



LEND ME A HAND: EMBODIMENT-BASED LEARNING PRACTICES AND ENVIRONMENTS AS ACTIVE PROCESSES OF INCLUSION

Mauro Carboniⁱ

Full Professor, M.Ed.,
Music Conservatory,
Perugia, 06123,
Italy

Abstract:

The processes of inclusion across diverse educational contexts and institutional levels highlight the critical role of embodied gestures in shaping both individual presence and the collective capacity to learn within shared environments. Recognizing and interpreting these gestures requires acute sensitivity to their inherent complexities and variations, thereby enhancing the quality of our interpersonal interactions. From this perspective, playful exploration as an embodiment-based learning practice is recognized as a vital component of children's physical, cognitive, and emotional development. It fosters social interaction and cultivates resilience within securely bounded environments, as active processes of inclusion. Consequently, affective experiences manifest through narrative gestures, enabling children to actively engage with their immediate context—encompassing interactions with people, objects, and abstract concepts. This participatory approach to learning underscores the construction of meaning through intersubjective interactions, which are indispensable for the acquisition of knowledge. Ultimately, the collaborative essence of social interaction is integral to cognitive development, emphasizing the significance of relational dynamics in the learning process. This study aims to elaborate on the embodied learning paradigm, focusing on methodological approaches and educational designs rooted in well-established research models.

Keywords: embodied learning, active pedagogy, inclusion, playful experimentation, research models

1. Introduction: Thoughts As Lived Embodied Experiences

Our thoughts, in the form of words, are like traces that leave a mark; they exist in space and time and—often before expressing concepts—convey affects and emotions that stir within and around us. Before they are articulated, our thoughts are gesturally shaped,

ⁱ Correspondence: email m.carboni@conservatorioperugia.it, carbonimauro1958@gmail.com

reflecting our lived experiences and the nuanced dynamics of our interactions with others.

The intricate interplay among sensory modalities during information processing underscores the inherently multimodal architecture of the brain's sensorimotor system, challenging the notion of modularity often attributed to different cognitive functions (Florio, 2025). This multimodal characteristic suggests that language is fundamentally intertwined with a diverse range of sensory inputs, including visual stimuli, auditory information, tactile sensations, and motor actions (Drijvers & Holler, 2022).

In essence, the language processing system capitalizes on the brain's already cohesive sensorimotor framework, utilizing this interconnectedness to foster the development of more sophisticated and nuanced communicative models. As a result, language not only emerges as a means of verbal communication but also as a complex construct that draws from and is shaped by the rich tapestry of sensory experiences and interactions that define human cognition and expression (Gallese & Lakoff, 2005).

In fact, the words and thoughts we eventually vocalize are, in their initial essence, forms of gestures and actions. They represent thoughts that are embodied before they manifest into consciously deliberate actions. At the core of every gesture lies the individual who experiences it, representing a unique existence that precedes any gesture's role, whether as an origin or a consequence of an action.

Moreover, every gesture—regardless of its scale, be it a fleeting movement or a grand expression—demands the attention of a gaze, whether it be internal, reflective, or external, appreciative and inquisitive. This gaze interprets and captures the gesture's meaning, helping to restore its value and coherence within the larger tapestry of human interaction.

Through this mutual sharing of gestures and the meanings we attribute to them, the concepts of space and time—as we understand them—gain form, depth, and substance.

2. Theoretical Framework

2.1 Inclusive and Embodied Learning Processes

Inclusion processes demand an awareness of these embodied gestures, as they are instrumental in shaping our understanding and responses within a shared space. Recognizing and interpreting these gestures requires a perceptive gaze that not only seeks to capture their surface meaning but also acknowledges the complexities they carry. This insight restores coherence and value to the gestures, allowing for a richer interaction. In the early years of education, a strong emphasis is placed on the dynamics of bodily movement and the importance of spontaneous exploration in learning. Playful exploration is a vital component of physical play in early childhood, acting as an essential avenue through which children interact with and understand their environment (Buldu & Buldu, 2025).

This type of play encourages not only cognitive and physical growth but also shapes emotional experiences and fosters social interactions among young children. Moreover, it contributes to emotional resilience by allowing children to experiment with different feelings and scenarios in a safe, non-judgmental setting (Hewes, 2014).

Affective experiences evolve into dialogic forms, particularly through narrative gestures, highlighting the implicit expressiveness found in holistic behaviors and their varied postures. Children acquire knowledge about their environment through active engagement with various elements, including people, objects (Gelman, 2009), and ideas, as well as the relationships that exist among them.

This learning process is fundamentally participatory, emphasizing the importance of sense-making through intersubjective interactions. These interactions transcend mere procedural exchanges; they function as essential tools for acquiring knowledge and fostering a deeper understanding of the world. (Matusov, 2020) The co-constructive nature of social interaction plays a critical role in this learning process, highlighting how collaborative experiences contribute significantly to cognitive development (Delafield-Butt & Adie, 2016).

Educational activities that emphasize movement and awareness (McGowan & Delafield-Butt, 2022) of one's body are crucial in cultivating essential foundational skills. These skills include spatial awareness, which is the ability to understand and interact with the environment around us; temporal understanding, which involves recognizing the importance of time and sequences; and motor activation, which refers to the engagement of physical movement. These components collectively contribute to the development of logical reasoning, enabling children to think critically and solve problems effectively.

Moreover, integrating elements of motor expression—such as dance, gestures, and interactive play—into educational frameworks is vital for nurturing linguistic and social communication skills (Edna, 2020). Research indicates that these playful gestures not only help children articulate their thoughts and feelings but also facilitate better interactions with peers, promoting a sense of community and collaboration (Frick & Möhring, 2015; Parladé & Iverson, 2011).

In essence, engaging children in movement-based educational activities serves a dual purpose: it fosters significant cognitive development while also enhancing interpersonal interactions.

From this perspective, the educational framework aims to cultivate mediation methods that actively involve both the individual student's physical and relational presence and the collective dynamics of the classroom. This methodology recognizes the progressive nature of motor activities as they evolve toward more complex forms of knowledge. It intertwines playful engagement with analogical reasoning, complemented by rational and logical insight.

This process nurtures a dynamic equilibrium between the relativity of personal experiences and their objective understanding, fostering an active and constructive approach to knowledge acquisition. Ultimately, knowledge emerges through experiences

that are perceived, felt, shared, and articulated through both motor activities and gestural expressions.

2.2 Inclusion, Co-Evolution and Responsible Citizenship

The intersection of gestural and motor interaction within educational frameworks plays a vital role in nurturing a profound sense of reciprocity and responsible citizenship among learners (Skulmowski & Rey, 2018). By establishing clear guidelines that govern these interactions, we can cultivate a deeper understanding of what it truly means to "*care for oneself and others*." Central to this educational paradigm is the concept of body culture, which significantly shapes social interactions, teaching methodologies, learning processes, and the act of caring (Shilling, 2017).

To effectively engage with body culture in education, we must transition away from a reductionist view that simplifies bodily experiences. Instead, we should pursue a richer, more intricate understanding that recognizes the complexities of human movement and expression. This means creating and maintaining avenues for attentive listening and fostering empathy, as well as actively engaging with a variety of narratives that relate to bodily experiences across diverse cultures and contexts (Bertin-Renoux, 2024).

Our discourse surrounding body culture must evolve to frame the body within an educational context, moving beyond a narrow focus on physical attributes. By embracing this more nuanced perspective, we can encourage a deepened engagement with the concept of educability, which acknowledges the significance of bodily experiences in shaping our identities and relationships (Kiefer & Trumpp, 2012).

This approach promotes not only a more holistic understanding of education but also enhances interpersonal relationships, allowing individuals to connect on multiple levels—emotionally, socially, and intellectually. Ultimately, by prioritizing a comprehensive understanding of body culture, we pave the way for creating more empathetic, engaged, and socially responsible members of society (Ravn, 2022; Fomunyam, 2022).

The educational approach aimed at realizing these premises of inclusivity and co-evolution requires, first and foremost, the creation of a stimulating learning environment rich in creative opportunities—one capable of embracing both individual initiative and collective cooperation.

This entails curriculum design that unfolds through diverse activities, fostering experimentation and the exploration of playful physical expression. Within this learning framework, "data" derived from various sensory experiences (sight, hearing, touch, movement) can be "encoded" and transformed into shared activities; subsequently, this data is processed as information—that is, as forms of participatory, shared knowledge to be recognized, classified, and committed to memory.

In this context, concept-based design proves particularly valuable, as it serves both the initial analysis of knowledge expressed through intersubjectivity and the systematic

organization of connections between the competencies that have emerged at individual and group levels and the newly acquired knowledge (Granados, 2000).

2.3 Narrative Pedagogy as an Embodied Paradigm of Learning

An inclusive educational approach enhances the understanding of body language, particularly its significance in artistic expression. Within this framework, gestural communication serves as a platform for experimentation, allowing individuals to explore and articulate moods, emotions, and feelings as essential components of relational skills (Hoya, 2019).

Role-playing activities, for example, provide a unique opportunity to investigate dynamic balance and postural control in innovative and creative manners. These activities enable participants to navigate and analyze social roles within interpersonal relationships, effectively narrating and describing spaces, characters, and situations through both bodily and non-verbal expressions.

Embodiment emerges as a multifaceted competence, integrating conceptual comprehension alongside specific skills, attitudes, and emotions. This synthesis contributes to a learning experience rich with personal significance and value (Skulmowski & Rey, 2018).

Exploring the playful experimentation of bodily movement and expression, we can identify three distinct modes of interaction between teaching, learning, and the educational setting. The first is *action-oriented movement*, where the body serves an instrumental role. This mode focuses on engaging with the world to discover and implement effective adaptive solutions.

The second involves *expressive movement*, in which the body acts as a signifier. In this context, it is used to imagine, create, and share symbols and transformations, allowing individuals to assimilate their experiences into their own bodily expressions through playful simulation.

The third mode views the body as embodied meaning, functioning as a tangible mediator of a type of *impressive movement*. Here, the focus is on the act of play itself. Exploration and sensitivity to tonic, emotional, and sensory experiences become crucial for understanding one's own corporeality and, more broadly, one's sense of self (Bonange, 1988).

The interaction among these three modes is complex. It encapsulates the holistic essence of play-based activities, engaging not only motivational dimensions but also a vast spectrum of possibilities for motor communication. (Skovbjerg & Sand, 2022) Through these activities, learners embark on a journey of discovery, allowing them to explore their capabilities in safe and supportive environments. These spaces provide valuable opportunities for individuals to stretch their potential and confront their personal limits without the pressures of external judgment or the fear of failing (Tamis-LeMonda & Masek, 2023).

This process involves a continuous quest for mediation methods that can effectively navigate and enhance emotional experiences within the frameworks of

playful, expressive, and sports-related physical activities. As a result, these experiences are shaped toward educational outcomes that emphasize empathy, intersubjectivity, and a sense of mutual respect and understanding (Rico-González, 2023).

The focus on bodily empathy is particularly noteworthy, as it plays a crucial role in fostering inclusion processes within diverse educational contexts. This emphasis is especially relevant in inclusive education systems that are responsive to the varied special educational needs of students. It is no coincidence that environments which prioritize these values are those that actively stimulate multiple dimensions of learning (Ling *et al.*, 2025).

These educational settings encourage the expression of each individual's creativity and intellectual sensitivity, engaging a range of intelligences—specifically musical, spatial, bodily-kinesthetic, interpersonal, and intrapersonal intelligences—concurrently (Takahashi, 2013).

In this regard, Colin Trevarthen's research (1999) presents a comprehensive theoretical framework of great interest, emphasizing the evolutionary development of a unified system dedicated to processing thought, emotion, and movement.

The foundational idea that best captures he hypothesizes that this system is fundamental to our ability to create and understand vocal gestures and gestural mimesis, which he calls the Intrinsic Motive Pulse (IMP). This concept not only encompasses the act of sound expression but also delves into the embodiment of emotions and ideas through music and dance, highlighting a profound interconnectedness between auditory and physical forms of expression.

Trevarthen asserts that this integrative system plays an essential role in the coordination and regulation of human movement. It accomplishes this by synchronizing body perception, shaping internal images, and fostering a continuous sense of time—a core element that underpins our expressive capabilities.

Viewing expressive movement through this lens reveals that physical expressions of intention are inherently rhythmic and possess a narrative quality. This rhythmic and storytelling nature of our movements allows individuals to connect through a shared resonance of the body, promoting an intuitive exchange of personal experiences and emotional narratives.

In the course of their development, people construct a bodily biography—a narrative built from sensory memories, significant emotional connections, and experiences tied to specific moments and forms of bodily expression (Iani, 2019).

Consequently, expressive-motor activities aimed at fostering inclusion and integration transcend the simplistic engagement with rote exercises or the acquisition of specific skills. Rather, they are intentionally designed to create rich, interactive learning environments that emphasize social engagement and personal growth (Howley *et al.*, 2022). Such activities encourage participants to explore their own expressive capabilities while also nurturing connections with others, ultimately enriching the collective tapestry of human experience through meaningful interactions (Pröckl & Schwarz, 2025).

3. Educational experimentation and research models

Research into the development of integration processes, particularly those related to special educational needs and within the wider context of inclusive education, is fundamentally important. It helps identify, acknowledge, and appreciate the quality of interactions among individuals and the diverse roles they adopt in situations that require bodily empathy. Understanding these dynamics is essential for fostering inclusive environments that cater to the varying needs of all students (Hay & Beamish, 2026; Sumonte-Rojas *et al.*, 2026).

The primary method utilized in qualitative educational research projects is *structured observation* (Creswell & Poth, 2024), which focuses on bodily interactions, gestures, and motor behaviors. This methodological approach underscores the vital mediating role that the bodily and sensory dimensions play in our engagement with the world around us. These dimensions act as points of contact, provide a communicative interface, and serve as mediums for experimentation, knowledge acquisition, and individual learning experiences. Such focus on the physicality of interactions can reveal how non-verbal cues contribute to the learning process and enhance understanding among peers (Sullivan, 2018).

Furthermore, educational research must rigorously evaluate the significance, appropriateness, and effectiveness of various expressive-bodily interventions aimed at fostering empathy and encouraging prosocial behaviors among individuals. These interventions hold the potential to profoundly alter perceptions of distressing or challenging situations, thereby offering effective tools for conflict resolution (Hasson *et al.*, 2022). By engaging with these expressive-bodily methods, individuals can develop a deeper understanding of empathy as they learn to navigate their own emotional responses and the reactions of others (Marson *et al.*, 2024).

In addition, there is a pressing need to design and implement expressive-motor activities that not only promote gestures of acceptance and understanding but also uphold the principle of respecting individual autonomy. This respect extends to both expressive autonomy, which pertains to the freedom to communicate one's feelings and thoughts, and functional autonomy, which relates to the ability to make choices and take actions in a respectful and dignified manner. Balancing these elements is crucial for cultivating an educational environment where every individual feels valued and empowered (Faella *et al.*, 2025).

3.1 Educational Planning and Assessment Tools

A combined research model that integrates qualitative and quantitative methodologies, alongside targeted efforts to pilot and refine educational interventions, should prioritize identifying non-verbal mediation techniques that demonstrate strong empathic qualities. This approach should not only seek to uncover these techniques but also investigate how they can facilitate the development of shared educational frameworks that resonate with diverse learning needs.

The premise of this model is that specific gestures and motor skills, recognized for their empathic effectiveness, play a pivotal role in fostering an understanding of the fundamental characteristics of inclusive educational environments (Canarslan & Chu, 2025). However, the effectiveness of these non-verbal methods hinges on their ability to function independently of particular environmental contexts or to avoid being merely linked to instructions for specific individual expressive-motor activities. This underscores the necessity for these methods to be adaptable and relevant across various settings and situations.

Moreover, educational planning and assessment tools must incorporate clear indicators designed to foster the implementation of activities that are not only empathically effective but also dynamically engaging for learners. These activities, whether tailored to individual students or personalized to meet unique needs, should serve as the cornerstone of the educational program, ensuring meaningful interaction and connection among all participants. By embedding these empathic activities into the educational framework, we can enhance the overall inclusive experience for students, educators, and the community at large.

The experimental training activities, along with the accompanying research, focus on evaluating participants' ability to recognize and attribute "empathic" characteristics based on various gestural and bodily indicators. This study not only aims to assess empathy expression but also examines the observational methods participants use during these activities, allowing for a comprehensive analysis of their perceptual strategies (Behera *et al.*, 2020).

The training regimen is structured into a sequential flow comprising progressive and critical phases, each designed to build upon the last while simultaneously facilitating an in-depth analysis of the experiences and insights gained by participants throughout the process.

Phase 1: Observation and Distinction

In the first phase, participants observe and distinguish motor behaviors that specifically characterize empathic gestural and bodily interactions. This immersive experience involves them in expressive gestural and bodily activities that serve as an inclusive training practice. The aim is to foster a deeper understanding of how empathy can be physically expressed and perceived, thereby promoting social integration and emotional connection among participants.

Phase 2: Classification of Behaviors

The second phase focuses on classifying the observed behaviors. Participants will categorize these behaviors according to their specific distinctive properties. This categorization process involves indexing the identified properties into constants (traits that remain stable across various contexts) and variables (traits that may change depending on the situation). Such a classification system is crucial for understanding the nuances of empathetic expression.

Phase 3: Model Development

In the third phase, participants will develop an experimental model that encapsulates the observed empathic characteristics. This model is intended for application in both expressive motor interactions and play-sport activities, allowing for practical demonstrations of the learned behaviors. The goal is to create a framework that can effectively translate the theoretical understanding of empathy into real-world applications.

Phase 4: Validation of the Observational Model

The final phase involves verifying the instrumental validity of the observational model using both qualitative and quantitative research methods. This rigorous validation process includes the contextual replication of observations with a control group, enabling a comparison between participants who engaged in the training activities and those who did not. Statistical analyses will be employed to ensure that the findings are robust and can be generalized beyond the immediate study context.

The research design that underpins this study is pre-experimental in nature, specifically utilizing a "two-group post-test" design. In this framework, the post-test results gathered from the experimental group—participants actively involved in the empathetic training—will be compared with those of a control group that has not participated in the training activities. This comparative analysis aims to illuminate the impact of the experimental training on the recognition and expression of empathy through gestural and bodily indicators.

The experimental model employs a diverse array of observational tools to conduct in-depth analyses of contextual elements, with a particular emphasis on mediated educational interactions and the nuances of bodily expressions.

This multifaceted approach seeks to uncover and highlight emerging qualitative dimensions that may otherwise go unnoticed in traditional educational assessments. In addition to examining interpersonal interactions, the model places significant importance on *investigating personal attributions* that individuals often make when they recognize and interpret empathetic attitudes and traits within themselves and others.

This deeper analysis unfolds within the context of participant observation, where expressive motor strategies are examined both in individual settings and in small group dynamics. By observing how individuals express emotions and engage physically with one another, the model aims to provide insight into how these expressions contribute to empathetic understanding.

Biographical reflection plays a crucial role in this model, serving as a foundation for a rich discussion of how empathy-oriented educational activities shape perceptions of relational stereotypes and prejudice-rooted attitudes (Vescio *et al.*, 2003). Through reflective practices, participants are encouraged to analyze their own backgrounds and experiences, fostering a deeper awareness of how these elements affect their interactions with others.

The model identifies a comprehensive *range of indicators* that facilitate an assessment of the validity of the observational tools utilized. This assessment not only underscores the reliability of the tools but also highlights their potential as valuable instruments for planning and implementing bodily activities that promote greater integration and inclusion within educational settings (Eddy *et al.*, 2020).

Ultimately, this comprehensive educational model functions as an *adaptive planning tool*, empowering educators to tailor activities that accommodate the diverse needs of all participants, thereby ensuring that no one is excluded from the learning experience. It systematically addresses the specific context of each educational environment (Sanger, 2020).

It identifies *key "facilitators" of empathetic interaction* that are essential to understanding the dynamics of individual situations as well as the activities designed to enhance relational engagement among participants. Through this model, the potential for fostering inclusive and empathetic educational spaces is significantly enhanced.

3.2 Developing action research in an embodiment-based educational design

A pivotal stage in the action-research process arises when pedagogical reflection transitions to encompass the broader "social context." This phase involves a thorough analysis of the dynamics of play and movement, recognizing these elements as significant opportunities to promote integration processes within educational settings (Bristow & Atkinson, 2020).

The primary objective during this analysis is to pinpoint essential indicators of an inclusive pedagogical approach specifically tailored to physical education. These indicators are crucial for developing an educational environment and teaching tools that are truly inclusive. They comprise several key aspects:

- a) **Transformative Potential of Motor Activities:** Educators must cultivate an awareness of how motor activities can transcend mere physical engagement, serving as powerful tools for fostering inclusion and acceptance among students. This involves recognizing the capacity of movement to break down barriers and create a sense of community (Zafeiroudi *et al.*, 2025).
- b) **Sensitivity to Overcoming Prejudices:** Both collective and individual sensitivity play a vital role in addressing and dismantling prejudices and stereotypes. This sensitivity must also extend to assessing the inclusiveness of participation levels offered within physical activities, ensuring that all students feel valued and involved.
- c) **Application of ICF Principles:** The practical implementation of the International Classification of Functioning, Disability and Health (ICF) principles within the educational environment is essential. This entails designing learning experiences that respect and accommodate the diverse abilities and needs of all learners.

To support these objectives, an instructional design centered on the body and movement emerges as particularly effective. This approach acknowledges that movement and physical expression often reflect specific educational needs shaped by the

surrounding social context. An optimal expression of this design can be achieved through exploratory and creative play, which allows for spontaneous and imaginative engagement (Skulmowski & Rey, 2018).

Utilizing a variety of iconic and analogical mediators—such as music, imagery, and storytelling—can act as catalysts for enriching sensorimotor, emotional, and affective experiences. These mediators help learners explore the expressive possibilities within various collective play scenarios and motor activities, encouraging deeper engagement and expression (Greenhead & Habron-James, 2015).

In light of these considerations, educational planning needs to intentionally shift its focus to reflect on the learning environment itself and the multifaceted nature of its pedagogical significance. This transition involves structuring play as an intentional opportunity to ground educational actions in the exploration of motor and gestural qualities, which are not only fundamental to identity formation but also crucial for fostering relational recognition among peers (Faella *et al.*, 2025).

Additionally, there is a pressing need to design educational tools that actively support integration processes. This can be achieved by creating movement-centric play scenarios that encourage students to explore roles that align with their individual differences and strengths. In doing so, educators can facilitate the development of personalized learning pathways that cater to the unique potentials of each student.

Ultimately, fostering intersubjectivity within the communal aspect of play is essential. This includes encouraging students to explore their individual learning potentials while engaging with others, creating a dynamic interplay between personal development and collective experience. In this way, the educational landscape becomes one where inclusion and growth can flourish through the power of play and movement. This discussion emphasizes the need for heightened awareness when distinguishing between educational paradigms that conceptualize the body in different ways. Specifically, it is essential to differentiate between approaches that regard the body in terms of "having" and "doing," as opposed to those that frame it in terms of "being" and "becoming" (Francesconi & Tarozzi, 2019).

The former perspective often views the body merely as a tool used to "achieve" certain outcomes. At the same time, the latter recognizes the body as an integral part of a holistic learning experience, with movement serving as the fundamental building block of motor learning (Macedonia, 2019).

Understanding this distinction is pivotal, as it introduces a complex construct that interlinks action, personhood, and movement in the learning process. In this light, the educational focus should remain on analyzing relational dynamics within the group setting.

Learning can be understood as a collaborative interaction that fosters connections among individuals, promoting inclusivity and valuing each participant's unique contributions within the group structure (Arrocha & Esteves, 2025).

When implementing training experiments and instructional interventions within expressive embodiment education, it is beneficial for these initiatives to adopt the

characteristics of action research. This approach allows educators to systematically identify particular areas and themes that warrant introspection in pedagogical and instructional practices. By doing so, educators can continuously refine their methods based on reflective inquiry, ultimately enhancing the quality of the learning experience for all participants (Laner, 2020).

Initially, it is crucial to concentrate on the structural context in which these interventions occur. This includes detailed observation and discussion of the various elements that constitute the educational and institutional environment within which physical education and bodily expression take place. Such considerations encompass the characteristics of the operational setting, including its physical layout, resources available, and actual accessibility for participants, particularly those with disabilities.

Moreover, the planning process derived from the observations made during this initial phase must carefully assess the degree of autonomy that individuals with disabilities can attain within the proposed framework of physical education activities. This assessment should take into account their unique abilities and preferences, enabling them to engage meaningfully.

Finally, as the planning transitions into the actual implementation of the proposed ideas and experiences, it is crucial to view the activities through a pedagogical lens. This perspective emphasizes the importance of facilitating holistic learning experiences rather than merely concentrating on the correct execution of discipline-specific skills. By doing so, educators can create an enriching environment that nurtures the development of the whole person, fostering both personal and collective growth (Chen *et al.*, 2023).

3.3 Assessment strategies, peer evaluations, self-reflections, and group projects

At this stage of development, several key indicators are pivotal in establishing a solid foundation for the activities at hand. First and foremost, all participants must become well-acquainted with both the environment and the group dynamics. This familiarization process includes understanding the layout of the space, recognizing safety protocols, and getting to know fellow group members to foster a sense of community and collaboration. Alongside this, a detailed work plan is essential for structuring activities effectively. This plan should be carefully crafted by analyzing the various activities that will be undertaken. It involves examining specific elements and details that are vital for the success of the program while also leveraging both functional and expressive motor characteristics of the participants. This means recognizing the diverse movement capabilities and styles present within the group, which can inform how activities are designed and implemented.

As part of this planning, it is important to consider the complexity of the sequences or play structures involved in the activities. A thoughtful assessment is necessary to ensure that the content being delivered prioritizes creative expression and production rather than falling into the trap of repetitive actions or simplistic imitative reproduction. Creative play encourages participants to explore their own ideas and expressions, bringing vitality and engagement to the experience (Nilsson *et al.*, 2018).

Furthermore, by observing the overall quality of sensorimotor responses, we can gain valuable insights into individuals' expressive characteristics in action. This observation should encompass not just the physical movements, but also the engagement of gestural and coordinative dimensions.

Additionally, a thorough evaluation of movement organization and bodily awareness is crucial in understanding how well participants can connect their intentions to the objectives of the task at hand. This evaluation helps to gauge the coherence between what participants aim to achieve and what is required from them in the context of the activity (Ahn, 2022).

Another foundational indicator of involvement is the assessment of attention and sustained concentration during the activities. It is also vital to recognize the necessity to integrate or adapt past experiences into new contexts, which may sometimes involve the use of specific aids or equipment—whether these are temporary supports for certain tasks or tools intended for continuous use throughout the program (Dalkilic & Vadeboncoeur, 2016).

In general, when operational conditions are framed within a play-oriented approach, the role of the educator shifts dramatically. Instead of functioning as a distant instructor merely giving prescriptive directives, the educator actively engages with the educational setting, participating alongside the learners. This participative approach enhances the learning experience, making it more interactive and dynamic.

Moreover, the rules of the game or activity should be developed collaboratively, ensuring they are clear, grounded in well-established principles, and—most importantly—understandable to all participants. These rules should be communicated effectively through both verbal explanations and physical interactions, reinforcing comprehension and encouraging active involvement from everyone in the group. This collaborative rule-setting not only fosters a sense of ownership among participants but also enhances their commitment to the shared objectives of the activity (Ferreira, 2026).

4. Conclusions

From a methodological perspective, implementing educational experimentation and action research requires a thoughtful approach to curriculum design that fosters integration scenarios tailored to diverse learners. This methodology aims to equip each individual with a range of tools and strategies that empower them to envision and pursue their own life projects, thereby facilitating personal growth and self-directed learning.

In this context, it is essential to consider a broad spectrum of pedagogical indicators that can enhance the educational experience. One critical aspect is the need to contextualize each student's abilities, recognizing them as unique reflections of their potential. This requires an understanding of how each learner performs in various situations and their capacity to navigate a dynamic problem-solving framework. By doing so, educators can better tailor their approaches to meet students' individual needs, fostering an environment where all learners can thrive (Veerbeek & Vogelaar, 2025).

Furthermore, it is vital to comprehend the quality of interpersonal relationships and group dynamics within the classroom. This understanding can be achieved through careful observation of the attitudes exhibited during interactions, particularly with peers who have disabilities. Such observations can reveal whether an inclusive mindset is present and how it influences classroom interactions (Schoop-Kasteler & Müller, 2020).

Additionally, tracking the specific learning progress of students with disabilities is crucial, especially in relation to their "*zone of proximal development*." This concept highlights the importance of identifying what students can achieve with appropriate support, thereby guiding effective instructional strategies (Rutland & Campbell, 1996).

From this perspective, observations should not only focus on the cognitive aspects of learning but also emphasize the quality of each individual's presence in the learning environment and their motor and gestural interactions with others. An essential distinction is between different types of bodily mediation: specifically, the contrast between guided coordination—where learners follow established patterns—and active intentionality, where individuals engage in self-directed actions (Skulmowski & Rey, 2018).

Moreover, educators should pay close attention to the execution of formalized motor skills across various contexts, assessing how these skills translate into practical applications. Similarly, gestural elements related to representational awareness must be recognized, as they play a significant role in how students express their understanding and navigate social interactions within the classroom. Through this detailed approach, we can cultivate a more inclusive and responsive educational environment that honors the diverse capabilities of all learners.

Acknowledgements

We thank the editor for the valuable review, which contributed to greater methodological clarity and improved the overall effectiveness of the manuscript.

Creative Commons License Statement

This research work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit <https://creativecommons.org/licenses/by-nc-nd/4.0>. To view the complete legal code, visit <https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode.en>. Under the terms of this license, members of the community may copy, distribute, and transmit the article, provided that proper, prominent, and unambiguous attribution is given to the authors, and the material is not used for commercial purposes or modified in any way. Reuse is only allowed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

Conflict of Interest Statement

The author declares no conflicts of interest.

About the Author

Mauro Carboni's academic profile reflects an interdisciplinary integration of music, cognitive psychology, clinical pedagogy, and special education. From 2000 to 2014, he worked as a tenured researcher at the University of Rome "Foro Italico", where his research focused on special education and educational studies aimed at developing inclusive processes. In particular, his work addressed empathic motor and gestural behaviors in inclusive learning contexts, as well as the design of virtual learning environments mediated by sensory and motor experiences. In 2014, after fifteen years of academic activity, he joined the Conservatory of Music in Perugia as Full Professor of Music Pedagogy, a position he held until October 31, 2025. He formally retired on November 1, 2025. From 2020 to 2025, he served as Delegate for Disabilities and Specific Learning Disorders at the "Morlacchi" Conservatory of Music in Perugia. In this institutional role, in addition to addressing individual student learning and inclusion needs, his aim was to bridge the gap between institutional academic expectations and the learning potential of students with cognitive and functional disabilities. To this end, he worked to strengthen accessibility criteria and promote more inclusive educational environments.

References

- Abril CR 2011. Music, Movement, and Learning, in Richard Colwell, and Peter Webster (eds), *MENC Handbook of Research on Music Learning: Volume 2: Applications* (New York, 2011; online edn, Oxford Academic, 27 May 2015), <https://doi.org/10.1093/acprof:osobl/9780199754397.003.0003>
- Ahn SN (2022). A Systematic Review of Interventions Related to Body Awareness in Childhood. *International Journal of Environmental Research and Public Health*, 19(15). <https://doi.org/10.3390/ijerph19158900>
- Arrocha SS & Esteves RM (2025). Collaborative Learning: A Path to Real and Meaningful Inclusion. *LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades*, 6(3), 1284-1296. <https://doi.org/10.56712/latam.v6i3.4023>
- Behera A, Matthew P, Keidel A, Vangorp P, Fang H & Canning S (2020). Associating Facial Expressions and Upper-Body Gestures with Learning Tasks for Enhancing Intelligent Tutoring Systems. *International Journal of Artificial Intelligence in Education*, 30(2), 236-270. <https://doi.org/10.1007/s40593-020-00195-2>
- Bertin-Renoux A (2024). Embodied and Enactive Creativity: Moving Beyond the Mind–Body Dichotomy in School Education. *The Journal of Creative Behavior*, 59(1). <https://doi.org/10.1002/jocb.651>
- Bonange J-B (1988). Le jeu symbolique à l'école. *Éducation Physique et Sport*, 1, 37, 25 (in French). Retrieved from <http://www.touteduc.fr/fr/scolaire/id-16357-le-jeu-dans-la-reeducation-a-l-ecole-il-vaut-mieux-que-les-enfants-l-inventent-jb-bonange-congres-de-la-fnaren->

- Bristow S & Atkinson C (2020). Child-led research investigating social, emotional and mental health and wellbeing aspects of playtime. *Educational & Child Psychology*, 37(4). <https://doi.org/10.53841/bpsecp.2020.37.4.115>
- Buldu M. Buldu E (2025). How to promote playful learning: insights from innovative early childhood classrooms in the USA. *Humanities & Social Sciences Communications*, 12, 1566 (2025). <https://doi.org/10.1057/s41599-025-05291-z>
- Canarslan F & Chu M (2025). Individual differences in representational gesture production are associated with cognitive and empathy skills. *Quarterly Journal of Experimental Psychology*, 78(1), 85-100. <https://doi.org/10.1177/17470218241245831>
- Chen MY, Rouse E & Morrissey A (2023). Intentionality and the active decision-making process in play-based learning. *The Australian Educational Researcher*, 51, 1373-1388. <https://doi.org/10.1007/s13384-023-00644-6>
- Creswell JW & Poth CN (2024). Qualitative inquiry and research design : choosing among five approaches. Publisher Thousand Oaks : SAGE Publications Limited, 5th edition, ISBN : 9781544398426. Retrieved from https://books.google.ro/books/about/Qualitative_Inquiry_and_Research_Design.html?id=gX1ZDwAAQBAJ&redir_esc=y
- Dalkilic M & Vadeboncoeur JA (2016). Re-framing inclusive education through the capability approach: An elaboration of the model of relational inclusion. *Global Education Review*, 3(3), 122-137. <https://files.eric.ed.gov/fulltext/EJ1114861.pdf>
- Delafield-Butt J T & Adie J (2016). The Embodied Narrative Nature of Learning: Nurture in School. *Mind*, 10(2), 117-131. <https://doi.org/10.1111/mbe.12120>
- Drijvers L & Holler J (2022). The multimodal facilitation effect in human communication. *Psychonomic Bulletin & Review*, 30, 792-801. <https://doi.org/10.3758/s13423-022-02178-x>
- Eddy LH, Bingham DD, Crossley K., Shahid NF, Ellingham-Khan M, Otteslev A, Figueredo NS, Mon-Williams M & Hill LJ (2020). The validity and reliability of observational assessment tools available to measure fundamental movement skills in school-age children: A systematic review. *PLoS ONE*, 15(8). <https://doi.org/10.1371/journal.pone.0237919>
- Edna O (2020). Object play as a mediator of the role of exploration in communication skills development. *Infant Behavior and Development*, Vol. 60, 101467. <https://doi.org/10.1016/j.infbeh.2020.101467>
- Faella P, Digennaro S & Iannaccone A (2025). Educational practices in motion: a scoping review of embodied learning approaches in school. *Frontiers in Education*, 10. <https://doi.org/10.3389/feduc.2025.1568744>
- Ferreira JM (2026). An Embodied View on Collaboration in Early Childhood Education: Combining Microanalysis and Introspective Analysis of Experiences to Understand Meaning-Making Between Children With and Without Intellectual Disabilities. *Human Arenas*, Vol. 23, 212-239. <https://doi.org/10.1007/s42087-023-00380-4>

- Florio TM (2025). Emergent Aspects of the Integration of Sensory and Motor Functions. *Brain Sciences*, 15(2), 162. <https://doi.org/10.3390/brainsci15020162>
- Fomunyam KG (2022). Affective and embodied pedagogy as pathways to equity in curriculum and responsiveness. *Alternation Special Edition*, 39, 260-280. <https://doi.org/10.29086/2519-5476/2022/sp39a12>
- Francesconi, D. & Tarozzi, M. (2019). Embodied Education and Education of the Body: the Phenomenological Perspective. *Leib – Leiblichkeit – Embodiment*, Springer Nature, Chapter, 229-247. https://doi.org/10.1007/978-3-658-25517-6_12
- Frick A & Möhring W (2016). A Matter of Balance: Motor Control is Related to Children's Spatial and Proportional Reasoning Skills. *Frontiers in Psychology*, 6. <https://doi.org/10.3389/fpsyg.2015.02049>
- Gallese V & Lakoff G (2005). The Brain's concepts: the role of the Sensory-motor system in conceptual knowledge. *Cognitive Neuropsychology*, 22(3–4), 455–479. <https://doi.org/10.1080/02643290442000310>
- Gelman SA (2009). Learning from Others: Children's Construction of Concepts. *Annual Review of Psychology*, 60:115-140. <https://doi.org/10.1146/annurev.psych.59.103006.093659>
- Granados R (2000). Constructing intersubjectivity in representational design activities. *The Journal of Mathematical Behavior*, Vol. 19(4), 503-530. [https://doi.org/10.1016/S0732-3123\(01\)00055-4](https://doi.org/10.1016/S0732-3123(01)00055-4)
- Greenhead K & Habron-James J (2015). The touch of sound: Dalcroze Eurhythmics as a somatic practice. *Journal of Dance & Somatic Practices*, 7(1), 93-106. https://doi.org/10.1386/jdsp.7.1.93_1
- Hasson Y, Amir E, Sobol-Sarag D, Tamir M & Halperin E (2022). Using Performance Art to Promote Intergroup Prosociality by Cultivating the Belief That Empathy Is Unlimited. *Nature Communications*, 13, 7786. <https://doi.org/10.1038/s41467-022-35235-z>
- Hay S, Beamish W. (2026). Inclusive Education for Students with Special Educational Needs: A 30-Year Synthesis of the Review-Level Literature (1994–2023). *Education Sciences*, 16(5):794. <https://doi.org/10.3390/educsci16050794>
- Hewes J (2014). Seeking Balance in Motion: The Role of Spontaneous Free Play in Promoting Social and Emotional Health in Early Childhood Care and Education. *Children*, 1(3), 280-301. <https://doi.org/10.3390/children1030280>
- Howley D, Dyson B, Baek S, Fowler J & Shen Y (2022). Opening up Neat New Things: Exploring Understandings and Experiences of Social and Emotional Learning and Meaningful Physical Education Utilizing Democratic and Reflective Pedagogies. *International Journal of Environmental Research and Public Health*, 19(18), 11229. <https://doi.org/10.3390/ijerph191811229>
- Hoya GF (2019). Body Languages: Art as an alternative teaching method to promote inclusivity and equality in education. *Arteterapia. Papeles de arteterapia y educación artística para la inclusión social*, 17, 175-188. <https://doi.org/10.5209/arte.76268>

- Iani F (2019). Embodied Memories: Reviewing the Role of the Body in Memory Processes. *Psychonomic Bulletin & Review* 26(6), 1747-1766. <https://doi.org/10.3758/s13423-019-01674-x>
- Kiefer M & Trumpp NM (2012). Embodiment theory and education: The foundations of cognition in perception and action. *Trends in Neuroscience and Education*, 1(1), 15-20. <https://doi.org/10.1016/j.tine.2012.07.002>
- Laner I (2020). Reflective interventions: Enactivism and phenomenology on ways of bringing the body into intellectual engagement. *Phenomenology and the Cognitive Sciences*, 20(3), 443-461. <https://doi.org/10.1007/s11097-020-09673-3>
- Ling W, Wang D, Xu X, Zhu D, Wu X, Zhang L (2025). The association between empathy ability and attitudes toward children with disabilities in inclusive physical education classes among primary students: the mediating role of friendship quality. *Frontiers in Psychology*, 17(16): 1531002. <https://doi.org/10.3389/fpsyg.2025.1531002>
- Macedonia M (2019). Embodied Learning: Why at School the Mind Needs the Body. *Frontiers in Psychology*, 10, 2098. <https://doi.org/10.3389/fpsyg.2019.02098>
- Marson F, Naor-Ziv R, Paoletti P, Glicksohn J, Harris T, Elliott MA, Carducci F, Ben-Soussan RD (2024). Chapter Ten - When the body fosters empathy: The interconnectivity between bodily reactivity, meditation, and embodied abstract concepts. Editor(s): Tal Dotan Ben-Soussan, Joseph Glicksohn, Narayanan Srinivasan, *Progress in Brain Research*, Elsevier, Vol. 287, 2024, 217-245, ISSN 0079-6123, ISBN 9780443238758. <https://doi.org/10.1016/bs.pbr.2024.05.004>
- Matusov E (2020). Pattern-recognition, intersubjectivity, and dialogic meaning-making in education. *Dialogic Pedagogy: A Journal for Studies of Dialogic Education*, 8. <https://doi.org/10.5195/dpj.2020.314>
- McGowan T & Delafield-Butt J (2022). Narrative as co-regulation: A review of embodied narrative in infant development. *Infant Behavior and Development*, 68:101747. <https://doi.org/10.1016/j.infbeh.2022.101747>
- Nilsson M, Ferholt B & Lecusay R (2018). 'The playing-exploring child': Reconceptualizing the relationship between play and learning in early childhood education. *Contemporary Issues in Early Childhood*, 19(3), 231-245. <https://doi.org/10.1177/1463949117710800>
- Parladé MV & Iverson JM (2011). The Interplay Between Language, Gesture, and Affect During Communicative Transition: A Dynamic Systems Approach. *Developmental Psychology*, 47(3). <https://doi.org/10.1037/a0021811>
- Pröckl M & Schwarz E (2025). Empathetic Timing and Existential Landscapes—An Investigation of the Significance of Empathy in Educational Practices. *The Journal of Aesthetic Education*, 59(2): 20-33. <https://doi.org/10.5406/15437809.59.2.03>
- Ravn S (2022). Embodied Learning in Physical Activity: Developing Skills and Attunement to Interaction. *Frontiers in Sports and Active Living*, 4: 795733. <https://doi.org/10.3389/fspor.2022.795733>

- Rico-González M (2023). Developing Emotional Intelligence through Physical Education: A Systematic Review. *Perceptual and Motor Skills*, 130(3). <https://doi.org/10.1177/00315125231165162>
- Rutland A & Campbell RN (1996). The relevance of Vygotsky's theory of the 'zone of proximal development' to the assessment of children with intellectual disabilities. *Journal of Intellectual Disability Research*, 40(2), 151-158. <https://doi.org/10.1046/j.1365-2788.1996.741741.x>
- Sanger CS (2020). Inclusive Pedagogy and Universal Design Approaches for Diverse Learning Environments. In: Sanger, C., Gleason, N. (eds) *Diversity and Inclusion in Global Higher Education*. Palgrave Macmillan, Singapore. https://doi.org/10.1007/978-981-15-1628-3_2
- Schoop-Kasteler N & Müller CM (2020). Peer relationships of students with intellectual disabilities in special needs classrooms – a systematic review. *Journal of Research in Special Educational Needs*, 20(2), 130-145. <https://doi.org/10.1111/1471-3802.12471>
- Shilling C (2017). Body Pedagogics: Embodiment, Cognition and Cultural Transmission. *Sociology* 51(6), pp. 1205-1221. <https://doi.org/10.1177/0038038516641868>
- Skovbjerg HM & Sand A-L (2022). Play in School – Toward an Ecosystemic Understanding and Perspective. *Frontiers in Psychology*, 12: 780681. <https://doi.org/10.3389/fpsyg.2021.780681>
- Skulmowski A & Rey GD (2018). Embodied Learning: Introducing a Taxonomy Based on Bodily Engagement and Task Integration. *Cognitive Research: Principles and Implications*, 3. <https://doi.org/10.1186/s41235-018-0092-9>
- Sullivan J V (2018). Learning and Embodied Cognition: A Review and Proposal. *Psychology Learning & Teaching*, 17(2), 128-143. <https://doi.org/10.1177/1475725717752550>
- Sumonte-Rojas V, Fuentealba LA, Faúndez-Casanova C & Vega GT (2026). Pedagogies for Inclusion in Higher Education (HE): A Systematic Review of Empirical Studies (2015–2025). *Sustainability*, 18(5), 2294. <https://doi.org/10.3390/su18052294>
- Takahashi J (2013). Multiple Intelligence Theory Can Help Promote Inclusive Education for Children with Intellectual Disabilities and Developmental Disorders: Historical Reviews of Intelligence Theory, Measurement Methods, and Suggestions for Inclusive Education. *Creative Education*, 4, 605-610. <https://doi.org/10.4236/ce.2013.49086>
- Tamis-LeMonda CS & Masek LR (2023). Embodied and Embedded Learning: Child, Caregiver, and Context. *Current Directions in Psychological Science*, 32(5), 369-378. <https://doi.org/10.1177/09637214231178731>
- Trevarthen C. (1999). Musicality and the intrinsic motive pulse: Evidence from human psychobiology and infant communication. *Musicae Scientiae*, Vol.3, Issue 1. <https://doi.org/10.1177/10298649000030S109>
- Veerbeek J & Vogelaar B (2025). Dynamic Testing of Instructional Needs: A Training-Only Graduated Prompts Approach. *Journal of Psychoeducational Assessment*, 43(1), 74-87. <https://doi.org/10.1177/07342829241287947>

- Vescio TK, Sechrist GB & Paolucci MP (2003). Perspective taking and prejudice reduction: the mediational role of empathy arousal and situational attributions. *European Journal of Social Psychology*, 33(4), 455-472. <https://doi.org/10.1002/ejsp.163>
- Zafeiroudi A, Tsartsapakis I, Trigonis I, Kouli O, Goulimaris D, Kouthouris C (2025). Embodied Mindfulness Through Movement: A Scoping Review of Dance-Based Interventions for Mental Well-Being in Recreational Populations. *Healthcare*, 13(17), 2230. <https://doi.org/10.3390/healthcare13172230>