

THE BODY AS A VECTOR OF KNOWLEDGE: THE PSYCHOMOTOR APPROACH IN THE DEVELOPMENT OF THE SCHOOL-AGE CHILD

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Abstract

Human learning is closely linked to sensory and motor experiences. The body, with its movement, is not only a vehicle for exploring the world, but also an essential tool for the construction of knowledge (Barsalou, 2008; Wilson, 2002;). The most recent neuroscientific and pedagogical research supports the extent to which body plays, and motor activity plays a crucial role in the harmonious development of a child's cognitive and relational processes (Goodway et al., 2019). Indeed, through the body in action, not only motor skills can be improved, but complex cognitive skills such as problem solving, creativity and critical thinking can be enhanced (Gardner, 1993; Kontra et al., 2012). From this point of view, the psychomotor approach, working on the enhancement of perceptual integration, motor control and tactile, visual and proprioceptive exploration, is configured as an elective didactic methodology, with significant implications for the child's learning and general wellbeing, especially at the entrance to primary school. The pleasantness and naturalness of spontaneous motor investment builds a multidimensional bridge between physical experience and learning processes (Impara, 2019), fostering physical literacy and play literacy, and stimulating skills such as coordination and socialization (Colella, et al. 2024). The present contribution aims to explore the implications and results of the possible use of play-experiential strategies included within the curricular teaching practices in the first two years of primary school, in order to recognise the body, in accordance with the scientific literature of reference, as a primary instrument of knowledge. The possible educational implementation of motor workshops designed according to a psychomotor model, will require a sensitive and articulated design capable of overcoming the prevailing fragmentary logic of classical interventions, in favour of methodological variants characterized by a flexible, interdisciplinary and transdisciplinary vision.

Keywords: *Play literacy, motor education, motor development, psychomotor approach, primary school.*

1. Introduction

Modern pedagogical and psychological theories emphasize the importance of movement as a central component of learning supported by recent neuroscientific discoveries, which show how deeply movement influences motor, cognitive, emotional and social development of children (Priori, et al. 2009; Diamond & Carpenter, 2000; Sherrill, 2003).

Movement is not isolated from other cognitive functions, but acts synergically with perception, language and memory. Indeed, the body functions as the primary cognitive tool, a true embodied mind (Wilson, 2002), a concept that has spurred the birth of new theories and teaching methods that position movement at the core of learning process. The idea that the body is not just a physical entity separated from the mind, but a kind of vector of knowledge and awareness, has acquired increasing attention in the literature, especially in the neuroscientific and psychomotor fields, but its educational applications remain underexplored. The body is given the role of main vehicle of our experience in the world, actively participating in the process of knowledge construction. These assumptions are based on the integration of various scientific studies and phenomenological approaches that highlight the dynamic interaction between the body and its environment (Gallese et al., 2004; Gallese & Lakoff, 2005; Barsalou, 2008; Cottini & Rosati, 2008).

Several recent neuroscientific studies and discoveries (Chaddock et al., 2010; Iacoboni & Olivero, 2008; Jeannerod, 2012), have changed the way of conceiving the relationship between the body, action and cognitive processes, paving the way for their integration into didactics.

Embodied cognition claims that cognitive processes, such as perception and memory, are not confined exclusively to purely cerebral activity but are influenced by bodily experiences (Lakoff & Johnson, 1980); the body, in fact, through its sensory perceptions, posture, gestures and movements, contributes to structuring the way in which we understand and interpret the world, entailing profound implications in learning field because the understanding of a theoretical concept can be facilitated by direct experience, action and movement itself.

Motor experiences are thus not only a means of acquiring physical skills, but contribute directly to the development of cognitive structures that support learning by structuring images and mental pattern. If the body is the core of subjective experience, learning of a somatic origin also enables the important process of bodily self-awareness, which is crucial for developing consciousness of oneself and others, as well as one's own operating body pattern (Baccarini, 2010).

2. The growing conception of the body in education

Contemporary literature suggests that children learn more effectively through practical activities that involve the whole body, and this activate multiple intelligences (Gardner, 2012), in particular bodily-kinesthetic intelligence, readily recruited to develop and refine skills such as motor coordination, object manipulation, spatial awareness, while also enhancing abstract reasoning and comprehension skills.

Neuroscientific research shows how physical activity positively influences brain functioning by promoting neuronal plasticity, particularly during developmental age, where movement based-play strengthens brain connections (Wilson, 2020). In fact, exercise in general increases the production of “brain-derived neurotrophic factor” (BDNF), a protein that promotes brain cell growth and strengthens synaptic connections, thus improving learning and memory abilities (Ratey & Loehr, 2011). According to the literature, children who participate in regular motor education programmes show better emotional regulation skills and lower levels of anxiety and depression compared to their less active peers (Chaddock-Heyman et al., 2014).

Studies on the psychomotor approach, on the other hand, demonstrate that bodily play can act as an effective tool for the development of the body pattern, spatial-temporal coordination and motor control, and so on, children who participate in educational activities that include motor and psychomotor play show improvements in both motor and cognitive skills (Maulini et al., 2016) but also in social and relational skills (Sutherland et al., 2014). Moreover, the introduction of psychomotor programmes brings significant improvements in all developmental areas, suggesting that these kinds of educational interventions influence early and in a targeted way disadvantages resulting from motor difficulties (Piek et al., 2008).

3. The psychomotor approach

The psychomotor approach, developed during the 20th century thanks to the contributions of De Ajuriaguerra, Wallon, and Vygotskij, focuses on the relational and affective dimension of the educational process, claiming that the body is an essential vehicle for learning and the construction of the child's identity.

Psychomotor activity is configured as an elective teaching methodology, with significant implications for learning and overall well-being of children of developmental age, especially in the 2-8 age group. This approach leverages play as a multifunctional activity that fosters the overall growth of the child (Mancini & Rossi, 2018). In fact, the freedom and enjoyment inherent in play naturally support the development of motor and cognitive skills, creating a bridge between physical experience and learning processes (Impara, 2019). As highlighted by recent studies, motor play supports physical literacy and play literacy, stimulating skills such as problem-solving, coordination and socialization (Colella, et al. 2024).

In support of these theories, in the Italian context, educational policies have introduced experimental projects over the last two decades to promote motor literacy. These include the “Motor Literacy” project (2010-2012), which involved the participation of external experts to support the teaching of motor education in Italian primary schools. Subsequently, in 2015, the ‘Sport di Classe’ project was introduced, with the aim of fostering sports education through the presence of qualified tutors in the fourth and fifth grades. More recently the “Scuola Attiva Kids” programme, promoted by the Ministry of Education from 2021, aimed to encourage movement and sports culture since primary school, with the direct involvement of motor science experts, which currently involve only students of second and third grades. The most significant change occurred only in 2022 with the enactment of Law 234/2021, which introduced the motor education specialist teacher in primary school.

Since the 2022/2023 academic year, motor education for fourth and fifth-grade students has been entrusted to teachers of motor sciences selected through competitive procedures. This marks a historical turning point, because it recognises the importance of specialised teaching for motor activity since primary

school, fostering a greater awareness of the importance and dignity of the discipline of motor education defined as a 'hinge' discipline, therefore, integrative of other knowledge (MIUR, 2018).

According to literature, neuroscience and current legislation, children's intellectual development is based on a continuous interaction between action and thought. They learn about the world through physical actions, such as catching, pushing, and handling objects, all within a complex tonic dialogue (De Ajuriaguerra, 1977), which in the educational context is expressed through physical actions and empathic observation. During the transition to primary school, children require need and resources to face complex emotions and establish meaningful relationships with peers. Structured play activities guide them in exploring their motor and communicative potential, employing multisensory stimulation to encourage creativity and free expression (Perrotta, 2011). By emphasizing the role of affective relationships in motor learning, the aim is also to develop body awareness and the ability to express emotions through the playing body, as a means of emotional, interpersonal and intrapersonal knowledge (Aucouturier, 2005).

4. Educational practices and pedagogical implications

The psychomotor approach can be effectively integrated into the educational field because it is characterised by practices that range from spontaneous movement to more conscious forms of body control. Children are invited to experience different ways of movement, using different materials such as fabrics, balls, hoops, which serve as tools for exploration and bodily mediation.

This approach works through laboratory-based didactics, offering valid alternative to the traditional frontal lesson: it allows to deal with disciplinary content in a dynamic and creative environment. Educational paths implemented in this way operate in line with school regulations (MIUR, 2018) that emphasise the need to promote active and integrative learning processes. The body becomes a fundamental part of didactics, that in order to be effective, theoretical knowledge must be placed combined with bodily experience, trying to create connections between the declarative knowledge of "knowing" and the procedural knowledge of "knowing how to do" (Sibilio, 2007).

Designing psychomotor pathways means enhancing perceptive integration, motor control, tactile, visual and proprioceptive exploration, all implemented according to the children's developmental peculiarities, with a progression from sensory discovery to emotional decentralization.

During psychomotor play, the child elaborates personal experiences, transforming them into symbols and learning to manage emotions through a continuous dialogue between body and mind, in a learning context that allows the connection of the sensorimotor dimension with the cognitive and emotional one (Vecchiato, 2007). Educational environments, redesigned from a psychomotor perspective, become spaces of exploration and discovery, where children can freely experience their motor potential, developing skills of coordination, balance and control of the body. Such activities are not merely physical training, they represent a profound opportunity for growth (Sarama & Clements, 2019). Through activities such as rolling, jumping or the manipulative use of simple materials such as mats, building blocks or boxes, children exercise control over reality.

Planning an educational action with a psychomotor approach means creating flexible and inclusive contexts that enhance each child's resources and promote their global development. Free body play is the type of activity that specifically promotes psycho-physical wellbeing, allowing the child to integrate emotions and movement in a controlled environment, and these processes activate a profound awareness of the bodily self, contributing to psychological balance (Finocchiaro 2006).

5. Conclusions

As an educating community, the school, is today called to reconsider traditional teaching methodologies, embracing approaches that place the bodily and playful dimension of the educational experience at the centre. Psychomotor activity is increasingly emerging as a scientifically based practice, capable of promoting the integral development of the child through an intentional and structured motor experience (Nicolodi, 2019). The educational implementation of an effective psychomotor model requires an articulated design that overcomes the fragmentary logic of traditional interventions. Practices should be characterised by a holistic vision that integrates bodily, cognitive and emotional dimensions, favouring playful-experiential methodologies. Through play, children can freely express their feelings, both positive and negative, and learn to manage them in a healthy way. Interacting with others during play also enhances the development of social skills, such as cooperation, sharing and respect for rules, and at the same time, stimulates cognitive development, encouraging the development of intelligence, creativity and learning. The teacher's role is fundamental in contextualizing the use of the body as a means of achieving multiple knowledge, creating safe and stimulating environments and offering children the opportunity to grow up healthy and ready to take on educational but also everyday challenges. This approach promotes autonomy

and interaction with peers and adults (Chiappetta Cajola, 2013; UNESCO, 2005). Despite growing recognition of play as an effective educational tool, challenges remain, particularly regarding the need for greater standardization in implementation methodologies and further research on its long-term impact. The psychomotor approach calls for a fundamental rethinking of teaching practices, promoting a vision of learning that values bodily experience and individual potential. In light of these considerations, teacher training represents a crucial challenge for the adoption of scientifically and pedagogically sound methodologies. Future research should focus on defining structured educational intervention models and assessing their long-term effectiveness.

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