

Corporeality and educational sustainability: embodied perspectives for a transformative pedagogy.

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Abstract: This article analyses the contribution of the theories of embodied cognition, body pedagogics and the corporeal device to redefine learning paradigms in a sustainable way. Integrating theoretical reflections, sociological analyses and empirical cases, it proposes an educational approach that values corporeality as an epistemological, relational and political resource. In particular, the work brings international contributions into dialogue with approaches developed in the Italian context, highlighting how educational sustainability requires complex, multimodal and culturally sensitive environments. The article discusses the pedagogical, design and institutional implications of the embodied approach, emphasising the role of the body not only as a learning tool, but as a central actor in the construction of inclusion, citizenship and educational transformation.

Keywords: embodied cognition; body pedagogics; corporeal device; educational sustainability; multimodality.

1. Introduction

In recent years, the pedagogical debate has progressively opened up to perspectives that put corporeality back at the centre of educational processes, with a view to educational sustainability, inclusion and social transformation. In particular, the theories of embodied cognition (Núñez et al., 1999), body pedagogics (Shilling, 2017) and the corporeal device (Ivinson, 2012) offer new tools to re-read learning no longer as an exclusively cognitive and abstract process, but as a situated, embodied and relational practice. Such approaches highlight how the body, often relegated to the margins of educational reflection, constitutes instead a fundamental epistemological resource and a political actor in educational contexts.

This contribution intends to explore the potentialities of the embodied approach in redefining educational paradigms in a sustainable key, putting in dialogue the main international references (Núñez et al., 1999; Shilling, 2017; Ivinson, 2012) with those developed in the Italian context (Gómez Paloma, 2024; Simonetti, 2022; Andalò, 2024). Through an interweaving of theoretical analyses, sociological readings and empirical cases, a vision of education capable of recognising the complexity of bodies, cultures and environments is proposed, promoting multimodal and culturally sensitive educational experiences.

The article is divided into several sections: initially, the main theoretical references are outlined, and then the pedagogical implications of the body as an episte-



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mological, relational and political resource are analysed. Next, the characteristics of sustainable educational environments are examined and the design and institutional implications of the embodied approach are discussed. In conclusion, the transformative potential of a body-centred pedagogy is reflected upon and some avenues for future research and intervention are outlined.

2. Embodied paradigms for a pedagogy of corporeity

2.1. Embodied cognition: the body as the basis of thought

The theory of embodied cognition has radically transformed the way we understand mental processes, arguing that cognition is not independent of the body, but on the contrary emerges from embodied experience (Núñez, Edwards, & Matos, 1999). In this perspective, abstract thought is not born in a vacuum, but develops through bodily perceptions, emotions, and gestures. Lakoff and Johnson (1999) showed how even language and mathematical concepts are anchored in bodily metaphors, opening up a new vision of education as embodied practice.

On the educational level, this implies the need for multisensory, experiential and contextualised didactic approaches that involve the body in the construction of knowledge. Dewey (1938), already in the early decades of the 20th century, anticipated many of these concepts, arguing that authentic learning occurs through the subject's active and reflective experience in the world.

In dialogue with these perspectives, Francisco Varela (1991) proposes a neurophenomenological view of experience, in which mind, body and environment are co-emergent: the cognitive act is always situated and embodied, intertwining biology and consciousness, affectivity and meaning.

2.2. Body pedagogics and corporeal devices: the body as a social medium

The sociological approach to corporeality in education, developed by Shilling (2017), is based on the concept of body pedagogics, which describes the set of processes through which bodies learn, internalise and reproduce cultural norms, habits and meanings. It is not only what the body is taught, but also what the body teaches through its presence, posture, movement and affectivity. The body is, in this sense, a field of negotiation between discipline and freedom, between social conformation and individual resistance.

Gert Biesta (2010), while not dealing directly with corporeality, emphasises the importance of educational subjectivation, i.e. the process through which the subject becomes an agent, also corporeal, of transformation in the world. In this sense, corporeality is central to the formation of the self and the ethical relationship with the other.

Ivinson (2012) deepens this discourse through the concept of the corporeal device, highlighting how school environments, objects and pedagogical architectures produce corporeal modes of learning, often invisible but powerful. This approach allows for a critical analysis of the implicit role of the body in school dynamics, which are often dominated by normative, disembodied and abstract models.

2.3. Some Italian perspectives: the body as a space for meaning and inclusion

The Italian panorama offers significant and original contributions to the theme of corporeity in education. Gómez Paloma (2024), integrating neuroscience, pedagogy and motor sciences, proposes a vision of educational corporeity as an engine of global development: cognitive, emotional, social. In particular, he emphasises how corporeality is a “bridge” between languages, cultures and subjectivities, crucial for intercultural and inclusive education.

Simonetti (2022), drawing on phenomenological philosophy, re-evaluates thinking corporeity as a pedagogical space where logos and pathos, thought and perception merge. The body, according to this view, is a place of revelation, contact and relationship, not an object to be controlled, but a subject that feels, thinks and acts.

Andalò (2024), finally, analyses the institutional architecture of education, highlighting the need to structure complex, multimodal and sustainable training environments. The body, in this perspective, is also territory, interacting with space, technology and local cultures.

3. The body that knows, relates and transforms: critical pedagogical perspectives on corporeity

In contemporary pedagogical thought, corporeity can no longer be considered an accessory dimension of learning. It constitutes a central node for understanding educational processes in their complexity, interweaving cognitive, affective, relational and political dimensions. The body is not a neutral entity, but is situated, historically marked and culturally constructed (Butler, 1990). In this section we examine three fundamental axes of embodied pedagogy: the body as an epistemological resource, as a relational device and as a political subject, in the perspective of a sustainable, inclusive and transformative education.

3.1. The body as an epistemological resource

Classical epistemology has historically excluded the body from the horizon of knowledge, relegating it to the sphere of the sensitive, the instinctual, the non-rational. However, with the emergence of embodied cognition (Núñez et al., 1999; Varela et al., 1991) and the renewed interest in the phenomenology of perception (Merleau-Ponty, 1945), a new conception has taken hold: the body is the seat and vehicle of knowledge. Knowledge is not only born in the mind, but is formed through embodied experiences, through acting, touching, moving in the world.

This perspective is also central to Dewey (1938), for whom thought develops through active experience, which includes the manipulation of objects, interaction with the environment and the aesthetic-affective dimension. In an educational context, the recognition of the body as an epistemic matrix implies a profound transformation of teaching methodologies: schools can no longer limit themselves to transmitting abstract notions, but must create concrete, multisensory and reflective experiences.

As Irigaray (1997) notes, recovering corporeal subjectivity also means restoring dignity to forms of knowledge that are often excluded from the Western canon - feeling, intuition, the relationship with the other - paving the way for an embodied, inclusive and dialogic epistemology.

3.2. The body as a relational resource

The body is not only a vehicle for learning, but also a place for relationships and interaction. It constitutes a primary, pre-linguistic language through which emotions, intentions, desires are communicated. In the educational environment, the body dimension profoundly conditions the quality of relationships between teacher and learner, between peers, between individual and context. Gestures, postures, glances, proximity and distance are fundamental elements in the construction of an inclusive relational climate (Gómez Paloma, 2024).

According to Bell Hooks (1994), teaching is an act of embodied love: teaching with the body, with the voice, with empathy, means creating spaces in which students can feel seen, recognised, welcomed. This vision of the educational relationship implies an ethical responsibility towards bodies, especially the most fragile, marginalised or normatively “invisible” ones - disabled, queer, migrant bodies, etc.

Martha Nussbaum (2010) also emphasises the importance of emotional and bodily education in the formation of democratic citizenship: the ability to enter into a relationship with the other, to feel empathy, to inhabit the world with sensitivity arises from an education that does not ignore, but values, the body as a space of reciprocity.

3.3. The body as a political resource

Education, like any cultural practice, is never neutral: it produces subjectivity, regulates behaviour, shapes bodies. The body, in this perspective, is also a field of power: it is the object of norms, regulations, classifications. Educational institutions, through curricula, environments, implicit rules, construct an idea of the “legitimate body” (Shilling, 2017; Foucault, 1975). Some bodies - white, normed, masculine, silent - are recognised as conforming, others are excluded, medicalised, stigmatised.

However, as Judith Butler (1993) points out, bodies are not only objects of power, but also spaces of resistance: through pedagogical practices, new modes of bodily expression, new languages, new subjectivities can be constructed. Embodied education thus has emancipatory potential: it can defuse disciplinary devices and generate agency, that is, the capacity to act consciously in the world.

This vision is also echoed by Biesta (2010), for whom “good education” is that which not only transmits knowledge, but also promotes political subjectivation: it makes subjects capable of expressing themselves, taking a position, and transforming the reality they inhabit - also through the body.

4. Sustainable and Multimodal Educational Environments: towards an Ecological Pedagogy of the Body

The introduction of the embodied paradigm in educational contexts cannot end with a methodological update: it implies a radical transformation of the forms, places and languages of education. A sustainable environment is not limited to providing “green” infrastructures or functional spaces, but is configured as a complex ecosystem capable of integrating body, mind, emotions, relationships and culture. In this framework, the educational space becomes an active agent of learning, a territory of meaning in which bodily and cognitive experiences intertwine, generating new possibilities for signification and participation.

This perspective is part of a broader ecological and systemic paradigm of education (Capra & Luisi, 2014), in which the environment is not a neutral background, but a dynamic actor that co-determines educational outcomes. Embodied education

therefore means building educational environments capable of accommodating complexity, reflecting the multiplicity of bodies and languages, and fostering sustainability that is not only material but also relational, epistemological and affective.

4.1. Learning spaces: the environment as co-educator

According to Loris Malaguzzi, founder of the Reggio Emilia Approach, ‘the environment is the third educator’, alongside the adult and the child. This statement summarises a pedagogical vision in which space is not a container, but an active and intentional dimension of learning. A classroom designed in an embodied manner accommodates the needs of the body: it provides the possibility of moving, of changing posture, of manipulating materials, of choosing one's own time.

In recent years, several educational projects have reinterpreted school architecture according to these principles, designing flexible, multisensory, inclusive environments: open spaces, mobile furniture, tactile materials, integrated technologies. These spaces reflect a pedagogy that not only tolerates but also values the body as a mediator of experience.

A significant example is the Schools Without Backpacks (Italy) model, which breaks the rigid frontal approach and promotes cooperative, community-based environments centred on global well-being. In the same way, outdoor education projects and forest school experiences place the body at the centre of the educational relationship, soliciting the connection between the individual and nature, between knowledge and sensoriality, between learning and ecological responsibility.

4.2. Multimodality and accessibility: beyond the domain of the word

An embodied education is based on a radical pluralisation of languages. In the traditional school, knowledge predominantly comes through verbal, written or oral language, excluding all those who do not fit into this model: students with communicative disabilities, neurodivergences, migration backgrounds, visual-spatial or kin-aesthetic forms of intelligence.

The multimodal approach, as outlined by Kress (2009) and expanded by Jewitt et al. (2016), recognises that the construction of meaning occurs through a multiplicity of semiotic modalities: the body in motion, sound, image, colour, rhythm. Integrating these languages means expanding the accessibility of education, promoting equity and the recognition of expressive diversity as a resource.

In particular, experiences such as theatre pedagogy, educational dance, participatory art, sensory design, or the use of the body in mathematics and science demonstrate how the body can be not only a channel, but a true epistemic language, with which to explore concepts, relationships and forms of the world.

4.3. Sustainability as an embodied principle

Talking about educational sustainability does not only mean educating “for” sustainability (environment, resources, climate), but also educating “in” a sustainable way: building relationships, practices and environments that do not exhaust people's bodily, emotional and cognitive resources. In this perspective, the body is not only an object of care, but a pedagogical criterion.

In fact, educational sustainability implies

- respect for the body's time, counteracting hyper-productivity and continuous assessment;
- the construction of meaningful relationships, based on empathy, listening and cooperation;
- the possibility of inhabiting space creatively, without feeling controlled or reduced to numbers;
- the openness to non-linear knowledge, which values slowness, reflection, and aesthetic experience.

As Nussbaum (2010) argues, a sustainable school is one that forms individuals capable of imagining, of putting themselves in the other's shoes, of acting with care and responsibility. The body is the sensitive root of this ethical imagination, and it is in its full appreciation that the challenge of educational sustainability is played out.

5. Pedagogical, design and institutional implications: the body at the centre of educational innovation

The integration of corporeality in educational processes does not represent a mere methodological innovation, but a profound transformation of the purposes, forms and devices of education. The embodied approach calls for epistemological, pedagogical and institutional restructuring. In this section, we analyse three levels of implication: teaching practices, curricular design and the organisational and political frameworks of the school.

5.1. Renewing practices: pedagogies of the body, movement and experience

At the didactic level, the embodied paradigm invites us to move beyond the transmissive lesson, centred on verbal language and fragmented disciplinary knowledge, to make room for active, participative and multimodal methodologies. Expressive workshops, theatre, educational dance, dramatisation, role-playing, outdoor education, cooperative learning and design thinking are examples of approaches that put the body and experience at the centre of the learning process.

The importance of didactics that recognises the centrality of the teacher's perceptions in inclusive teaching actions redefines teacher training in a simplistic key (Sibilio, 2016), which values awareness of one's personal resources and the transformative and generative potential of teaching.

5.2. Rethinking design: complex and corporeity-sensitive curricula

In terms of design, the embodied approach suggests rethinking the curriculum not as a rigid container of content, but as an open, ecological and interconnected structure, capable of dialoguing with the complexity of bodies and contexts. A body-sensitive curriculum integrates artistic, motor and expressive disciplines in every school level and grade; it enhances the affective, relational and symbolic dimensions of learning; it promotes transversal skills, such as empathy, body awareness, caring, cooperation; it includes moments of metacorporeal reflection, in which students and teachers become aware of their own bodily and emotional experiences.

In this perspective, it is highlighted that curricular design must be based on an ecological and systemic vision of education, which takes into account the intertwining of corporeity, cognition and context (Aiello et al., 2015). The curriculum, according to these authors, must not limit itself to transmitting content, but must become a gen-

erative environment, capable of enabling transformative, dialogic and situated processes.

5.3. Acting at the institutional level: school policies and teacher training

Finally, the implications of the embodied approach also touch the organizational and institutional level. A systemic change is needed that involves school structures, educational governance and training policies. Some areas of intervention include: initial and continuous training of teachers, which should integrate skills in body education, relational pedagogy, emotion management and somatic awareness; the reorganization of school spaces, designed not only for functionality, but also to stimulate interaction, acceptance and movement; evaluation as a formative and not punitive process, which also takes into account the bodily, emotional and cooperative participation of students; the introduction of hybrid educational figures, such as body mediation experts, art therapists, movement facilitators, able to work with the body in formal and non-formal contexts.

These changes require an explicit political orientation: choosing to put the body at the center of education means questioning the very foundations of the educational system, its purposes, its hierarchies of knowledge and its criteria of value.

5.4 Towards an embodied educational governance

Promoting a pedagogy of corporeity ultimately means orienting the entire educational system towards a more human, ecological and democratic vision of education. In a time marked by environmental, social and psychological crises, embodied education offers a concrete alternative to fragmentation and disconnection: an education that feels, that moves, that takes care, that creates.

In this sense, the body is not only the recipient of educational action, but becomes an institution itself: a place from which to rethink school, citizenship and the possibility of imagining new educational futures.

6. Conclusions: the body as an educational horizon for training sustainability

The theoretical and critical path outlined in this contribution has highlighted the urgent need for a reformulation of educational paradigms in light of the recognition of the body as the fulcrum of learning, relationship and transformation processes. Starting from the comparison between the perspectives of embodied cognition (Varela, Thompson & Rosch, 1991; Núñez, Edwards & Matos, 1999), body pedagogics (Shilling, 2017) and body devices analyzed in a sociological key (Ivinson, 2012), we have observed how the body must be considered not only as an object of educational intervention, but as an active subject of knowledge, relationality and citizenship.

Corporeality, thus conceived, is configured as an epistemological resource, since it contributes directly to the construction of knowledge through sensitive experience, movement and interaction with the environment (Gallese & Lakoff, 2005; Merleau-Ponty, 1945). It is also a relational resource, as a primary vehicle of communication, affectivity and empathy, especially in inclusive educational contexts (hooks, 1994; Gómez Paloma, 2024). Finally, the body has a political function, since it is the place where norms, exclusions and possibilities of resistance are inscribed (Butler, 1993; Foucault, 1975), and therefore acting on the body also means acting on the structures of power that pass through the school.

The recognition of the body as a formative hub requires a systemic transformation of education on multiple levels. On the practical level, it implies the need to abandon an exclusively transmissive and logocentric teaching method, in favor of active, laboratory, cooperative approaches, which are able to integrate verbal and non-verbal languages, emotional and cognitive dimensions, internal and collective experiences (Aiello & Sibilio, 2015; Kress, 2009; Jewitt et al., 2016). On the planning level, it requires the construction of flexible and dialogic curricula, capable of accommodating the diversity of bodies and learning styles, favoring processes of personalization and agency (Sibilio, 2016; Biesta, 2010). On the institutional level, it calls for a reformulation of educational policies, teacher training, and the organization of school spaces and times (Malaguzzi, 1996; Sterling, 2010; UNESCO, 2017). This transformation is part of a broader framework: that of educational sustainability. Educating in an embodied way means educating in respect of the biological and cognitive rhythms of the subjects, of their emotional integrity, of their singular trajectories. Sustainability, in fact, is not only an ecological issue, but also an educational and social one (Capra & Luisi, 2014; Nussbaum, 2010): it is about building environments that do not consume the mental, relational and physical energies of those who live there, but that know how to regenerate, welcome and accompany.

The embodied approach is therefore revealed not only as a methodological possibility, but also as an ethical and political choice: a concrete response to the standardizing and disembodied drifts of contemporary education. In a world marked by environmental crises, educational inequalities and growing alienation in school contexts, educating starting from the body means re-humanizing the educational experience, restoring depth, relationship and listening.

Future research prospects are multiple. Further empirical investigations on the effectiveness of embodied devices in the classroom, comparative analyses between educational systems, and studies on the neuroeducational implications of situated learning are necessary. At the same time, it will be strategic to promote networks between educational institutions, universities and local actors to experiment and consolidate good teaching practices focused on corporeity.

In conclusion, recognizing the body as the horizon of sustainable education means taking a new look at the subject in training: no longer a container of contents, but an embodied being, who knows with the body, communicates with the body, and builds relationships and meanings through the body. This is the challenge of the education of the future: to make the body visible, thinking, political. Only in this way will it be possible to build a school that not only teaches, but that transforms and allows itself to be transformed.

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