



Beyond Mind and Body: Embodied Intelligence in Young Children's Creative Dance Experiences

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ABSTRAK. Penelitian ini bertujuan mengeksplorasi bagaimana embodied intelligence muncul melalui keterlibatan anak dalam kegiatan tari kreatif di sebuah lembaga pendidikan anak usia dini di Indonesia. Penelitian menggunakan pendekatan studi kasus kualitatif dengan melibatkan 20 anak berusia 4–5 tahun, dua guru kelas, dan satu pengelola sekolah di KB Al Fathu, Kota Bandung. Data diperoleh melalui observasi partisipatif, perekaman video, wawancara semi-terstruktur, serta percakapan reflektif bersama anak, kemudian dianalisis menggunakan analisis tematik reflektif. Hasil penelitian menunjukkan bahwa embodied intelligence berkembang melalui empat dimensi yang saling terhubung, yaitu kesadaran terhadap tubuh, kemampuan mengekspresikan emosi melalui gerakan, kemampuan mengoordinasikan tindakan dengan orang lain, serta kemampuan membangun makna melalui pengalaman tubuh. Keempat dimensi tersebut tidak muncul sebagai kemampuan yang berdiri sendiri, tetapi berkembang secara terpadu ketika anak bergerak, berinteraksi, dan memberi makna terhadap pengalaman yang mereka alami. Berdasarkan temuan tersebut, penelitian ini mengusulkan embodied intelligence sebagai kerangka konseptual yang menghubungkan embodied cognition, embodied pedagogy, dan tari kreatif untuk menjelaskan bagaimana pembelajaran yang holistik berlangsung pada pendidikan anak usia dini.

Kata Kunci : Embodied Cognition; Tari Kreatif; Embodied Learning; Pedagogi

ABSTRACT. This study aims to explore how embodied intelligence emerges through children's involvement in creative dance activities at an early childhood education institution in Indonesia. The study used a qualitative case study approach involving 20 children aged 4–5 years, two classroom teachers, and one school administrator at KB Al Fathu, Bandung City. Data were obtained through participant observation, video recording, semi-structured interviews, and reflective conversations with the children, then analyzed using reflexive thematic analysis. The results show that embodied intelligence develops through four interconnected dimensions: body awareness, the ability to express emotions through movement, the ability to coordinate actions with others, and the ability to construct meaning through bodily experiences. These four dimensions do not emerge as stand-alone abilities, but develop in an integrated manner as children move, interact, and give meaning to their experiences. Based on these findings, this study proposes embodied intelligence as a conceptual framework that connects embodied cognition, embodied pedagogy, and creative dance to explain how holistic learning occurs in early childhood education.

Keyword : Embodied Intelligence; Creative Dance; Embodied Learning; Pedagogy

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INTRODUCTION

Early childhood is widely recognized as a formative period during which children develop fundamental ways of understanding themselves, other people, and the world around them. Learning during these years extends far beyond the acquisition of factual knowledge or discrete cognitive skills. Children's understanding emerges through ongoing interactions among perception, movement, emotion, imagination, and participation in social life. Yet, educational practices in many early childhood settings continue to privilege cognitive achievement as the dominant indicator of learning success, while bodily activity is frequently positioned as supplementary rather than constitutive of learning itself. This tendency reflects a long-standing educational legacy shaped by implicit mind-body dualism, in which thinking is treated as a primarily mental activity and movement is viewed as secondary to intellectual development [1],[2].

Recent developments in embodied cognition have increasingly challenged such assumptions. Rather than locating cognition solely within the mind, embodiment scholars argue that thinking emerges through continuous interactions among bodily action, sensory experience, environmental engagement, and social participation. Knowledge is therefore not simply stored and processed internally but is actively constructed through lived experience. From this perspective, perception, action, feeling, and cognition form an integrated system rather than separate domains of functioning. The body is not merely an instrument through which thought is expressed; it actively contributes to how understanding is generated and transformed [3]. This perspective resonates strongly with early childhood education because young children's engagement with the world is inherently physical, exploratory, and relational.

The growing influence of embodied cognition has stimulated increasing interest in embodied pedagogy. Embodied pedagogy emphasizes that learning occurs through bodily engagement, sensory exploration, emotional involvement, and participation in meaningful social contexts. Within this perspective, children are not passive recipients of information but active participants who construct understanding through lived experience. Learning is therefore experienced, enacted, and negotiated through the body. Research across diverse educational settings has shown that embodied approaches support deeper engagement, reflective awareness, and more meaningful connections between experience and knowledge construction [4];[5]. These arguments also align with phenomenological perspectives that view the body as the primary site through which individuals encounter and make sense of the world [6].

Among educational practices that closely reflect the principles of embodied learning, creative dance occupies a distinctive position. Unlike conventional dance instruction, which often prioritizes technical accuracy and performance outcomes, creative dance encourages exploration, improvisation, imagination, communication, and collaborative meaning-making. Through movement exploration, storytelling, rhythm, and shared creative experiences, children engage in processes that integrate perception, action, emotion, and social interaction. Creative dance provides opportunities for children to communicate ideas that may not yet be fully verbalized and to explore

alternative ways of understanding experience through movement. Recent studies have demonstrated that creative dance can foster imagination, agency, empathy, participation, and expressive communication in early childhood contexts [7],[8],[9].

A growing body of literature has documented the developmental value of dance and movement-based learning. Dance participation has been associated with improvements in motor competence, creativity, confidence, emotional expression, classroom engagement, and social interaction [10],[11]. Other studies have highlighted the contribution of movement-based pedagogies to literacy development, multimodal communication, and children's sense of agency within educational settings [12];[13]. While these findings provide important evidence regarding the benefits of dance, much of the existing literature continues to examine outcomes within separate developmental domains. Consequently, less attention has been directed toward understanding how movement itself functions as a medium through which integrated forms of learning emerge.

Although embodied cognition and embodied pedagogy have expanded contemporary understandings of learning, their implications for understanding intelligence remain comparatively underexplored. Traditional theories of intelligence have generally emphasized reasoning, memory, problem-solving, and other cognitive processes while assigning a secondary role to bodily experience. In contrast, embodiment scholars argue that thinking, perceiving, feeling, and acting cannot be meaningfully separated. Human intelligence emerges through dynamic interactions among movement, sensation, emotion, social participation, and environmental responsiveness [1],[14]. Research in dance education further suggests that creativity, reflective practice, and knowledge construction often arise through embodied forms of engagement rather than abstract cognition alone [15].

Building upon these developments, the concept of embodied intelligence offers a promising framework for understanding how young children learn through lived bodily experience. Embodied intelligence refers to the capacity to perceive, interpret, express, and construct meaning through the integration of bodily awareness, movement, emotion, social responsiveness, and engagement with the surrounding environment. Rather than viewing intelligence as an internal cognitive possession, this perspective understands intelligence as emerging through participation in ongoing bodily and relational processes. For young children, whose learning is fundamentally action-oriented, embodied intelligence may represent a particularly important dimension of development. Nevertheless, empirical investigations that explicitly examine embodied intelligence in early childhood settings remain limited.

Despite increasing scholarly attention to embodiment, three significant gaps remain evident. First, relatively few studies have investigated intelligence itself through an embodied lens, particularly within early childhood education. Second, although creative dance has been examined in relation to motor, creative, and socio-emotional development, its role as a context for embodied intelligence remains insufficiently understood. Third, most available evidence originates from Western educational

settings, leaving limited understanding of how embodied learning is shaped by diverse cultural and educational contexts [4],[5],[16].

These gaps are particularly relevant within Indonesia, where early childhood education increasingly emphasizes holistic development while assessment and research practices often remain organized around separate developmental domains. As a result, the interconnected nature of children's bodily, emotional, social, and cognitive experiences is frequently overlooked. Indonesian scholarship on dance education has demonstrated the potential of creative and multicultural dance pedagogies to support participation, creativity, inclusion, and social development [17];[9]. However, limited research has examined these experiences through the specific lens of embodied intelligence.

This study was conducted at KB Al Fathu, Bandung City, an early childhood education institution that integrates play, movement, and social interaction into everyday learning practices. Preliminary observations suggested that children frequently used movement to communicate ideas, express emotions, negotiate relationships, and participate in collective meaning-making. Consistent with previous research highlighting children's agency and active participation in creative dance contexts [8],[10],[13], these observations indicated that creative dance may provide a particularly rich environment for examining embodied forms of learning.

Although previous studies have shown that creative dance can support children's motor development, emotional expression, creativity, empathy, and classroom participation, most of this literature still treats these outcomes as separate developmental domains. Research on creative dance in early childhood has generally examined what children gain from movement-based activities, but has paid less attention to how children think, feel, respond, and construct meaning through movement itself. In other words, the existing studies have demonstrated the educational value of dance, yet they have not sufficiently explained how intelligence may emerge as an embodied, relational, and meaning-making process within children's lived movement experiences.

This distinction is central to the present study. Rather than positioning creative dance merely as an activity that improves motor, social, or emotional outcomes, this research examines creative dance as a pedagogical space in which embodied intelligence becomes visible. The study differs from previous research by bringing together embodied cognition, embodied pedagogy, and creative dance within a single analytical framework. It therefore shifts the focus from measuring separate developmental benefits to understanding how bodily awareness, emotional engagement, social responsiveness, and meaning-making operate together as interconnected dimensions of children's learning.

Preliminary observations at KB Al Fathu, Bandung City, also indicated that this issue was evident in the research site. During daily movement and dance activities, children frequently used bodily gestures, rhythm, posture, facial expression, and spatial movement to communicate ideas, express emotions, and respond to peers. However, informal conversations with teachers suggested that these bodily expressions were

often understood mainly as motor activity or artistic participation, rather than as evidence of integrated learning involving body, emotion, social interaction, and meaning construction. This initial field evidence strengthened the need to examine children's creative dance experiences through the lens of embodied intelligence.

Accordingly, this study explores how embodied intelligence emerges through young children's participation in creative dance activities at KB Al Fathu, Bandung City. Specifically, it investigates how bodily awareness, emotional engagement, social responsiveness, and meaning-making are expressed through children's lived movement experiences. By examining creative dance through the lens of embodied intelligence, this study contributes to contemporary discussions of embodiment in early childhood education and offers a contextually grounded explanation of how embodied pedagogical practices may support holistic child development.

METHOD

This study employed a qualitative case study design to explore how embodied intelligence was manifested through young children's creative dance experiences. A qualitative case study was considered appropriate because the study sought to develop an in-depth understanding of a contemporary educational phenomenon situated within its real-life context rather than to test predetermined causal relationships. Case study research enables researchers to investigate complex social and educational processes while preserving the contextual conditions in which they occur [18];[19]. The study was informed by perspectives from embodied cognition and embodied pedagogy, both of which emphasize the inseparability of movement, perception, emotion, social interaction, and learning [2];[3]. These perspectives provided the conceptual foundation for understanding embodied intelligence as a lived, relational, and contextually situated phenomenon.

The primary researcher has a professional background in early childhood education and creative dance pedagogy, with prior experience facilitating movement-based learning activities for young children. The study was conducted at KB Al Fathu, Bandung City, over an eight-week period beginning in May 2025. Although the researcher was familiar with creative dance practices, no formal teaching role was held at KB Al Fathu during the study. Access to the research site was granted through institutional permission, and the researcher participated primarily as an observer-researcher rather than an instructional facilitator.

The researcher recognized that prior professional experience could influence observation and interpretation. Rather than assuming complete neutrality, reflexivity was treated as an integral part of the research process. A reflexive journal was maintained to document assumptions, methodological decisions, emerging insights, and potential sources of bias throughout data generation and analysis. Interpretations were continuously compared with field notes, video recordings, interview data, and reflective conversations with children to ensure that the findings were grounded in the empirical evidence rather than in the researcher's prior expectations. Furthermore, peer

debriefing with qualitative researchers was undertaken to critically examine coding decisions, question alternative interpretations, and enhance the transparency and credibility of the analytical process.

The study was conducted at KB Al Fathu, Bandung City, Indonesia. The institution was selected because movement-based learning, creative expression, and social interaction were regularly integrated into classroom activities. Creative dance was embedded within the existing curriculum and functioned as part of children's daily learning experiences rather than as a separate intervention program. Creative dance activities included movement exploration, rhythmic improvisation, storytelling through movement, collaborative dance experiences, and reflective discussions facilitated by teachers.

Sample adequacy was determined according to the principle of information power rather than statistical representativeness. In qualitative inquiry, the adequacy of a sample depends on the relevance, richness, and depth of the information generated in relation to the research aim [20]. Participants were selected because they possessed direct and sustained experience with creative dance activities within the educational setting.

Table 1. Participant Characteristics

Participant Group	Number	Description
Children	20	Aged 4–5 years
Teachers	2	Classroom teachers responsible for daily instruction
School Administrator	1	Responsible for educational program implementation
Total Participants	23	Children and adult informants

The adequacy of the sample was further supported by the extensive scope of data generation. The study involved 20 children and was conducted over an eight-week period comprising 16 creative dance sessions and approximately 640 minutes of observation. Data were enriched through continuous video documentation, semi-structured interviews with two classroom teachers and one school administrator, and ongoing reflective conversations with children. Prolonged engagement in the field, repeated observation of the same participants, and the integration of multiple qualitative data sources generated substantial depth, variation, and contextual detail. Collectively, these characteristics provided sufficient information power to support an in-depth exploration of how embodied intelligence emerged through young children's creative dance experiences.

Observation Schedule, data generation was conducted over an eight-week period.

Table 2. Observation Schedule

Activity	Frequency	Duration
Creative Dance Sessions	Twice per week	40 minutes per session
Total Observation Period	8 weeks	640 minutes
Teacher Interviews	2 sessions	30–45 minutes
Administrator Interview	1 session	45 minutes
Reflective Conversations with Children	Ongoing throughout study	5–10 minutes per interaction

The observation period generated extensive field notes, video recordings, interview transcripts, and reflective documentation that formed the primary dataset for analysis. Multiple qualitative methods were employed to capture the multidimensional nature of children's embodied experiences. Combining several methods enabled a more

comprehensive understanding of bodily engagement, emotional expression, social interaction, and meaning-making processes within creative dance activities [21]. Participant observation served as the primary source of data generation. Observation is particularly valuable for examining embodied and interactional phenomena because it enables direct engagement with participants' actions, behaviors, and contextual experiences as they unfold in natural settings [19]. Detailed field notes were recorded immediately after each observation session. All creative dance sessions were video-recorded. Video-based observation has been widely recognized as a valuable approach for capturing movement, gesture, bodily expression, and interactional dynamics that may not be fully represented through written field notes alone. Video recordings also facilitated repeated viewing during the analytical process.

Semi-structured interviews were conducted with classroom teachers and the school administrator. This interview format provided sufficient flexibility to explore participants' perspectives while ensuring consistency across interviews. Discussions focused on children's learning experiences, developmental changes, and the educational significance of creative dance practices. Age-appropriate reflective conversations were conducted with children following selected dance activities. Such conversations are widely recommended in early childhood research because they provide opportunities for young children to communicate their experiences, interpretations, and perspectives in developmentally appropriate ways.

Importantly, these dimensions were not treated as predefined themes, fixed coding categories, or anticipated findings. Rather, they functioned as sensitizing concepts that guided analytical attention toward potentially relevant aspects of children's embodied experiences while remaining responsive to meanings emerging from the data. Consistent with reflexive thematic analysis, the analytical process remained iterative and interpretive. The dimensions informed observation, coding, and reflection, but they did not determine the final themes. Instead, themes were developed through sustained engagement with the dataset and were refined in response to patterns that became evident across observations, interviews, video recordings, and reflective conversations.

Table 3. Embodied Intelligence as an Analytical Lens

Dimension	Analytical Focus
Bodily Awareness	Awareness of body, space, movement, and sensory experience
Movement Engagement	Exploration, experimentation, and adaptation of movement
Emotional Engagement	Expression and regulation of emotions through movement
Social Responsiveness	Interaction, collaboration, and responsiveness to peers
Meaning-Making	Construction of meaning through bodily experiences

This framework provided conceptual guidance while maintaining openness to unexpected findings emerging from the data. Data were analysed using reflexive thematic analysis following Braun and Clarke. As illustrated in Figure 1, the analysis proceeded through six recursive phases, beginning with data familiarisation, followed by coding, theme development, theme review, theme refinement, and interpretive writing. Throughout the process, field notes, interview transcripts, video observations, and reflective conversations were analysed iteratively to develop themes representing manifestations of embodied intelligence.

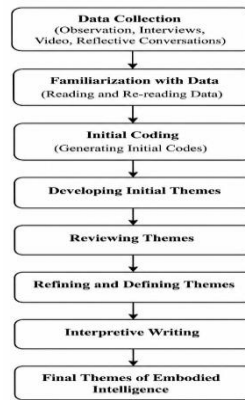


Figure 1.Data Analisis Proses

Several strategies were employed to enhance the trustworthiness of the study following established qualitative criteria for credibility, dependability, confirmability, and transferability. Data were generated through participant observation, video documentation, interviews, and reflective conversations. The integration of multiple sources enabled triangulation and strengthened the credibility of interpretations. A reflexive journal was maintained throughout the research process. Reflexive practice is considered essential in qualitative inquiry because researchers actively participate in knowledge construction and interpretation. Preliminary interpretations were discussed with participating teachers. Contemporary qualitative scholars recommend member reflection as a collaborative process that supports interpretive credibility while acknowledging the co-constructed nature of qualitative knowledge [22]. Two researchers with expertise in early childhood education and qualitative inquiry reviewed coding decisions and thematic interpretations. Feedback was incorporated throughout the analytical process.

A comprehensive audit trail was maintained throughout the study. All coding decisions, analytical memos, theme revisions, field notes, and methodological decisions were systematically documented. This process enhanced transparency and enabled the progression from raw data to final interpretations to be clearly traced. Detailed contextual descriptions were provided to support transferability and enable readers to determine the applicability of findings to other educational settings. Ethical approval was obtained prior to data collection. Written informed consent was secured from parents or guardians of participating children, as well as from all adult participants. Participation was voluntary, and participants were informed of their right to withdraw at any stage of the study without consequence. Pseudonyms were used throughout field notes, transcripts, and research reports to protect confidentiality. All video recordings, transcripts, and research documents were securely stored and accessed only by the research team.

RESULTS AND DISCUSSION

Analysis of observations, video recordings, teacher interviews, and reflective conversations with children generated five interconnected themes that illuminate how embodied intelligence was manifested through young children's creative dance

experiences. The findings suggest that embodied intelligence emerged not as a discrete cognitive ability but as a dynamic process involving bodily awareness, emotional engagement, social responsiveness, and meaning-making.

Theme 1. Awakening Bodily Awareness. The first theme concerned the emergence of bodily awareness through movement exploration. Across the observation period, children demonstrated increasing sensitivity to body position, balance, movement control, and spatial orientation. Rather than merely reproducing movements introduced by teachers, they became progressively more attentive to how their bodies moved in relation to space, objects, and peers within the learning environment. Observational evidence suggested a gradual shift in children's awareness of personal space and movement regulation. During the early sessions, several children moved rapidly across the room with limited attention to surrounding classmates. As the weeks progressed, they increasingly adjusted speed, direction, and posture while navigating shared movement spaces.

One observation illustrated this development. During a movement exploration activity, one child initially moved rapidly across the room without awareness of nearby peers. After observing others and receiving minimal guidance, the child moderated movement speed, altered direction, and maintained a safer distance from classmates. This change indicated growing awareness of bodily movement in relation to the surrounding environment. A second observation revealed increasing bodily control and balance. During an improvisational activity involving spinning and directional changes, one child repeatedly lost balance and stopped moving after several attempts. Over subsequent sessions, the same child demonstrated greater postural stability, adjusted foot placement more carefully, and was able to sustain rotational movements without falling. The child appeared increasingly aware of how bodily positioning influenced movement control and balance.

Teachers also described noticeable changes in children's bodily awareness over time. One teacher explained: "At the beginning of the programme, several children moved impulsively and paid little attention to the space around them. Over time, they became more aware of where their bodies were positioned, how close they were to their peers, and how to regulate their movements more safely." A second teacher highlighted the development of bodily self-monitoring: "We began to see children making small adjustments independently. They slowed down when necessary, corrected their posture, and became more conscious of how their movements affected both themselves and others." Children similarly demonstrated emerging awareness of bodily experience and movement regulation. "I can spin more slowly now. If I spin too fast, I might fall." Taken together, these observations suggest that creative dance provided opportunities for children to develop a heightened awareness of their bodies, movement capabilities, balance, and spatial relationships. Bodily awareness emerged not as a static skill but as an evolving process through which children learned to perceive, regulate, and adapt their movements within a shared learning environment.

Theme 2. Movement as Emotional Expression, the second theme revealed how movement functioned as a medium for emotional expression. Throughout the creative

dance activities, children frequently communicated feelings through bodily gestures, movement intensity, rhythm, and facial expressions. Observation data indicated that emotional expression emerged spontaneously during improvisational activities. Children often expressed excitement through energetic jumping, spinning, and expansive gestures, whereas calmer activities were associated with slower and more controlled movement patterns. One observational excerpt illustrates this process: During an improvisational dance activity, several children responded differently to contrasting musical rhythms. Fast-paced music was accompanied by energetic jumps, spinning movements, and laughter, whereas slower music elicited softer gestures and calmer movement patterns.

A second observation further demonstrated the embodied expression of emotion. During a free-movement activity accompanied by upbeat music, one child began jumping repeatedly, spinning in wide circles, and smiling while moving across the room. The child occasionally invited peers to join the activity, maintaining a visibly enthusiastic manner throughout the session. The movements appeared to communicate excitement and enjoyment without the need for verbal explanation.

Teachers emphasized that dance enabled children to communicate emotions that were not always expressed verbally. "Children who are usually quiet often become more expressive during dance activities. They do not always communicate their feelings through words, but their emotions become visible through the way they move." Similarly, children connected movement with emotional experiences. "When the music is fast, I feel happy, so I jump around." Another child described a similar connection between movement and emotion. "I like spinning when I'm excited. It makes me feel like I'm flying." These findings indicate that creative dance provided an embodied avenue through which children experienced, communicated, and regulated emotional states. Emotional expression frequently emerged through movement itself, suggesting that bodily action functioned as an important medium through which children explored and conveyed affective experiences.

Theme 3. Learning Through Social Coordination, the third theme focused on children's growing capacity to coordinate actions and respond to peers during collaborative movement experiences. Social responsiveness became increasingly evident as children participated in partner and group activities. Observations revealed that children gradually shifted from individual movement exploration toward greater awareness of others' actions. During collaborative tasks, children watched, imitated, adjusted, and synchronized movements with peers. One field observation documented this process. During a paired movement activity, children were invited to mirror their partners' movements. One child initially performed independent actions but gradually synchronized movements with a peer. Eye contact, imitation, and shared rhythm became increasingly evident throughout the activity.

A second observation further illustrated the development of social coordination. During a group movement sequence, children were asked to travel across the room while maintaining a collective rhythm. Several children initially moved at different speeds and occasionally crossed one another's paths. As the activity progressed, they

began adjusting their pace to match nearby peers, waited for turns when entering shared movement spaces, and repositioned themselves to maintain the flow of the group activity. These adjustments suggested growing awareness of others and an emerging capacity to coordinate movement within a collective context.

Teachers similarly reported improvements in cooperation and responsiveness. "At first, many children were mainly focused on their own movements. Over time, they became more attentive to their classmates, waited for their turn, and were increasingly able to follow shared movement patterns." Children also described learning through interaction with peers. "I follow my friend's movements so we can do it together." These observations suggest that embodied intelligence was expressed not only through individual bodily awareness but also through children's ability to coordinate actions, adapt to shared situations, and respond sensitively to others. Social understanding appeared to emerge through movement itself, as children learned to negotiate space, timing, and collective participation within the dance activities.

Theme 4. From Movement to Meaning, the fourth theme highlighted children's use of movement as a symbolic resource for constructing and communicating meaning. Creative dance activities frequently invited children to represent stories, animals, emotions, and imagined situations through bodily expression. Observation data suggested that children increasingly connected movement with symbolic representations. Movement became a medium through which children expressed ideas, experiences, and imagination. One observation illustrated this phenomenon. During a storytelling-through-movement activity, children were asked to represent animals using movement. One child extended both arms and moved slowly around the room while explaining that the movement represented a bird searching for its nest.

A second observation provided further evidence of symbolic meaning-making through movement. During a creative storytelling activity, children were invited to transform elements of a narrative into bodily actions. One child represented a bird by repeatedly extending the arms and making gentle flapping motions while moving across the room. Another child interpreted falling rain through descending hand gestures and a gradual lowering of the body toward the floor. A third child portrayed a mountain by standing upright with arms extended above the head and remaining still in a tall, stable posture. These movements were not direct imitations introduced by the teacher but individual interpretations that connected bodily action with imagined meanings.

Teachers recognized the role of movement in children's meaning-making processes. "When children were asked to become butterflies, trees, or other characters, they did more than simply move. They began telling stories and expressing what they imagined through their movements." Children similarly described symbolic interpretations of movement. "I am a bird flying and looking for a home." These findings demonstrate that movement functioned not only as physical action but also as a means of representation, imagination, and communication. Children appeared to use bodily expression to translate ideas, narratives, and imagined experiences into observable forms, suggesting that meaning-making emerged through movement itself rather than through verbal language alone.

Integrative Theme. Embodied Intelligence as Relational Knowing, Across all themes, embodied intelligence emerged as a relational form of knowing that integrated bodily awareness, emotional engagement, social responsiveness, and meaning-making. The findings indicate that embodied intelligence did not appear as a separate developmental skill. Instead, it emerged through children's ongoing interactions with their bodies, peers, emotions, teachers, and learning environment. Bodily awareness frequently intersected with emotional expression, while emotional expression often occurred within social interactions. These interactions subsequently contributed to collective and individual processes of meaning-making.

Teachers consistently described this interconnected development. "What stood out to me was that the children were not simply moving more competently. They became more confident, more responsive to their peers, and increasingly able to communicate their ideas and understandings through their bodies" Observational evidence further suggested that bodily movement served as a medium through which understanding, communication, and social participation were simultaneously enacted. Taken together, the findings support the view that embodied intelligence is best understood as a dynamic and relational phenomenon emerging through lived bodily experiences. Within the context of creative dance, children did not merely learn through movement; movement itself became a medium through which understanding, expression, interaction, and meaning were continuously negotiated.

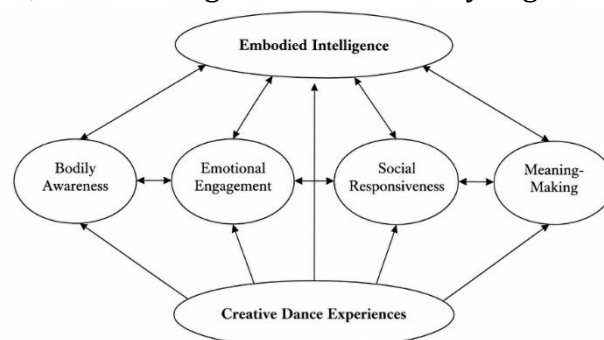


Figure 2. Embodied Intelligence as a Relational Process

This study examined how embodied intelligence emerged through young children's participation in creative dance experiences at KB Al Fathu, Bandung City. Rather than appearing as a fixed individual attribute, embodied intelligence was revealed as a dynamic and relational process unfolding through children's engagement with their bodies, emotions, peers, and learning environment. Across the four themes, bodily awareness, emotional expression, social responsiveness, and meaning-making did not function as separate developmental domains. Instead, they emerged as interconnected dimensions of lived experience that continuously shaped one another throughout children's participation in creative dance. These findings support contemporary embodiment perspectives that challenge traditional mind-body dualisms and conceptualize learning as fundamentally grounded in bodily experience [2],[3],[2].

Theme 1. Awakening Bodily Awareness, the first theme, Awakening Bodily Awareness, highlights the foundational role of movement in children's developing understanding of themselves and their surroundings. Children were not merely

reproducing movements introduced by teachers. Over time, they demonstrated increasing sensitivity to balance, posture, spatial relationships, rhythm, and bodily control. Such observations resonate strongly with 4E cognition perspectives, which argue that cognition emerges through embodied, embedded, enactive, and extended interactions with the environment rather than through internal mental processes alone [1]. Similarly, [3] and [2] emphasize that sensorimotor experience provides a fundamental basis for learning and cognitive development. The present findings extend these theoretical arguments by showing how such processes become visible in early childhood creative dance contexts. They also support [10] proposition that creative dance functions as a form of experiential learning through which children develop bodily awareness alongside cognitive engagement. In addition, [4] demonstrated that embodied participation enables learners to understand abstract concepts through direct sensorimotor experience. The children's growing bodily awareness observed in this study suggests that movement itself may function as a primary mode of knowing rather than simply a vehicle for expressing pre-existing knowledge.

Theme 2. Movement as Emotional Expression, the second theme, Movement as Emotional Expression, further illustrates the inseparability of bodily action and emotional experience. Children frequently communicated feelings through movement qualities, gestures, rhythm, and varying levels of physical intensity. Emotional meanings often emerged through movement before they could be fully articulated verbally. This finding aligns with [8] observation that creative dance creates opportunities for children to express experiences and emotions that may otherwise remain difficult to communicate. [23] identified creative embodiment as an important pathway for self-expression, wellbeing, reflection, and emotional development. Similar patterns have also been reported by [24] Schwender & Becker who found that kinesthetic engagement in educational dance promotes deeper emotional awareness and reflective understanding. Beyond educational settings, [25] argues that embodied participation enables affective knowledge to be communicated through bodily action itself. Taken together, these studies support the interpretation that movement functions not merely as a physical activity but also as an embodied language through which children explore, communicate, and negotiate emotional meanings.

Theme 3. Learning Through Social Coordination, the third theme, Learning Through Social Coordination, highlights the fundamentally relational nature of embodied intelligence. Children's participation in collaborative movement activities required continuous responsiveness to others, adjustment to shared rhythms, and negotiation of collective actions. Embodied intelligence therefore appeared not only in children's awareness of their own bodies but also in their capacity to perceive and respond to the movements of peers. This finding supports social embodiment perspectives suggesting that learning emerges through interaction and participation rather than solely within individual minds. [13] similarly reported that involving children in co-created dance experiences strengthens agency, confidence, participation, and social engagement. [8] further emphasized that empathy and collaboration are central elements of meaningful creative dance practices. From a broader perspective, [5]

demonstrated that movement-based performing arts contribute to identity formation, relational awareness, and situated learning. Within the Indonesian context, Masunah's work on multicultural dance education similarly argues that embodied artistic experiences foster empathy, cooperation, and social understanding across diverse groups. The present findings therefore suggest that embodied intelligence is inherently social and emerges through participation in shared movement experiences.

Theme 4. From Movement to Meaning, the fourth theme, From Movement to Meaning, provides perhaps the clearest illustration of embodied intelligence as a process of interpretation and knowledge construction. Through storytelling, imaginative play, and representational movement, children transformed bodily actions into meaningful symbolic expressions. Movements became connected to imagined identities, narratives, emotions, and experiences. These observations suggest that movement served not only expressive functions but also interpretive ones. [7] demonstrated that picture books can stimulate children's transformation of narrative ideas into creative movement explorations. [12] similarly found that integrating movement into literacy activities supports multimodal meaning-making processes. [14] argued that language, sound, and movement collectively contribute to embodied processes of understanding and representation. These findings are further supported by [15], whose work on embodied writing illustrates how bodily experience can become a medium for reflection and knowledge production. Likewise, emphasized that creativity often emerges through embodied exploration, metaphorical thinking, and sensory engagement. Collectively, these studies reinforce the present finding that movement functions as a powerful resource for constructing meaning rather than merely conveying information.

Integrative Interpretation of the Four Themes, when considered together, the four themes reveal a pattern that extends beyond any single developmental outcome. Bodily awareness, emotional engagement, social participation, and meaning-making did not emerge independently. Instead, they appeared as mutually constitutive processes that continuously informed one another. Bodily exploration frequently generated emotional responses. Emotional experiences often unfolded through interaction with others. Social participation, in turn, created opportunities for interpretation, imagination, and the construction of meaning. What initially appeared as separate dimensions gradually revealed themselves as interconnected aspects of a broader embodied process.

This interpretation aligns with [6] argument that learning develops through ongoing relationships among body, mind, environment, and social context. It also resonates with phenomenological proposition that the body serves as the primary medium through which individuals encounter and understand the world. [16] similarly argues that dance education creates a transdisciplinary space in which physical, cognitive, emotional, social, and cultural dimensions of learning become integrated. The present findings provide empirical support for this proposition within an early childhood context.

Embodied Intelligence in the Indonesian Early Childhood Context, The study also contributes to current discussions of embodiment within Indonesian early childhood

education. Existing scholarship has frequently focused on specific developmental outcomes, including motor skills, creativity, and character formation. [9],[17], and [26] have each demonstrated important benefits of creative and movement-based learning approaches.

Practical Implications, The findings carry important implications for educational practice. Creative dance should not be understood solely as an artistic enrichment activity or as a means of supporting motor development. Rather, it can function as an embodied pedagogical space through which children simultaneously develop bodily awareness, emotional expression, social understanding, creativity, and meaning-making capacities. This interpretation is consistent with [10] characterization of creative dance as experiential learning and with [8] argument that creative dance positions children as active participants in the learning process. Early childhood educators seeking to promote holistic development may therefore benefit from designing learning environments that intentionally incorporate movement, imagination, collaboration, and embodied exploration into everyday classroom experiences.

CONCLUSION

This study demonstrates that embodied intelligence emerges through the dynamic integration of bodily awareness, emotional expression, social responsiveness, and meaning-making during young children's participation in creative dance. Rather than functioning as separate developmental capacities, these dimensions continuously interact through children's lived bodily experiences, revealing learning as a relational process enacted through movement, participation, and social engagement. The principal contribution of this study lies in advancing embodied intelligence as an integrative conceptual framework that connects embodied cognition, embodied pedagogy, and creative dance within early childhood education. In contrast to previous research, which has predominantly examined creative dance in relation to discrete developmental outcomes such as motor competence, creativity, or socio-emotional development, this study explains how intelligence itself is constituted through embodied experience. By providing empirical evidence from an Indonesian early childhood education context, the findings broaden current embodiment scholarship beyond its predominantly Western focus and offer a theoretically grounded perspective for understanding holistic learning through children's embodied participation in creative dance.

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