lead to the development of expert learners who approach their learning goals with motivation and resourcefulness.

10. Montessori Method and UDL

A comparison between the Montessori method and the principles of the UDL may seem unusual as these two methods are separated by many years with no apparent cultural connection to each other. A careful revisiting of Montessori's principles and of Montessori's own thinking provides us with several cornerstones common with UDL. In this writer's view, these shared principles allow for an inclusive common framework for both methods. Working as a doctor in 1896, Maria Montessori began to develop her method after observing the condition of those children that today would be considered as having a disability. In the first edition of "Il Metodo della pedagogia scientifica applicato all'educazione infantile nella Casa dei Bambini" (Montessori, 1909) Dr. Montessori stated that the education system used in the Children's House dates back to distant times. This reference does not only allude to the two years Montessori spent in the Children's House but also to the previous years she dedicated to her little mentally disturbed patients. When instructing the teacher of "frenastenici" children (children with cognitive disabilities), Montessori not only provides information on health and

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hygiene, but also attempts to show how to re-awaken the self-consciousness of these little children considered "abnormal" by society. It is in her practical approach to meeting the diverse needs of this type of child that the Montessori method takes shape. From these concrete beginnings, based on Montessori's own experience, we can see the first point of contact with UDL. Ron Mace created UD after recollecting his own experience as a child affected by polio. He was driven by his personal desire to utilize fully objects and environments meant for all without any adjustments or special aids. This idea of environments suited to everyone led to the application of UD to learning, or UDL, which shares the same goals. As mentioned above, UDL organizes curricula from the start by envisioning an extensive range of means and methods to meet the specific needs of each child, including those with special needs. In this way, we avoid eventual adjustments or adaptations to address the special learning needs of those children with disabilities. Consequently, what is necessary for one ends up being useful to everyone. By developing this principle, the CAST researchers set forth three principles which form the basis of all educational initiatives: provide students with:

- multiple means of representation,
- multiple means of expression,
- multiple means of engagement.

If we observe the curriculum offered by Montessori, we notice that all the activities are envisaged according to the child, who is curious, active, desirous of order and interested in the continuous understanding of the objects and the events around him. For this reason, the child's environment is carefully managed: the furniture is accessible to all children, the materials are made easily available and always kept in the same place. Montessori recognized the frustration that a child experiences when forced to function in a setting designed for adults. To remedy this, Montessori provided furniture that was lightweight and child-sized. The Montessori environment is engineered in such a way as to allow children to move freely within their space, without encountering any obstacles or hindrances. The principles of UD, with its focus on creating a setting with materials suited to all needs, takes its inspiration from Montessori's design for an environment that fits the needs of all children. In Montessori schools each child may use materials as often and as long as he needs to in order to discover and understand them. The children choose materials that pique their interest. They handle the materials and they use them in different ways so as to discover their significance and their use. From this point of view, we can see a correspondence of the Montessori method to the principles of multiple means of representation, expression and engagement of UDL. If we consider the Montessori activities that enable the learning of reading and writing, we immediately think of her many exercises using sandpaper letters. As Montessori describes, this involves making a copy in sandpaper of each letter of the alphabet which is placed on a board whose dimension matches that of the letter (Montessori, 1999). Through visual and tactile-muscular sensations and movement, "the little ones between the ages of four and five" trace the shape of the letter in the air or on the sand as long as they like with eyes closed. The image of the letter is introjected into the child's mind and he learns to recognize it, reproduce it, and match it to the names of objects beginning with the sound of that letter. In this way, the natural process of learning to read and write begins. These activities, using a variety of means and materials that the children are

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free to choose from, recall the principles of multiple means of representation, expression and engagement that comprise the inclusive UDL curriculum.

11. Conclusion

The Montessori method focuses on what we nowadays refer to as inclusive values for early childhood education, that is to say, respect for each child as a unique individual, the active participation of the child in the activities in the educational setting, and respect for the child's freedom of movement and his individual needs as to timing and choice. The UDL method focuses on the same idea of inclusion, especially on the attention and the respect for each individual in any condition. This concept leads to the value of accessibility of means, settings and materials for all, as in Montessori method. In the field of education, this includes the attention to the planning of an inclusive curriculum. These two methods have various elements in common, therefore, it might be useful to proceed with the design of an integrated curriculum in which Montessori activities for early childhood education are combined with the UDL Guidelines to correspond to an inclusive learning process for all children.

References

Antonietti, A., & Valenti, C. (2017). *Life Skills. Le abilità che aiutano ad affrontare il quotidiano*. Cinisello Balsamo (MI): San Paolo.

Bjork, E.L., & Bjork, R.A. (2011). Making things hard on yourself, but in a good way: Creating desirable difficulties to enhance learning. In M.A. Gernsbacher, R.W. Pew, L.M. Houghv & J.R. Pomerantz (Eds). *Psychology and the real world: Essays illustrating fundamental contributions to society* (pp. 56-64). New York: Worth.

CAST (2009). *UDL Guidelines-Educator Checklist version 2.0.* Wakefield, MA: CAST.

Gutek, G.L. (Ed.). (2004). *The Montessori Method: the Origins of an Educational Innovation including an Abridged and Annotated Edition of Maria Montessori's the Montessori Method*. Lanham Maryland: Rowman & Littlefield Publishers.

Hall, T.E., Meyer, A., & Rose, D.H. (2012). *Universal Design for Learning in the classroom. Practical Applications*. New York: Guilford Press.

Lupi, A. (2018). *Il nido con il metodo Montessori. Modelli teorici e buone prassi per educatori e professionisti della prima infanzia*. Trento: Erickson.

Mace, R. (1985). *Universal Design. Barrier Free Environments for Everyone*. Los Angeles: Designers West.

Meo, G. (2008) Curriculum planning for all learners: Applying Universal Design for Learning to a high school reading comprehension program. *Preventing School Failure*, 52, 2, 21-30.

Montessori, M. (1999). *La mente del bambino*. Milan: Garzanti. (Original work published 1952)

DOI: https://doi.org/10.6092/issn.1970-2221/12194

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Montessori, M. (2000). *Il Metodo della pedagogia scientifica applicato all'educazione infantile nella Casa dei bambini. Edizione critica*. Rome: Opera Nazionale Montessori.

Montessori, M. (2012). *Psicogeometria*. Rome: Opera Nazionale Montessori. (Original work published 1934)

Montessori, M. (2016). *Il segreto dell'infanzia*. Milan: Garzanti. (Original work published 1950)

Regni, R., & Fogassi, L. (2019). *Maria Montessori e le neuroscienze. Cervello-Mente-Educazione.* Rome: Fefè.

Rose, D.H., Gravel, J.W. (2010). Universal Design for Learning. In P. Peterson, E. Baker & B. McGraw (Eds). *International Encyclopedia of Education* (pp.119-124). Oxford, UK: Elsevier.

Rose, D.H., & Meyer, A. (2002). *Teaching every student in the digital age: Universal Design for Learning.* Alexandria, VA: Association for Supervision and Curriculum Development.

Schocchera, A. (1993). *Maria Montessori: il pensiero, il metodo*. Teramo: Giunti.

Strangman, N., & Dalton, B. (2005). Using technology to support struggling readers: A review of the research. In D. Edyburn, K. Higgins & R. Boone (Eds.). *The handbook of special education technology research and practice* (pp. 545-569). Whitefish Bay, WI: Knowledge by Design.

Winnicott, D.L. (1974). *Gioco e realtà*. Rome: Armando. (Original work published 1971)

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