



**DIMENSIONS OF METACOGNITION  
IN EDUCATIONAL ALTERNATIVES SUCH AS  
MONTESSORI, WALDORF, STEP BY STEP, AND REGGIO EMILIA**

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**Abstract**

When we talk about educational alternatives, our attention must focus on the main epistemic approaches through which the learning process takes shape. In such a context, we can speak of an approach that prioritizes reflection, personalized and individualized learning, as well as flexible learning. Within this explanatory framework, the aim of this paper is to analyze the extent to which the strategies specific to educational alternatives can be correlated with the concept of metacognition. Thus, we are interested in identifying the similarities and differences among these alternatives and how they can be extrapolated to the dimension of metacognition. Consequently, we will explore the main aspects of metacognition within the scientific context of educational alternatives such as Montessori, Waldorf, Step by Step, and Reggio Emilia.

**Keywords:** *metacognition; educational alternatives; self-regulation; academic performance.*

**Introducere**

One of the pressing issues in contemporary education concerns the learning process itself. This leads us to question whether we can speak of universally applicable learning strategies or

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whether such an endeavor must take into account the principles of individualized and personalized learning. In other words, by referring to a student-centered approach to learning, we can introduce the idea of learners becoming aware of how learning actually occurs for them. Within this educational context, alternative pedagogies such as Montessori, Waldorf, Step by Step, and Reggio Emilia have played—and continue to play—a significant role over time. Of course, other forms of education can also be mentioned in this regard, such as democratic education (as seen in well-known examples like Summerhill in the UK or Sudbury Valley School in the USA), unschooling/homeschooling, Forest School, among others. These types of alternative pedagogies employ a range of less "formalized" strategies that ultimately aim at supporting the child's holistic development.

Through such alternative pedagogies, the student is also encouraged to become aware of their own potential and educational path. They are guided to think critically, to be creative, and to learn by engaging with specific "centers of interest" or less formal approaches that allow for a personalized learning experience. Self-assessment and reflection also play a significant role within these alternative pedagogical models.

Such an approach ultimately reflects the adoption of a personal style in engaging with the learning process. It involves the ability to learn how to learn and to take ownership of the transition from learning to metacognition. In this context, it becomes necessary to reconsider and recalibrate the key elements that make metacognition possible.

Moreover, rethinking the educational system involves a continuous process of adapting specific learning strategies. This becomes possible when learning is student-centered and integrates content in an inter-, multi-, and transdisciplinary manner. In other words, through alternative pedagogies, learning is facilitated and made possible through the use of specific instructional strategies. Metacognition becomes achievable precisely because it supports the idea of learning autonomy. (Scorsoglio et al., 2021, pp. 1–13)

### **The impact of extending the concept of metacognition in alternative pedagogies**

Starting from the fact that Montessori pedagogy focuses on understanding and educating the child, we can analyze to what extent, based on its established principles, the specific methods of this pedagogy can be extrapolated and applied in contemporary society. As is well known, Maria Montessori developed her methods based on the study of children with certain disabilities. In other words, the origins of her work were primarily medical, later acquiring a pedagogical connotation in the true sense of the word.

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The idea of innovation is especially evident in a new experimental pedagogy, where the focus should not solely be on statistical studies of an anthropometric nature regarding the child's psychological state in general. In this way, by opposing classical experimentalism, which did not accept a native model of intelligence that could neither be improved nor changed over time (Jessee & Gaynard, 2009, pp. 136-159), Maria Montessori advocates for the idea that instincts can form the basis for the child's development and future fulfillment. Therefore, it becomes crucial for any educator to guide the child through their own process of transformation and ontological becoming. Such instincts become significant for children at certain stages of their lives, as they contribute to the development of their own personality. The existence of a sensitive period in the child's life can serve as a foundation for the development of their intelligence later on.

Starting from such an assumption, Maria Montessori deems it necessary to reform the ways in which pedagogical methods are used and valued (Torrence, 1992, pp. 36-37; Montessori, 1912). The transition from passivity, isolation, and restriction is aimed at contributing to the optimal and efficient development of the child. In this way, the foundations for the child's independence can be laid. In other words, in an appropriate environment, the child learns to become an individual with their own personality by valuing and becoming aware of their own potential, supported by the methodological guidance provided by the educator. The formation and existence of learning contexts/environments make such development of the child's personality possible. It is implied that, in such a situation, the educator assumes the role of a keen observer.

Furthermore, we can observe that the child's activity is driven by their active involvement in work tasks, which are essentially learning tasks (Blythe, 2023, pp. 223-246). The interaction with theoretical information is translated into interaction with the real-world objects to which it refers. Therefore, the child is no longer merely a person for whom a "natural" environment must be created. Later, driven by the desire to meet their own needs, the child becomes (self)motivated and will be able to adapt to the social environment they belong to, within which they can accomplish their own work/learning tasks.

Over time, the child learns to make choices independently, also utilizing self-discipline. The exercise is intertwined with play, and from the connection between the two, work is, in fact, formed (Lillard, 2001, pp. 495-301). Moreover, the environment in which the student learns is well-structured and takes into account the learning strategy relevant to what is referred to as (meta)learning. In other words, according to Montessori's theory, the child can regulate their

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own progress in learning, while also being able to adapt their own strategies within such an instructional process.

On the other hand, through play, the child is "invited" to explore and discover new dimensions of knowledge (Lillard & Taggart, 2019, pp. 85-90). In this way, they can make a series of mental connections, developing their critical thinking. In such a context, critical thinking becomes a determining factor in the learning process.

The development of critical thinking is also present in Waldorf education. In this educational framework, introspection and the analysis of stories are emphasized. In another sense, within Waldorf schools, references to storytelling and the concept of a story are present from the early years, alongside those of movement and art (Pařízek, 2021, pp. 9-22). In this case, the content is not only transmitted but also explained and narrated through specific strategies employed by teachers specially trained for this purpose (Martin, 2002). In such a situation, we are talking about a curriculum designed to meet the needs and developmental stages of the child.

We observe a staged development of critical thinking alongside spontaneous thinking, with a focus on the idea of imagination. In this way, imagination stimulates understanding and critical reflection, and conceptual connections are made possible through the progression of content in stages, or "epochs." By utilizing such strategies, we can affirm that the student is taught how to become aware of their own learning pace. In other words, the student can reflect on their own learning experiences in a personalized manner, through introspection or by engaging in drawing or storytelling.

Extrapolating these ideas into the dimension of metacognition reveals a perspective that highlights the idea of self-regulation in the learning process. Awareness of one's own needs in relation to personalizing a learning style adapted to these needs makes it possible to understand the learning content. In this way, we can talk about the presence of elements that calibrate and express, in the educational context, the concept of metacognition.

On the other hand, the student's understanding of their own learning style facilitates the very concept of metacognitive development. This situation is justified by the fact that the student can adapt to the learning environment and the context in which learning is possible. At this point, the student becomes a deeply engaged actor in the learning process, an active participant who explores and learns how to learn within a specific context. Moreover, the fact that in Waldorf education competition is not discussed in the early years (nor is there standardized assessment), we can affirm that the student learns through adaptation and awareness.

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The multiple perspectives for approaching and assuming learning content become, in Waldorf education, a necessary and sufficient premise for correlating the instructional process with the idea of metacognition (Janaki & Denaki, 2024, pp. 131-141). Moreover, the existence of an integrative curriculum (Arling, 1998, pp. 224-233) makes possible the connection between content and interdisciplinary learning. In this way, we can talk about cultivating metacognition within the Waldorf school, starting from the idea of thinking/reflection and awareness. Furthermore, personalizing the learning process becomes justifiable given that Rudolf Steiner advocated the idea that the student represents a distinct, unique individuality, continuously undergoing a process of becoming and transformation. Considering such an assumption, the student can develop free thinking and autonomy in learning. Such a learning approach can concretely facilitate the realization of metacognition.

Knowledge is acquired through introspection, awareness of one's own experiences, and personalizing one's own instructional approach. Under these conditions, creativity plays a relevant role in embracing the idea of metacognition, as well as metacognition itself. Learning gains meaning to the extent that students actively and consistently participate in their own learning process and personal development.ess of one's own approach to content, as well as the learning of these contents.

The idea of integrated learning found in Rudolf Steiner's approach, where each child/student learns in stages, and each stage plays a determinant role in their development, can be correlated with the idea of discipline and the assumption of a specific method in Step by Step education. Unlike Waldorf schools, where the student learns integratively (through play, storytelling), in Step by Step education, the student concretizes such an approach by considering their preparation level as well as their age (Ji, Yang & Liang, 2022, pp. 1-41). In other words, in Step by Step, the student goes through each stage step by step according to their own preferences. It is a deeply organized education, grounded in the idea of social constructivism, as found in the works of J. Piaget and L. Vygotsky.

Extrapolating the current dimension of metacognition to Step by Step education, we can observe how relevant a specific learning method can become for the student in a given context. In such a context, we note that the personalization/individualization of the learning process emphasizes the very idea of metacognition as it is understood in the specialized literature. What is interesting in this approach is the fact that by going through each stage preferentially, the student has the opportunity to self-assess their own experiences, adapt their own strategies for approaching and assimilating content to the learning context. In other words, we observe that

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in Step by Step education, the autonomy of the child is encouraged, along with the idea of active exploration on their part.

At the Step by Step education level, metacognitive strategies can be developed simply because we are talking about an environment where learning is encouraged. This is possible through the use of self-assessment and critical thinking, and on the other hand, by highlighting the relevant role of motivation and self-regulation in the learning process. The existence of centers of interest allows children to learn according to their own interests. In this way, they have the opportunity to choose what types of content to learn, learning to become responsible for their own decisions.

At the same time, we observe that in Step by Step education, we are talking about the student's personalized learning style, coupled with the (self)imposed pace. In other words, at this level of learning, we find the idea of responsibility intertwined with autonomy and active participation. Ultimately, the self-regulation of the learning process largely depends on the personalized planning and self-assessment of such an approach. Therefore, the facilitation of knowledge is interconnected with the specific environment of Step by Step education.

From a constructivist perspective, the Reggio Emilia School in Italy was also developed with the support of L. Malaguzzi (1993). In this sense, the child can construct their own cognitive process, their own knowledge, also using specific forms of artistic expression. Thus, while in the Step by Step school we talk about "centers of interest," in the Reggio Emilia School, we deal with well-constructed spaces, considered specific environments that facilitate the actual learning process. Furthermore, project-based learning (which arises as a result of cultivating and developing students' interests) is given more attention than in other educational alternatives, such as Step by Step.

In this school, it is recognized that the learner is an active person, capable of awareness and self-regulation of their own educational process (Vecchi, 2013). Thus, they are encouraged to learn through self-reflection, discovery, and personalized exploration methods. In this way, the "dialogue" between the learner and the environment where learning takes place is supported (Wexler, 2004).

In such an environment, learning strategies are formed (Swann, 2008, pp.35-60). Moreover, the strategies on how to learn, i.e., what we call meta-learning, are valued. The appeal to critical thinking and learning autonomy forms the relevant foundations within such an educational process (Strong-Wilson & Ellis, 2007, pp.40-47).

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Reflection and narrative play an important role in this process as students learn how to learn. In this way, they analyze and observe, and at the same time, they can identify and leverage pragmatic learning strategies. Furthermore, they can establish an entire learning process, becoming aware of their need to develop specific meta-learning competencies.

From these considerations, any form of mistake is not seen as a gap in knowledge, but rather as a new opportunity for learning (Ovi, 2001, pp.105-118). This is an approach focused on openness and the cultivation and development of an adaptive, critical thinking mindset. The efficiency of such thinking lies in the ability to reassess one's own acquired skills and competencies as a result of adopting such an educational approach.

The idea of meta-learning can be correlated with such an educational approach in the sense that we can embrace the idea of flexibility and personalization in learning. In other words, the value of the strategies found within the Reggio Emilia approach lies in the fact that we can also speak about the reorganization of content in relation to the formation of new cognitive structures. Such strategies can, in our view, be extrapolated into the dimension of meta-learning, as they embrace the idea of interdisciplinarity combined with reflective thinking, which is built and developed on foundations related to learning through contextualization, self-reflection, and self-regulation.

### **Concluzii**

The learning process is facilitated through alternative pedagogies. In such an academic context, we can speak of self-reflection and personalization within the instructional approach. Moreover, these pedagogies play a significant role in the process of metacognition.

On the other hand, metacognition is perceived as a process of self-exploration and reflection on one's own academic performance (Montessori), as a process that encourages critical thinking and fosters creativity (Waldorf), as a constructivist approach emphasizing planning and self-regulation of the instructional process (Step by Step), or as a contextualized and interdisciplinary dimension through which flexible thinking is developed (Reggio Emilia). Therefore, we can speak of metacognition as an autonomous approach that allows students to become aware of their own educational journey.

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