

## **BODIES AND MULTISENSORY LEARNING: AN EMBODIED READING EXPERIENCE**

### **CORPI E APPRENDIMENTO MULTISENSORIALE: UN'ESPERIENZA DI LETTURA INCARNATA**

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#### **Abstract**

Through a precise reflection on embodiment cognition which has restored depth of analysis to the body and to the material spaces of life in learning, the essay intends to reflect on reading as an expressive form and an embodied educational and learning experience. In the necessary interconnection and reciprocity between reading mind and reading body, immersion in stories is not only a bodily and imaginative experience, but also an opportunity for comparison and encounter between bodies, adults and children, made of *paper*, whose steps between the pages of books they are a precious and indispensable guide in our learning history, in the construction of critical and reflective thinking, in the regulation of emotions and feelings.

Within this perspective, this paper presents the learning experience offered to the second-year students of the Primary Education degree course in teaching of writing and reading during the Didactics of Writing and Reading course.

Thus conceived, reading creates a space for expressive sharing that transports us into a dimension composed of language, movement, mimicry, gestures, and emotions, a precious opportunity for the human being's integral formation. (Dentale, 2012, p. 18).

On this basis, the aim of this work is to promote reading from the perspective of the embodiment theory applied to education. Enactment, as for example in the case of sentences, has, in fact, proven to be an extremely effective educational tool, activating verbal, visual and motor skills (Engelkamp & Zimmer, 1985).

Attraverso una puntuale riflessione sulla embodiment cognition che ha restituito spessore di analisi al corpo e agli spazi materiali di vita negli apprendimenti, il saggio intende riflettere sulla lettura quale forma espressiva ed esperienza educativa e di apprendimento incarnata. Nella necessaria interconnessione e reciprocità tra reading mind e reading body, l'immersione nelle storie è non solo esperienza corporea e immaginativa, ma anche occasione di confronto e incontro tra corpi, adulti e bambini, *di carta*, i cui passi tra le pagine dei libri sono guida preziosa e irrinunciabile nella nostra storia di apprendimento, nella costruzione del pensiero critico e riflessivo, nella regolazione di emozioni e sentimenti.

Muovendo da questa cornice teorica, il contributo presenta l'esperienza di apprendimento proposta a studenti di secondo anno del corso di laurea in Scienze della formazione primaria nell'ambito del corso di didattica della scrittura e della lettura.

La lettura, così pensata, crea uno spazio di condivisione espressiva che ci porta in una dimensione fatta di linguaggio, movimento, mimica, gestualità ed emozioni occasione preziosa di formazione integrale dell'essere umano. (Dentale, 2012, p. 18).

Partendo da tali considerazioni si intende, in questa sede, promuovere la lettura nell'ottica di una didattica embodiment. L'enactment, infatti, come la messa in atto, ad esempio di frasi, risulterebbe estremamente efficace per l'apprendimento, attivando modalità verbali, visive e motorie (Engelkamp & Zimmer, 1985).

#### **Keywords:**

Embodiment cognition, laboratory, body, didactic, reading

#### **Parole chiave**

Apprendimento incarnato -laboratorio corpo, didattica, lettura

## Corporeity *in* learning: embodiment in teaching processes

In the international cultural panorama, the educational and training value of corporeal existence in the learning and development processes of the individual is now acknowledged.

In the context of a transformative pedagogy and an educational system aimed at fostering the promotion and emancipation of the individual, according to an inclusive and democratic perspective, it is necessary to develop a teaching professionalism capable of moving along "non-linear trajectories" (Sibilio, 2013), but alien to a vague and impromptu didactic action.

The didactics of corporeality is fundamental to learning processes because the body gives colour to cold knowledge, enables multisensory activation, and enables the emotional involvement that stimulates the memory, which is crucial for learning. Therefore, it is time to examine with new eyes the possibility of designing new educational paths that adhere to pedagogical principles aimed at enhancing the uniqueness of the individual. Beginning with his body and mind, in his uniqueness and peculiarity, he is a unique being who needs a living space to express his ego and develop his creativity and who needs to move in order to experience the world and explore himself.

Body mediation in didactics means making the body the primary channel of learning. "It is therefore necessary to enhance corporeity as a bridge of knowledge, at the educational-training level; remembering the body means recognising it as a crossroads of diverse knowledge, in time and space" (A. Lo Piccolo, 2017).

The man's body, which is constantly in motion, enables him to interact with the world around him, and this constant motion is a necessary condition for living.

Educating starting from the body entails not underestimating the emotional, sentimental, intellectual, motor, bodily, and relational spheres; that is, it entails educating a person in his or her entirety, allowing for self-identification and self-design.

The relationship between mind and body, which has always been a central topic of research, particularly in the neuroscientific field, now serves as the *complementary background* for all speculation in the bio-anthropological field.

The concept of the human person as a bio-psycho-socio-spiritual unity, in which the specific indissolubility between body and mind renders it unique and unrepeatable, serves as the foundation. As stated by Sibilio, it is necessary to maintain the plural and complex nature of education, as anchored in the multiple levels of training that include the intellectual, physical, emotional, and relational dimensions of the individual (Sibilio, 2012). This plural approach in Italy can be traced back to the bio-educational paradigm of educational research<sup>1</sup> based on the recognition of the connection between biology, pedagogy, and didactics and the centrality of the relationship between mind, body, environment, artefacts, and knowledge processes. This paradigm, based on the constitutive relationship between pedagogy-neurosciences-cognitive sciences, examines "the conditions of possibility of human learning processes in an evolutionary and developmental perspective that combines epigenetic and phylogenetic keys on the basis of the neurophysiological plasticity of the human species" (Orefice, Sarracino, p. 9). For the bio-educational sciences, which are considered "frontier" knowledge (Frauenfelder & Santoianni, 2002), education is viewed as an evolutionary process, and biology can only be understood in relation to the phylogenetic and ontogenetic processes of evolution and development.

Within this interpretative model of learning, in which the whole person is involved and questioned, the body is part of a new pedagogical discourse; it enters the teaching process as the first instrument capable of utilising interactions and communication on multiple levels. From a

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<sup>1</sup> Frauenfelder, Rivoltella, Rossi, Sibilio 2013; Frauenfelder, Santoianni, 2002; Frauenfelder, Santoianni, Striano, 2004; Frauenfelder 2001; Sibilio, 2012, in Rossi, Rivoltella; Gay, Hembrooke, 2004

pedagogical and didactic standpoint, it is the body's competence, which mediates between the individual-body and the environment, that constitutes the learning space and, by extension, the potential for change. Intelligence research is assisting us in recognising the increasingly close connection between body and mind and in viewing body and mind as a functional nexus generative of each other and vice versa. According to Sibilio, "didactic corporealities" express, via non-verbal communicative modes, conscious and unconscious intentionalities capable of dealing with complexity in teaching-learning processes<sup>2</sup>.

In this view, both learning and culture are embodied and naturally transmitted through languages, actions, and processes mediated by the body: "Acting, translating into attitudes, behaviour, and conduct, represents a synthesis between words, gestures, gait patterns, and facial and body mimicry; these elements constitute the subject's cultural identity, the representation of its style, values, rules, and priorities" (Sibilio, 2016, p. 110).

Pfeifer and Bongard argue that intelligence requires a body: a body that is to be understood as a body-physical system connected to the system-environment according to a "structural coupling" (Maturana & Varela, 1980), thus capable of processing at a neural level the data that arrive from the physical world and generating learning, cognition, and behaviour. The body's sense-motor activity acts as a conduit between the entire body-organism and the brain, thereby establishing the body-brain-environment relationship.

The recognition of the centrality of the body in cognition, viewed as a complex process that varies in relation to system and action interactions, is the result of a confrontation between tradition and innovation, didactic-psycho-pedagogical acquisitions of the late 20th century, and contemporary reflections on the Mind-Body problem and the Body-Body problem (Thompson, 2005; Sibilio, 2012, p. 330; Young, 1996; Kim, 2010).

A school that embodies interaction and the different forms and possibilities through which it is realised recognises the centrality of the primary enabling device for the relationship that is the body. This scientific evolution has led not only to a revolution in perspectives of meaning but also to the need to deepen, in terms of didactic methodology, the relationship between didactics, corporeity, cognition, and action. This is defined as "that scientific substratum useful for fostering the development of one's potential in an educational environment, clarifying what the neurobiological mechanisms, psycho-pedagogical forms, and various didactic approaches are" (Gomez Paloma, 2009, p. 153).

And this is even more fundamental when discussing pre-school and elementary education, where the body becomes the subject of learning, "the original substratum on which educational processes are based, the humus that facilitates the use and interaction of various intellectual forms" (Gomez Paloma, 2004, p. 236).

Embodiment is an approach that facilitates learning-related cognitive processes such as conceptualization, representation (Lindgren & Johnson-Glenberg, 2013), memorization, etc (Goldin-Meadow, Nusbaum, Kelly & Wagner, 2001), in fact, body movements such as gestures would facilitate the recall of mental elements during learning (Hostetter & Alibali, 2008, Fraunfelder & Santoianni, 2002). In addition, enactment, such as the enactment of sentences, would be highly effective for learning, activating verbal, visual, and motor modalities (Engelkamp & Zimmer, 1985). The relationship, and consequently the interactions that the relationship can generate, is identified as a strategic area through which to qualify an educational intervention that requires the body, the corporeal nature of all involved agents, to be effective in terms of learning and training. From this vantage point, interactive reading is viewed as a didactic space for encounter and active participation by children, who become protagonists and actors in the narrative. Therefore, it is a lively reading that

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<sup>2</sup> These are post-constructivist lines of research centred on embodied cognition, on a continuous process of body-action-knowledge connection, expanded even further by technologies, games, and simulation. Cfr: Lesh, Doerr, 2003; Rivoltella, Rossi, 2012 Morin, 1989; Varela et al., 1992; Lakoff and Johnson, 1999; Sibilio 2011.

is nourished by play and discovery, experimentation, and inventiveness. Thus conceived, reading creates a space for expressive sharing that transports us into a dimension of language, movement, mimicry, gestures, and emotions (Dentale, 2012, p. 18). Reading is undoubtedly a bodily act in several aspects: eyes and hands are active, and body posture aligns the entire musculoskeletal structure around the visual and manual requirements of reading. For a long time, mainstream reflections on theories of the mind, language, and knowledge have all but neglected the study of the imagination (Mark Johnson, 1987).

Narrative, on the other hand, Punday (2003, p. 15) again points out, has an essentially corporeal nature, not only because it needs to use the bodies of the characters as a natural part of the story, but also because it reflects and translates the paradoxes of the body into stories. In this sense, the body is no longer merely an object of narration, but rather an active subject in the reflection on the mechanisms of narration and reading experience.

The need to "return to the body," points out Maria Nikolajeva (2016), represents one of the elements of the recent turn in the study of children's literature that emphasises the embodied nature of knowing and remembering, perceiving, and feeling affection and empathy.

The reader's body is thus an integral part of the broader process of constructing meaning that accompanies the experience of contact with stories and that is also nourished by cultural, historical and physical immersion in the space and time in which the reading itself takes place, and hence all the cognitive, emotional and spiritual implications that are integrated into the process of identity construction, socialisation, development of cognitive, affective and relational skills, problem solving and empowerment.

Numerous disciplinary contributions, including those from the field of neuroscience, support the notion that learning is facilitated by bodily contact that challenges the whole person. The constructivist educational approach has contributed to the re-evaluation of the body and its potential, the construction and sharing of meanings, and the re-launch of the multidimensionality of the educational environment, in which different sciences coexist in a multidimensional and interdisciplinary context (Sibilio, 2011). The phenomenological-existential approach, according to which one becomes aware of the body by experiencing the body itself, lays the groundwork for a reevaluation of the role of corporeity in educational and learning processes. In the process of a person's development, life and movement, mind and body converge, beginning with language and progressing to more complex metacognitive and reflective skills. Central to the mind-body connection is the perceptual experience, in which the world is what we perceive and the body is the element that provides continuity and stability to this perception.

This is even more evident when discussing interventions aimed at pre-schools and elementary schools, where the body represents a fundamental dimension to be promoted and cared for in relation to educational and learning pathways.

In the light of what has been argued so far, work on the combination of enactment-based gestures and physical activities in and out of the classroom is proposed in laboratory teaching in order to assess children's learning of discipline-specific vocabulary through embodied words, enacted gestures, and task-oriented physical activities. This type of training facilitates the process of memorization, produces a positive effect on executive functions through physical exercise, and maintains children's motivation by encouraging them to play and learn (Sibley & Etnier, 2003). In this way, the workshop becomes a place for enhancing the intelligences of all participants and an opportunity to appropriate one's own and others' emotions, which come into play in an embodied learning system (Borgogni, 2016; Berthoz, 2003; Damasio, 1994; Edelman, 1993; Le Doux, 1996; Goleman, 1995).

In the workshop experience, the sense-motor coupling between person and environment based on embodied and enactive approaches emerges as the foundation for meaningful learning. Everything that is lived, experienced, and incorporated during workshop activities has no abilities or disabilities and is therefore completely inclusive; the experience can be facilitating in all cases, the body becomes

a bridge to the other and the world, and diversity becomes a resource when it enters a relationship. "Cognition in its phenomenal variety corresponds to a form of embodied action that depends on different sensory, motor, biological, psychological, and cultural experiences" (Carboni, 2013).

The workshop inspired by embodiment cognition is a place where one experiences pleasurable effects that foster creative and flexible thought, problem-solving skills, and peer collaboration—all instances in which a virtuous circular connection is established between emotions and the learning context.

In this perspective, the discipline becomes interactive, understood as the co-construction of a tale that involves the active participation of the children, who not only intervene by listening but also become the protagonists of what is being narrated. In this way, an animated fairy tale that is nourished by play and discovery, experimentation, and creativity is brought to life; a story to be vocalised, mimed, or acted out; a fairy tale to be "played" through symbolic play, motor play, etc., through which the child contacts, explores, and experiments with new expressive resources. As a result, the experience becomes concrete and is incorporated into and inscribed in the corporeal and existential trace of each of the fairy tale's protagonists and characters.

Eyes and hands are active during the reading process, and body posture defines and aligns the entire musculoskeletal system to the visual and manual demands of the book. Therefore, reading out loud requires the use of the lips and vocal cords, resulting in a greater cardiovascular and muscular involvement. But the primary way in which the body responds emotionally, cognitively, and physically to the book is closely linked to its form, its material characteristics (whereby, in fact, the history of the book and the history of the reading body are reciprocally conditioned), the specific conditions of the set and the setting that accompany the reading, and that bring to maturation senses, meanings (Chambers, 2015) and imaginative possibilities (Mark Johnson, 1987).

The reading body is, then, a sounding board of the adventures encountered, and experiences proposed, tending to align itself with the space-time perspective.

### **The Reading Body workshop**

The didactic experience of the *Reading Body* workshop came to life as part of the teaching of Didactics of Writing and Reading aimed at second-year students of the degree course in Primary Education at the Faculty of Classical, Linguistic, and Educational Studies of the Kore University of Enna.

The activity consisted of dynamic personal or group work on a specific theme or problem chosen and agreed upon with the teacher and negotiated with colleagues, the creation of operational paths, and the generation of ideas pertaining to a task.

The theme chosen for the activity was the interactive fairy tale; in particular, reference was made to the "Method of Theatre in Play®" developed by Helga Dentale, an expert in theatrical pedagogy and expressive languages, which is now an integral part of the Writing and Reading Didactics course in the Primary Education Sciences degree course.

The course was developed over the course of five meetings between October and December of 2021. The students were asked to design a reading and writing-promoting activity for primary schools or kindergartens in which the body is privileged as a communicative-expressive choice. Their design centred on the interactive reading of a group-created story or a re-adaptation of an existing story, as well as its playful-motor representation.

As conceived, the workshop is a moment in which students begin to evaluate themselves by applying what they have learned from studying the discipline. It becomes a favourable opportunity to experiment with active teaching that requires students to act and, most importantly, to reflect on the chosen teaching method and its strengths and weaknesses. It became a chance to satisfy interests,

facilitate socialisation, communication, self-learning, and the development of divergent thinking by encouraging exploration (Borghi, 2003).

Forty-eight students participated, divided into eight groups (six students per group); the spontaneously formed groups identified the most important objectives for the preschool and/or primary school students' curricula, emphasising certain aspects that could be interesting and could arouse curiosity and stimulate creativity. Each group then proceeded to structure the path in a UDA after elaborating on the elements that emerged during the initial phase of group discussion.

The teacher accompanied the students on a comprehensive didactic and educational path that enabled them to follow the activity from the planning phase to the experience of interactive group storytelling, possibly using all expressive languages.

The workshop consisted of five three-hour meetings: during the first meeting, an initial brainstorming session on the concept of the body and embodied learning was proposed, and only then did they present the method of embodied reading; at the conclusion of the first meeting, the teacher distributed an annotated bibliography.

During the second meeting, the facilitating teacher took up, with the assistance of volunteers, the previous meeting's topic and collected the cold reflections, then handed over the handover; the following two meetings were devoted to the invention of the stories and the design of the Learning Unit, respectively (UDA). During the previous meeting, a storytelling circle was established in which each group had the opportunity to share its interactive story.

Through this shared storytelling, participants were encouraged to interact with the stories' content: "Each fairy tale tells a simple, short story; we are not particularly interested in the narrative structure, but rather in the elements of the fairy tale that can spark interaction." Elements to be vocalised, mimed, and dramatised with the children. The child contacts, explores, and experiments with new expressive resources through the symbolic and dramatic play proposed by the fairy tale (imitating the sound of the wind, playing the role of a chattering hand, pretending to be the caterpillar crawling along the ground, etc.). We perform using the vocal instrument, the body, and our emotions. As always, "one learns by playing" (Dentale, 2012).

The methodology of interactive reading includes typically brief rituals that mark the beginning and end of activities: the conductor narrates, the other participants listen, and together a theatrical game is created in which characters and sounds are dramatised during the narration. Due to the symbolic game, the experience becomes very tangible, and all participants become characters in the story. In this type of reading animation, the voice of the narrator is the primary instrument, accompanied by a variety of voices, sounds, verses, and noises brought to life with the assistance of the other group members. The arrangement of space and materials becomes a significant element of the workshop and contributes to drawing attention to it, such as the stage settings in which simple and small everyday objects can be used to help one enter the character more fully (Dentale, 2015, 18).

Each fairy tale offers a great opportunity to explore different expressive languages, so the development of storytelling can occur through the introduction of theatrical games involving voice, body, emotions, sensorial activities, graphic-painting activities, relaxation games, and free dances. Thus, the context serves as a container for stories, games, and expressive and creative activities.

The body plays a crucial role in this process because it enables people to discover and acquire an awareness of their personal identity, thereby granting them complete freedom of expression. During the workshop, it was fundamental to reflect on and experiment with the students using this method of interactive reading, in which the child is the absolute protagonist of the proposed activities and paths.

A specific period of time was allotted at the conclusion of the course for reflection and sharing of experiences, as well as self-evaluation of the course undertaken. In this space, each group mapped out its path, beginning with the distribution of roles within the group, the construction of tools for observing and monitoring the experience (diary, check list), and the reading of the Fairy Tale, highlighting the phases of construction and then of narration through corporeality; each group then

highlighted the emotional aspects that characterised the path, as well as the points of form and weakness.

According to the resulting reflections, the promotion of interactive fairy tales is of fundamental importance as a means of fostering collective creation, cooperation, peer relations, and awareness of one's own emotions and potential, thereby profoundly stimulating creativity and imagination. It is a significant experience for one's own formative path because it allows one to become aware of one's own interiority, one's place within the group to which one belongs, and one's relationship with others.

The writing and reading workshop served as a training ground for a better understanding of how students personally learn by simulating the planned activity.

This type of learning experience, in which everyone is required to reflect on the practise, is particularly engaging for future teachers-in-training. Those who do not personally assume the role of the learner quickly forget what learning entails and how the whole person is involved in the process (Sibilio, 2002).

## Conclusions

Through bodily expressive activities, didactics is potentially capable of broad and multisensory engagement because the body in didactics permits the juxtaposition of cold and repetitive information. They are essential to the construction of knowledge, with stimuli that can permeate and emotionally engage, conditioning the mnemonic system because "the fabric of our mind and behaviour is woven around continuous cycles of emotions, followed by feelings that we become aware of, which in turn generate new emotions, in a continuous polyphony that underlies and accompanies particular thoughts and actions." The connotation of "place of doing" refers to "forms of reflexive learning oriented toward the construction of skills and competences that put the subject in a position to continue along his path, engaging in a constant dialogue between the generality of theory and the specificity of practise" (De Rossi, 2011, p.123).

The laboratory "workshop of heuristic method" (Frabboni, 2004) is that elective location where future teachers learn to interconnect knowledge in order to recompose knowledge unitarily. In this perspective, the processes of *knowledge* transformation - even more so if placed in paths based on enactment and on the reconnection between body, reading, and learning - are to be viewed as mediation activities aimed at promoting learning by networks of meanings, taking into account the formative value of knowledge contents, which become thus relevant, accessible, and capitalisable.

In this situation, the teacher designs, creates, and selects those didactic mediators that, by serving as bridges between reality and representation, facilitate knowledge acquisition.

The didactic action in the embodied reading laboratory, from the perspective of embodied cognition, mediates the acquisition of knowledge by structuring the pedagogical field functional to the "recontextualisation" (Damiano, 1989, p. 207) of the same, not only within the walls of the classroom, but also in open-air training spaces, so that it becomes acquired knowledge.

The adoption of a systemic, complex, multidimensional approach to knowledge contributes to the development of "a way of thinking that is not limited to the local and the particular but is capable of conceiving of the whole, [...] suitable for fostering a sense of responsibility and a sense of citizenship" (Morin, 2000, p. 101). In other words, it creates the conditions for the development of a "well-built head" and, by preventing the fragmentation and compartmentalization of knowledge, facilitates a problem-solving and critical approach to knowledge. In such a view, the concept of cognition as an activity deeply rooted in the sense-motor system is developed, thus overcoming all the traditional orientations prevalent in the educational sphere, such as the cognitivist one, in which the model of knowledge was considered to be the acquisition-processing of information, the sequential-curricular teaching and learning model, and the technological one (Calvani, 1998).

On the other hand, cognition is not the result of deterministic action, but rather is understood as a complex process that co-evolves through system interactions, an action that is embodied.

These considerations point us in the direction of a potentially more inclusive school, one that enhances and promotes the abilities of individuals without standardising them or imposing the same cognitive pathways on all.

In the knowledge that there is no single correct way to arrive at a solution, it is necessary to suggest routes that can make students aware of their abilities and develop proactive skills that maximise the resources of each individual, despite their differences.

In this sense, the workshop proposal represents a real victory over the fragmented and guardian view of knowledge, and it views the curriculum as a generative, situated, and flexible tool for training an active, participating learner, who is urged to formulate personal trajectories of conscious and responsible participation in democratic and civil life.

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