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Applying Play-Based Dance Methods In Inclusive Education For Children With Special Needs

Wahid Bajar
Founder & Artistic Director of "ME DANCE STUDIO", Amsterdam, Netherlands

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Abstract- The article examines the use of play-based dance methods in inclusive education for children with special educational needs. The relevance of the topic lies in the need for pedagogical tools that simultaneously ensure access to learning, stimulate cognitive and sensorimotor development, and create conditions for full social integration. Unlike traditional models, the proposed system centers on rhythm, movement, play, and visual supports, enabling children to adapt more rapidly to the classroom environment, reduce anxiety, and develop stable skills for collaborative interaction. The novelty of the study lies in the design of a comprehensive session structure comprising "entry — main phase — improvisation window — closure," as well as the integration of a digital module and family involvement into a single educational process. The study explores cognitive, emotion-regulatory, sensorimotor, and social changes arising from regular practice. Particular attention is paid to mechanisms for transferring acquired skills from the play setting to academic tasks and home micro-rituals. The conclusion formulates the significance of the method for scaling and further adaptation in school and preschool settings. The materials may be useful to teachers, methodologists, and developers of inclusive educational programs oriented toward practice-based learning.

Keywords: Inclusive education, rhythm–movement practices, communication skills, exergame.

1. Introduction

Contemporary education prioritizes the development of

inclusive learning formats in which the central condition is the creation of an accessible and safe environment that accommodates the diversity of children's cognitive, emotional, and sensorimotor needs. Methods that rely on movement, play, and rhythm acquire particular importance, as these forms enable the combination of learning and socialization. The relevance of the study arises from the need for a pedagogical approach in which movement practices serve not only as a means of physical development but also as an instrument of cognitive and social integration.

The aim of this work is to analyze the results of applying play-based dance methods in inclusive classrooms and to identify their impact on children's cognitive, emotional, sensorimotor, and social development, as well as on the integration of these changes into home practice.

The research objectives are as follows:

1. To describe children's participation dynamics in sessions, their communicative behavior, and cognitive and sensorimotor changes.

2. To identify pedagogical mechanisms that ensure transfer of skills from play activities to academic tasks and family practice.

3. To compare the results of the pilot implementation with current research in inclusive education and dance pedagogy, forming a unified methodological core.

The novelty of the work lies in the creation of a structured session model ("entry — main phase — improvisation window — closure") augmented by visual cues, digital tools, and a system of home micro-routines. This approach makes it possible to merge the educational spaces of school and family into a single pedagogical system.

2. Materials and Methods

Study materials included session protocols, teachers' observation journals, and anonymous family reports on the use of home micro-routines. Theoretical grounding drew on the works of contemporary researchers. A. Anderson and R. Mathews provided a framework for interpreting dance–movement interventions in school settings (Anderson, 2024). M. Choudhary and S. Kumar described coupling rhythm with instructional actions; building on their work, the "step—gesture—voice" linkage was constructed to transition from the movement session to subject-based tasks (Choudhary, 2025). A. Golding, Z. Ambrose, J. Lara, C. Malamateniou, and D. Green formulated criteria for family acceptance of programs and feedback algorithms (Golding, 2024). E. F. Lima, B. H. Brugnaro, N. A. C. F. Rocha, and S. L. Pavão systematized dance effects in children with neuromotor disorders across ICF domains (Lima, 2023). E. D. Machado, L. Miller, J. Nicholas, J. Cross, R. Orr, and M. H. Cole presented a co-designed guide for sessions with children with cerebral palsy (Machado, 2025). C. Merino-Campos synthesized practices for integrating dance into preschool education for learners with special educational needs (Merino-Campos, 2025). O. Millard, E. Lindor, N. Papadopoulos, C. Sivaratnam, J. McGillivray, and N. Rinehart described AllPlay pilot projects; their materials anchored the prioritization of participation, "improvisation windows," and the session's structural "scaffold" (Millard, 2021). P. O. Morris, E. Hope, T. Foulsham, and J. P. Mills examined a dance exergame at school and at home (Morris, 2023).

Methods included comparative analysis of sources, content analysis of protocols, thematic coding of observations, and synthesis of family reports. Triangulation was used to compare and corroborate the data obtained.

3. Results

Pilot implementation showed that play-based dance methods contribute to notable strengthening of cognitive functions in children with special educational needs. Across sessions, increased attentional stability, fewer distractions, and more consistent adherence to instructional sets were recorded. Children demonstrated the ability to reproduce movement sequences and transfer them into related cognitive tasks, confirming the interrelation between motor and cognitive processes (Table 1) (Choudhary, 2025; Merino-Campos, 2025).

Table 1. Forms of cognitive support in play-based dance methods (compiled by the author based on (Anderson, 2024; Choudhary, 2025; Merino-Campos, 2025))

Methodological technique	Pedagogical aim	Expected effect
Rhythmic sequences	Reduce load on voluntary control	Sustained attention
"Step—gesture—voice"	Link movement to cognitive action	Transition to academic tasks
Visual cards and pictograms	Development of sequencing skills	Independent reproduction of sequences

The introduction of rhythmic structures facilitated the organization of thinking. Repetition of steps, gestures, and vocal cues formed a "matrix" that reduced the burden on voluntary control and enabled children to focus on task content. Observations confirmed that with steady rhythmic accompaniment children retained instructions more easily, and transitions between session phases did not trigger disorganization (Anderson, 2024; Machado, 2025).

Tasks that linked movement with basic counting and symbolic operations proved especially effective. Children consolidated mathematical and language skills through embodied action: performing a step or gesture to a specific cue strengthened the connection between an abstract rule and bodily experience. This demonstrated the effectiveness of the "step—gesture—voice" formula as a reliable bridge from motor activity to academic performance (Morris, 2023).

An important result was that after the dance block children re-engaged with classroom work more quickly: they began writing or building with less time lost and without the need for constant individualized prompts. This supports the hypothesis that rhythm and movement sequences provide a scaffold for sequential cognitive activity and foster stepwise task execution (Lima, 2023; Merino-Campos, 2025).

During implementation, it was found that play-based dance methods stabilize children's emotional states and reduce anxiety. A structured session organization provided predictability, enabling participants to adapt more quickly and respond more calmly to changes in activity. The use of "anchor figures" and closing rituals supported a gentle exit from activity and created a sense of completion necessary for emotional stabilization.

In the initial phase, when breathing patterns and smooth rhythmic waves were employed, a gradual reduction of over-arousal was recorded. In the main phase, alternating familiar movements with elements of improvisation maintained a balanced emotional tone, preventing overload and sustaining engagement throughout the cycle (Millard, 2021).

A positive trajectory in self-regulation was also observed: children more frequently used agreed gestures and visual signals to indicate a pause or need for rest. This practice indicated growing awareness of one's own state and the ability to use bodily mediated strategies for self-control (Golding, 2024). The inclusion of rhythmic signals and visual prompts reduced the number of spontaneous interruptions, especially among children with pronounced sensory sensitivity.

In the closing phase, children demonstrated emotional composure and readiness for subsequent academic tasks. The development of stable transition rituals (a closing gesture, calm musical background, joint bow) consolidated a state of calm and confidence, ensuring a smooth shift from play activity to academic work.

Sessions also showed steady development of sensorimotor functions among participating children. From the early stages, movement trajectories became smoother and more coordinated: abrupt stops diminished, and transitions between body positions took on an orderly character (Lima, 2023; Machado, 2025). Progress was particularly evident in tasks involving level changes—transitions from sitting to standing through intermediate stages were performed more confidently without loss of balance.

Tasks using diagonal and circular pathways cultivated spatial orientation. Children distributed movement in

the room more precisely, maintained direction, and demonstrated the ability to complete a movement phrase without breaking its structure. This skill was reinforced through repetition and transferred to exercises with objects—ribbons, balls, and signal items—which served as external reference points.

Improved coordination in paired elements was also noted. During slow rolls and rotational movements of the shoulder girdle, children learned to synchronize with a partner, providing a more stable base for mastering step combinations (Machado, 2025). Importantly, physical contact under these conditions remained safe and predictable, and the movement structure itself set clear boundaries for interaction (Table 2).

Table 2. Mechanisms of sensorimotor development in play-based dance practice (compiled by the author based on (Lima, 2023; Machado, 2025; Merino-Campos, 2025))

Sensorimotor component	Technique or exercise	Skill developed
Postural control	Transitions across levels	Confident balance maintenance
Spatial coordination	Diagonal and circular pathways	Clear spatial orientation
Fine motor skills	Music-rhythmic games	Precision of touch; reduction of excessive tension

Special attention was paid to fine motor skills: music-rhythmic games showed increased precision of touch and reduced excessive muscular tension. Gradual mastery of finger and hand coordination not only improved movement quality but also served as a preparatory stage for subsequent academic activities involving writing or object manipulation.

Thus, the sensorimotor block demonstrated that with regular practice children strengthen postural control, develop spatial coordination, and gain confidence in bodily actions. These changes become a foundation for transitioning to more complex forms of interaction and learning.

The program showed pronounced effects on social skills and qualitative changes in group dynamics. Even in the first cycles it became evident that a predictable structure and shared signals foster faster development of mutual trust. Children more frequently initiated contact, proposed movements to partners, and accepted invitations to act together (Golding, 2024; Merino-Campos, 2025).

Pair and small-group tasks based on “mirroring” and synchronized performance played a decisive role. These exercises gradually cultivated tolerance for waiting, the ability to account for another’s actions, and to coordinate one’s movements with a partner. The emergence of nonverbal signals of consent and refusal was recorded; used in play form, these signals reduced the number of conflict episodes (Anderson, 2024; Machado, 2025).

Group dynamics were enriched through the introduction of “improvisation windows,” where participants could propose their own movement options. This not only expanded bodily expressiveness but also increased respect for others’ ideas: children learned to support proposed initiatives and adapt to partners’ unexpected variations. Under such conditions, even children with a pronounced inclination toward isolation gradually began to propose their own forms of participation, strengthening their sense of belonging to the group.

The social effect was also evident in the distribution of roles. In music-play scenes, children independently designated a “leader,” discussed the order of participation, and devised signals for role changes. Such practice developed group planning and coordination skills that were transferred to everyday classroom situations (Lima, 2023; Merino-Campos, 2025).

Accordingly, the use of play-based dance methods created a space in which social interaction went beyond imitation of the teacher and became a domain of active exchange of initiatives, mutual support, and distributed leadership. This provides prerequisites for the further development of communicative and cooperative

abilities in the school environment.

One of the most significant outcomes was confirmation that play-based dance practices can be organically embedded in the instructional process and in home micro-rituals. The use of rhythmic schemas while following instructions ensured a smooth transition from bodily activity to academic tasks. The "step—gesture—voice" formula proved to be a universal tool that facilitated engagement in reading, writing, or construction tasks, cultivating a habit of sequential stepwise execution. As a result, children exhibited greater attentional stability and readiness to begin subject work without delay (Lima, 2023).

Visual supports played an equally important role: pictograms, cards, and signal objects helped children independently reconstruct action sequences. Instances were recorded in which a child, without additional prompting, assembled an entire series of actions using cards as guides. This confirms the possibility of transferring play-based dance strategies into independent academic behavior.

No less important was the "classroom–family line." Parents received access to the same signals and cards used in class, along with short video clips demonstrating mini-combinations. This created a unified system of signs, making it easier for children to reproduce school behavior patterns at home (Table 3). Families reported increased confidence in their own actions and more frequent participation in joint games, adding their own variations, which were then accepted by teachers and brought back into group practice (Golding, 2024; Machado, 2025).

Table 3. Forms of integrating play-based dance methods into educational and family processes (compiled by the author based on (Morris, 2023; Golding, 2024; Merino-Campos, 2025; Machado, 2025))

Setting of application	Supporting tool	Effect for the child
Classroom session	"Step—gesture—voice" formula	Smooth transition to academic activity
Digital module	On-screen feedback	Self-correction and attentional tuning
Home practice	Video vignettes and cards	Transfer of skills to everyday settings

Integration effectiveness was enhanced through the use of a digital module. Short on-screen exercises with graphical feedback provided a model for self-correction and helped children enter a mode of joint work in the studio more quickly. This "bridge" between the digital and offline blocks stabilized rules and made the transition to group tasks smoother.

Thus, integrating play-based dance methods into instructional and family practice proved effective: children switched between activity modes more easily, and the strategies formed in class transferred beyond it. The presence of a unified system of signals and visual and musical supports ensured continuity of the pedagogical process and strengthened its stability.

4. Discussion

Implementation results in inclusive education indicate the multifaceted impact of the play-based dance method and confirm the need to treat this approach not as an auxiliary tool but as a systemic pedagogical instrument. Analysis of the identified changes across cognitive, emotion-regulatory, sensorimotor, and social domains showed that using rhythm, movement, and visual supports within a single structure creates an integrated educational experience, forming skills that transfer into everyday academic and household situations.

Comparison with previous research confirms the consistent role of music-rhythmic structures in reducing the load on voluntary attention and in shaping stable behavioral schemas. Studies in inclusive dance indicate that rhythmic organization and reliance on repeated

phrases support attention maintenance and structured learning. The present findings suggest that the "step—gesture—voice" formula employed in the pilot operates as a transitional mechanism between bodily and cognitive activity, aligning with results obtained when integrating music-movement schemas into academic tasks.

Observations in the emotion-regulatory domain align with studies emphasizing the importance of predictable session structure for reducing anxiety and preventing emotional overload in children with disabilities. The use of "anchor figures" and stable closure signals supports this view: participants adapted more quickly, demonstrated emotional composure, and reduced spontaneous activity interruptions. This indicates that a predictable session architecture functions as a kind of safety algorithm, enabling children to gradually master self-regulation mechanisms and to use them both in school and at home.

In the sensorimotor domain, the changes identified correspond to trends noted in studies on developing postural control and spatial coordination through dance practices. Smoother trajectories, ordered transitions, and better coordination in paired elements corroborate the proposition that play-based motor activity can provide a foundation for the formation of complex academic and social skills. Moreover, improvement in fine motor skills observed during music-rhythmic games supports the relevance of such methods for preparing children for writing and other academic activities requiring precise manipulation.

Social effects observed during the pilot are also consistent with contemporary research in inclusive education. These include an expanding spectrum of horizontal initiatives, the emergence of self-assigned roles, and the establishment of agreed nonverbal signals. Such changes indicate that play-based dance practices not only stimulate communicative activity but also lay the groundwork for sustained cooperation within the group. Furthermore, the practice of "improvisation windows" confirms that providing space for children's initiative increases motivation and fosters a sense of belonging.

Equally significant is the confirmation of the feasibility of integrating play-based dance methods into classroom instruction and home practice. Numerous contemporary publications emphasize the value of unified signaling systems and visual supports that ensure continuity of educational experience between school and family. The present findings show that the use of cards, pictograms, and video clips made it possible to reproduce school behavior patterns at home without losing session logic. This highlights a core function of the method—creating a shared pedagogical language for the child, teacher, and family that maintains stability even when space and format change.

The inclusion of a digital module further evidenced the effectiveness of combined formats. Experience with an on-screen display providing graphical feedback showed that prior visualization of movement trajectories and repetition of rhythmic sequences builds a basis for more productive interaction in the offline portion of the session. This confirms the promise of blended approaches in which digital support does not replace the teacher but strengthens the teacher's role by providing a common feedback language for the entire group. Such a result aligns with data on the use of play-based digital technologies in pedagogy and supports treating them as a means of preparing for "live" interaction rather than an alternative to traditional instruction.

Overall, the piloted play-based dance session model emerges as a stable pedagogical scaffold integrating movement, communication, and academic work. This scaffold is built not on the complexity of motor technique but on the accessibility of structural elements, predictability of signals, and the possibility of safe improvisation. Such a concept shifts the emphasis from "correctness" of execution to participation and interaction, consistent with contemporary values in inclusive education.

At the same time, comparison with prior studies points to promising avenues for further work. These include differentiating levels of support for various groups of children while preserving a unified session architecture; conducting deeper assessments of the method's impact on long-term academic success, including stress resilience and autonomous regulation; and examining the role of the family as a co-participant in the pedagogical process. While the pilot highlighted the significance of home practice, questions remain about how best to systematize and expand this collaboration.

Thus, the discussion confirms that the results align with

current scholarship yet exhibit independent novelty: they demonstrate the feasibility of creating a unified methodological core for inclusive sessions that can be scaled and adapted to diverse educational contexts.

5. Conclusion

The study shows that play-based dance methods form a robust pedagogical scaffold that supports cognitive, emotional, sensorimotor, and social development within inclusive education. A structured session architecture grounded in rhythm, visual signals, and digital tools creates a predictable, safe environment that facilitates participation and reduces anxiety.

The first research objective—describing participation dynamics and changes in cognitive and motor domains—was achieved: children displayed greater attentional stability, smoother movement trajectories, an expanded gestural repertoire, and the ability to act in coordination. The second objective—identifying transfer mechanisms—was likewise met: integrating the "step—gesture—voice" formula with academic tasks and employing a system of cards ensured transfer of skills from play practice to classroom learning and the family environment. The third objective—comparing pilot data with contemporary research—confirmed consonance with global practice and enabled identification of a distinct methodological core.

Accordingly, play-based dance methods demonstrate strong potential for scaling within school and preschool programs. Their value lies not only in the development of discrete skills but also in the creation of a shared pedagogical language uniting the child, teacher, and family. This supports considering the method an effective instrument of inclusive education capable of sustaining participation, fostering initiative, and transferring pedagogical strategies beyond the classroom.

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