

The Montessori approach

ECE resources

Maria Montessori was a pioneer of early childhood education, working at the beginning of the 20th century to develop care and education for preschool children in Italy. Montessori observed children extensively and identified key periods of development, which she called sensitive periods, in which children have a keen interest in a particular aspect of their environment such as order, movement, small detail or language. She designed particular activities to suit their prevailing developmental interests at particular stages, and to encourage focused engagement, concentration and perseverance.

The aim of the Montessori approach is to support children to unfold their own potential by giving them the freedom to explore an environment that is designed to meet their developmental and individual learning needs and that enables them to lead their own learning. Children are helped to develop their self-esteem, self-awareness and self-discipline in order to become socially responsible and active citizens. However, the Montessori approach is not patented or trademarked and is unregulated, which means that some practices may be described as Montessori which are not consistent with the original approach.

The main features of the Montessori approach

Environment: The learning environment is a crucial component of the Montessori approach as it is deliberately designed to support children's independent learning and promote their constructive choices. A Montessori environment is well-ordered, aesthetically pleasing, consistent, and predictable (see Image 1), which helps children to feel secure and encourages their exploration. Every activity has a designated space, and activities may be laid out on trays with all the objects needed in a logical place, such as left to right in the order of use (see Image 2). Order is thought to support children's freedom of choice as well as self-guided learning, and to help the child to organise their perceptions as they make sense of the world.

IMAGE 1: Montessori classrooms are well-ordered and aesthetically pleasing

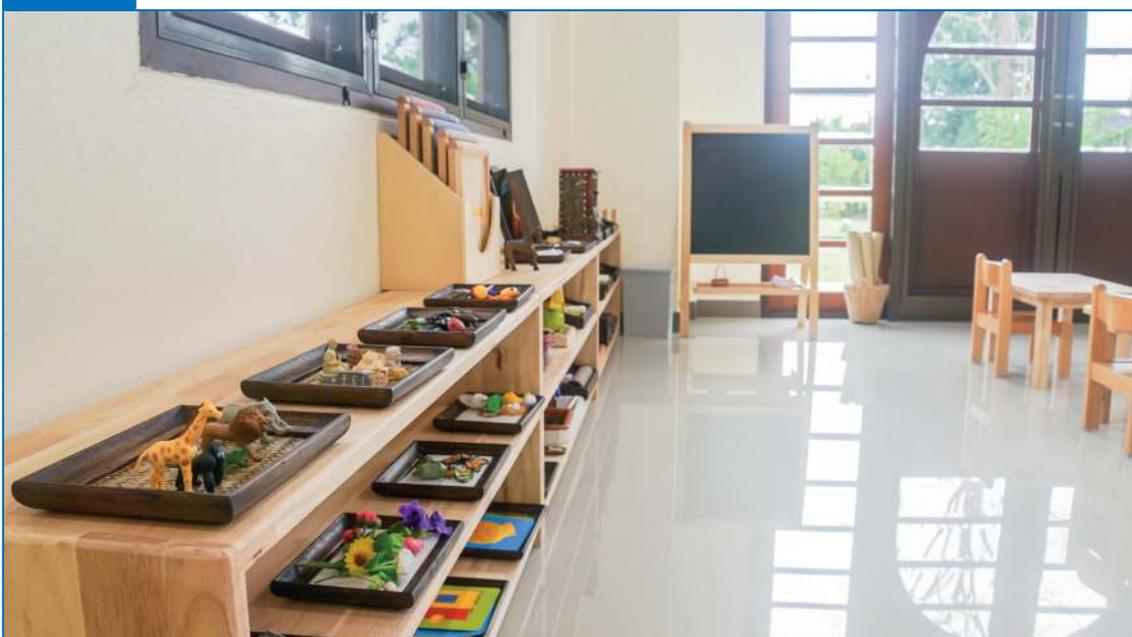


IMAGE 2: Self-contained activities are laid out on trays



Freedom and responsibility: Children have freedom of choice, but their choices are limited by the materials available and by the expectation that they act constructively and take responsibility for their own actions, in line with a particular focus on self-discipline and social behaviour. For example, children have to return activities back to the shelves when they are finished so that they can be used by another child. Activities are often focused on putting things in order, putting things in their proper place, or making them clean, which is thought to help children to focus their attention and learn to carry out a sequence of steps, as well as to support children's feelings of competence (see Image 3). Whole-group mat-times or snack times are unusual, so that children can pursue their own interests uninterrupted by scheduled activities.

IMAGE 3: Activities are often focused on putting things in order



Self-directed learning and self-discipline: Montessori education aims to support the child in their own 'self-construction', which involves believing in and trusting the child's capacity to make good decisions and learn independently. Children choose an activity to take from the shelf and engage with it for as long as they wish. Children's discovery and problem-solving are closely guided by the structure and design of materials. Montessori materials are designed to scaffold children's activities through strategies such as colour coding and built-in control of error. For example, with the graduated cylinders puzzle, if children insert a cylinder into a hole that is too large, there will be a leftover cylinder at the end (see Image 4). Teachers unobtrusively observe, and only intervene when children need guidance or structure, perhaps to scaffold a task or to introduce a new task to enable children's maximum engagement.

IMAGE 4: Materials such as this graduated cylinders puzzle contain a built-in control of error



Active movement: Montessori recognised that there is a significant link between cognition and the body and emotions and therefore sought to stimulate conceptual thought through nature, movement, and aesthetics. In the Montessori approach, movement is seen as crucial to cognitive development, and most activities involve manipulating objects with the hands or moving the whole body.

Sensory discrimination: Montessori education places particular importance on helping children refine their sensory capacities (including visual, auditory, tactile and chromatic or colour sense), to discriminate increasingly complex properties, and to categorise these by sorting, matching, pairing and making patterns. These sensory experiences are thought to underpin the conceptual development essential to later academic learning.

Observation: The Montessori approach recognises the individuality of each child so observation is a key pedagogical tool for understanding children's learning and planning appropriate activities. Children's freedom to move, choose and engage in self-directed activities enables them to reveal their interests and potential and enables adults to gain an understanding of how to support their learning.

Empirical findings

There are only a few empirical research studies directly measuring the impact of the Montessori approach for children's learning. What is more, the Montessori approach can be implemented differently which makes generalisations difficult. However, one study compared groups of five and 12 year olds in Montessori and traditional schools that did not differ on demographics such as family income or parents' level of education. It showed that the children attending Montessori schools had similar or better outcomes than the children at traditional schools, including better performance in reading, maths, executive function and social competence¹. Similarly, children at a Montessori preschool scored higher on academic achievement, social understanding, orientation to learning, executive function and positive views about school than a control group². Some of these benefits were still evident in high school³. Other comparison studies show children attending Montessori settings demonstrating greater levels of creativity⁴. The highest levels of achievement and social-emotional competencies are particularly associated with Montessori environments in which only the original set of materials developed by Montessori are provided⁵. Some of the key principles and ideas of the Montessori approach appear to be backed by current research findings⁶ including:

Research on motivation⁷, which shows that choice and a sense of control over one's activity and environment is linked to improved performance and increased engagement, concentration and persistence in tasks, enhanced wellbeing, positive self-concept, and improved learning, memory and problem-solving. The ability to become totally absorbed in an activity, something that is promoted in Montessori programmes, shares connections with the flow theory of optimal experience, and substantial research associates flow with positive outcomes for children.

Research on the link between movement and cognition⁸, which demonstrates the link between activity and increased brain functioning and the relationship between the motor skills of infants and their social understanding. Other studies show that children's representations of space and objects are enhanced when movement is involved, and that hand gestures improve spatial problem-solving and spatial reasoning.

Research supporting sensitive periods⁹, which provides evidence that children are drawn to stimuli that are both novel and at the right level of complexity for extending their current understanding. For example, infants are drawn to exactly the right complexity of patterns needed to support their current visual development.

Research supporting order, routines and organisation¹⁰, which finds that children who experience regular family routines and whose homes are rated as more organised have better cognitive, psychological and social outcomes. Studies also show that information that is organised conceptually, for example grouped by theme or according to associations between ideas, as opposed to randomly is easier to learn or remember.

Research focused on the importance of early sensory experience, which shows that greater stimulus in terms of sensory input positively affects the organisation and architecture of the brain and that early sensory experiences provides an important foundation for multiple higher-level abilities¹¹.

How you might begin to explore this approach in your own teaching

The Montessori philosophy aligns well with Te Whāriki's balance of child-led free choice and exploration of interests alongside sensitive observation and intentional teaching when required. Teachers might find an exploration of the Montessori philosophy an opportunity to reflect upon the ways in which they can

offer children structured discovery opportunities through the selection and presentation of resources, or on how to strengthen pedagogical tools and practices such as observation.

To begin to incorporate the strengths of the Montessori approach in your own teaching, **focus on creating and maintaining orderly environments** which offer children the equipment and resources that children need to pursue their interests. Think about ways to ensure that the environment is predictable while also enabling you to provide novel items of interest. Try to reduce clutter and improve the aesthetic appeal of areas, and use environmental layouts to indicate to children where and how to engage with different types of activity.

You might **enrich environments by providing self-contained activities on shelves**. Teach children how to use these resources and how to put them back in a specific order when they are finished. For example, you might use a tray with an outline of each item drawn on it. Consider also providing [loose parts](#) to support children's sensory investigations, and think about how you might group and arrange these to emphasise particular attributes – for example, offering different grades of sandpaper to compare, or placing items with different odours in opaque containers so that they can only be explored by smell.

You might develop a **stronger focus on observation** by using note-taking to focus on the finer detail of children's actions and particular way of exploring activities and materials. You might try to determine a common theme in children's interests, such as an interest in order or sequence, in small detail or large gestures, and use this to plan enriching activities for children.

Reflective questions

How do you enable children to construct their own learning, and how can the environment you provide support them in this?

How important is the role of order and structure in enabling children's discoveries?

What everyday tasks might be shared with children in order to promote responsibility and feelings of competence?

How do you support children to develop self-discipline?

How might you support children to use movement and manipulation of resources to explore ideas more fully?

What kinds of observation provide you with the level of detail you need about children's thinking, learning and development?

Further reading

Isaacs, B. (2012). *Understanding the Montessori approach: Early years education in practice*. Abingdon, UK: Routledge.

Lillard, A. S. (2005). *Montessori: The science behind the genius*. New York: Oxford University Press.

Endnotes

¹ Lillard, A. S. (2018). Rethinking education: Montessori's approach. *Current Directions in Psychological Science*, 27(6), 395-400.

² Lillard, A. S. (2005). Montessori: The science behind the genius. New York: Oxford University Press; Lillard, 2018.

³ Lillard, 2018.

⁴ Lillard, 2005.

⁵ Lillard, 2018.

⁶ Isaacs, B. (2012). Understanding the Montessori approach: Early years education in practice. Abingdon, UK: Routledge; Lillard, 2005.

⁷ Lillard, 2005; Rathunde, K. (2014). Understanding optimal school experience: Contributions from Montessori education. National Society for the Study of Education, 113 (1), 253-274.

⁸ Isaacs, 2012; Lillard, 2005; Lillard, 2018; Rathunde, 2014.

⁹ Lillard, 2005.

¹⁰ Lillard, 2005.

¹¹ Lillard, 2005.

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