

ARTICLES

Dancing Bodies, Moving Spaces: Revealing Children's Movement Encounters in an Integrated Kindergarten Classroom

Coralee McLaren and Patricia McKeever

When I entered the gait lab at the children's rehabilitation hospital, I was struck by the room's physical dimensions, size, and how familiar it seemed to me. Despite the lab's distinct clinical features, the space reminded me of a dance studio. I felt the urge to move about and wondered whether the boy I was observing felt the same. With an apparent dancer's sensitivity, he avoided the centre of the space by walking along its periphery to where the technician and I were seated. He told me his name and sat quietly as the technician traced white markers along the angles of his legs, hips, and spine. When he stood up, he moved directly to "centre stage," i.e. the middle of the room. I marvelled at the confidence he seemed to place in his legs, much like a racehorse eager to demonstrate his strength and speed. The lab no longer felt like a studio or stage. I was seated in a grandstand anticipating a high stake race (observation and reflection: September 22, 2007).

gait (gāt), n. 1. the manner of walking, stepping, or running 2. any of the manners in which a horse moves, such as a walk, trot, canter, or gallop (Cambridge English Dictionary)

Backstory

I recall entering Dr. McKeever's office in a similar, gallop-like manner. I had recently graduated from a nursing program and was eager to meet this professor whose research involved children with mobility impairments. This meeting profoundly changed the trajectory of my career. I introduced myself to her and asked if she would supervise my graduate studies. Dr. McKeever replied: "I will only supervise you if you approach your research as a dancer." I felt surprised, elated, and terrified. I had spent years transitioning from a career in the performing arts to a career in health sciences. By unearthing my dance roots, I wondered what research could emerge from a mélange consisting of a nurse/dancer, a health sociologist, and disabled children. The following story describes the research-choreographic process that evolved.

Dr. McKeever arranged for me to begin my dissertation research by observing how a child with a mobility impairment is assessed in a gait lab.¹ My observations and reflections of his movement in this space became the genesis of my research project. Although it was difficult for me to articulate, I perceived this child to be connected to the physical space and sensed this relationship in my own dancing-body. Unsettled and curious about this experience, I reviewed related research/academic literature to determine what was known about children's bodily relationships with the spaces/places they occupy. I learned that moving freely is a crucial determinant of children's physical, cognitive, and social wellbeing (WHO 2007). This understanding led me to wonder how children with mobility impairments move with/in these spaces/places and how their movements might be compromised.

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Guided by an interdisciplinary PhD committee,² I considered a question posed by Spinoza almost four centuries ago and taken up by the late philosopher Gilles Deleuze. The question “what can a body do?” casts the body as a source of knowledge and reconfigures it as the sum of its capacities by asking not what a body *is*, but rather what it does (Deleuze 1988). The child moving in the gait lab seemed to answer this question by demonstrating the movements his body was capable of doing. His apparent enthusiasm conjured up memories of my own physical experiences of dancing through space. Realizing that it was impossible to differentiate my dancer-self from my nurse-self, McKeever urged me to merge my “selves” to think differently about how children move with/in their environments.

To this end, we decided to study children with diverse movement abilities in an integrated kindergarten classroom. We established and merged philosophical concepts with ecological theories, neuroscientific advances, and my knowledge of dance to pose innovative research questions. Following Deleuze’s admonition (1988), we did not rely on prevailing medical or educational discourses that define, reference, or categorize children according to their functional abilities or limitations.³ Instead, we sought to understand how both disabled and nondisabled children use classroom spaces and objects to move, explore and discover “what their bodies can do.” This shift in thinking from how children’s bodies “should” move to how they “might” move is supported by neuro-educational approaches that link environments to cognitive enhancement.⁴ Ultimately, we developed a conceptual framework that enabled us to observe, interpret, and understand what kindergarten children “do” with their bodies in classrooms.

Lines of Flight

Although Spinoza’s question was unknown to me during my dance career, I realize now that I had danced his question. In modern dance, movement experimentation is essential to the creative process. Hence, the movement choices I made explored “what my body could do.” Some movements resulted in new physical insights; however, this “knowledge” was contingent on the context, i.e., other dancers’ movements, accompanying music, spatial/stage dimensions, temperature, angles/intensities of light, and unsprung floors. New ways of knowing my body changed continuously because performance contexts always changed. As I gained experience, the unsettled feelings related to my inability to predict performance outcomes evolved into curiosity about what my body *might* do in different contexts.

The best performances occurred when the music seemed to creep up from behind me, enter my body, and propel me on to the stage. William Forsythe⁵ describes this experience as idealized dancing: “just not knowing and letting the body dance you around” (2003, cited by Manning 2009, 21). Deleuze and Guattari⁶ (1987) might have described such performances as “lines of flight” that leave the body transformed. Unpredictable encounters with other dancers’ bodies, spaces, objects and rhythms led to new ways of moving, interacting and responding on stage. Although these experiences could not be recreated, they intrigued me enough to “venture from home on a thread of a tune” (Deleuze and Guattari 1987, 311) in search of similar sensations or movement surprises each time I performed.

In what follows, McKeever and I describe kindergarten children’s spontaneous, dance-like encounters in their classroom. These observations gave new contours to the study and demanded a shift in focus when they evoked my memories of dancing-with others. Extending Forsythe’s ideas,

my dissertation committee questioned whether choreographic “seeing-and-thinking” resides exclusively within the realm of dance, or whether related mechanisms and principles could be used to develop new understandings of these children. We wondered if a choreographic lens might reveal heretofore hidden movement encounters and if new methods and language would illuminate these encounters. To this end, we designed a study that “[did] not insist on a single path” forward (Forsythe 2011, 90) or result in a conclusive end goal.

Next, we discuss the steps that underpinned the ethnographic and choreographic processes that evolved. These steps involved reviewing the literature, improvising relevant theoretical approaches, gathering compositional elements, and developing data analytic techniques. We present these steps using a musical/choreographic score that includes a prelude and coda. Keeping our diverse sample/cast of child-dancers central to this score, we describe our conceptual and methodological links, hesitations, shifts-and-leaps. In the finale, we land in the middle of this study or “dance-in-the-making”⁷ not with answers but with an evolving choreography of ideas/questions. This study may set the stage for future research that seeks to understand bodies-and-spaces “such as have never been seen before” (Massumi 1992, 101).

Prelude

The following literature review sets the stage for our “dance-in-the-making.” We knew that moving freely in indoor and outdoor environments is optimal for all children’s physical, social and psychological health and development (Day 2007; Dudek 1996; Dwyer et al. 2008; Holt 2004; Huttenmoser 1995; Kyttä 2004; Pellegrini 1988; Piek 2008; Prellwitz and Tamm, 2000; Spencer and Blades, 2006), but were unaware that unrestricted movement and gestures also optimize their cognitive and communicative skills (Broaders et al. 2007; Rowe and Goldin-Meadow 2009). The brain’s prefrontal cortex and cerebellum⁸ previously were assumed to function independently, but new understandings of neuro-anatomical circuitry and neuroimaging technology indicate that extensive connections link these regions (Durisko and Fiez 2010; Strick et al. 2009; Kelly and Strick 2003). Imaging studies have also indicated that these regions are co-activated when the brain is engaged in verb generation, word fluency and memorization activities (Murdoch 2010) especially when these tasks are novel, challenging or unpredictable (Diamond 2000). Finally, motor coordination difficulties are common in children who have language disorders (Stoodley and Stein 2011). In summary, movement enhances children’s health and learning because their motor and cognitive processes are intertwined.

Furthermore, neuropsychological research has established strong associations among young children’s unrestrained gesturing, improved problem solving, and enhanced vocabulary (Cook et al. 2008; Rowe and Goldin-Meadow 2009). These findings suggest that cognitive and bodily knowledge are synergistic, i.e., learning occurs through movement rather than through verbalization or memorization alone (Broaders et al. 2007; Cook et al. 2008; Rissotto and Tonucci 2002). Gesturing seems to be an embodied way of representing new ideas and engaging the external environment by linking mental representations to objects and contexts (Cook et al. 2008). This finding has been corroborated by advances in neuroscience that highlight the importance of motor activity to establish and reinforce neural pathways (Damiano 2006). Garbarini and Adenzato (2004) argue for a model of cognition that reconceptualizes the mind as rooted in bodily movement and environmental interaction.

Since the 1970s, environment-behaviour scholars from several disciplines have recognized the significance of physical contexts and human interactions. However, research to date has focused primarily on the social properties of environments rather than physical or architectural features (e.g. Barker 1968; Bronfenbrenner 1979). In the 1980s, interest in children's interactions with their physical environments began to flourish (Heft 1988; Moore 1986, 1987; Weinstein 1987; Wohlwill and Heft 1987). Hence, new conceptualizations and methodological strategies revealed the relationships among children's moving bodies, physical environments, and physical, social, and cognitive development. Most studies were conducted in outdoor environments with nondisabled children, leaving a critical knowledge gap about children with motor impairments (for example, Cornell et al. 2001; Fjørtoft 2004; Heft 1988; Kernan 2010; Kytta 2004; Pellegrini 1988; Rissotto and Tonucci 2002; Sandseter 2009). We wanted to begin to fill this gap by studying children with and without motor disabilities with/in an integrated kindergarten classroom.

Children's Movement at School

Full day kindergarten programs are offered to three- to five-year-old children in Ontario and other Canadian provinces. Hence, these children spend approximately six hours a day inside a classroom. Given that movement and cognition are fundamentally intertwined, understanding how children move, explore, and interact with/in school spaces is imperative. Although movement-based, experiential learning activities have been integrated into many kindergarten classrooms, admonitions about "proper" ways of moving persist. Children are consistently asked to temper their bodies' proclivity to move by sitting still to promote learning.⁹ Such admonitions are justified by the erroneous belief that moving or restless bodies disrupt learning (Bresler 2004). This belief is reflected in many classroom designs and layouts that feature tightly bounded spaces and physical arrangements that ensure eye contact with a centrally located teacher. Although such spaces are problematic for all children, they significantly challenge those with motor impairments. These children must navigate these spaces quietly using cumbersome wheelchairs and walkers that seem out of place (Prellwitz and Tamm 2000).

Since the 1980s, most disabled children have attended schools that were originally designed for nondisabled children (UNESCO 1994; United Nations 2006). Most are enrolled in segregated or integrated classrooms (Statistics Canada 2001; Canada Council on Social Development 2006). It is widely agreed that such classrooms do not ensure disabled children's full inclusion.¹⁰ Although policies stipulate that publicly funded schools must accommodate all children, the environmental prerequisites for effective social and physical inclusion of disabled children remain unknown (Hemmington and Borell 2002).

It is widely acknowledged that physical disabilities are exacerbated by environmental and social factors (United Nations 2006; WHO 2007, 2001), yet little is known about how disabled children respond to and move with/in built environments like schools. Gross and/or fine motor impairments restrict movement and elicit exclusionary attitudes and safety concerns, and physical barriers significantly impede explorations of school spaces (Tieman et al. 2004; Wooley 2005; Prellwitz and Tamm 1999; Holt 2004). Hence, disabled children have considerably less "mobility license" (Kytta 2004) to investigate their classrooms than their nondisabled peers (Day 2007; Rigby and Gaik 2007). Furthermore, most disabled children have fewer opportunities to develop their intrinsic physical capacities. Therapies and social rules implicitly and/or explicitly encourage them to

acquire “normal,” socially acceptable bodily movements and gestures (Sapey et al. 2005; Oliver 1993; Hansen and Philo 2007).

Improvising with Frameworks

As is usually true of research and choreographic designs, my committee improvised and experimented with theoretical and methodological approaches to find a framework that would support our research objectives. To begin, I supplemented my readings of Deleuze with preliminary training in Laban Movement Analysis (LMA). Laban’s theory and methods for observing and describing movement offered a logical framework for studying children’s movement; however, Deleuzian philosophy strongly resonated with the questions we were asking about children’s body-space relationships. Although LMA provides a language for categorizing movement qualities and characteristics, it does so by extracting movement from the body and rendering it reproducible through forms of notation and inscription. As a dancer, I realized that I had come to know my body and “what it could do” not through a systematic way of knowing, but by taking risks, physically experimenting, and responding to unexpected encounters with dancing bodies and spaces. Hence, my committee agreed that Deleuzian/Guattarian conceptual strategies would enable us to reconceptualize and observe children whose movement capacities remained as elusive as my own.

Most importantly, Deleuzian/Guattarian improvisations would disrupt our observations and keep our descriptions on a “plane of composition” (1987). Together these philosophers challenge the idea that “true” objective representations of reality and stable “systems of knowledge” marked by systematic construction, linearity and categorization are possible. They conceptualize the body as a creative body that is irreducible to its functions or component parts and is known through “flows of relations” through which it passes and is produced (1987). They argue further that the body cannot be definitively “known” because it continually changes, and physical capacities can only be revealed through ongoing interactions with environments. Describing bodies according to traditional systems of classification such as LMA limits them to preconceived ways of knowing. For these reasons, Deleuze and Guattari advocate for the creation and proliferation of new concepts that re-imagine bodies anew. To this end, we assembled new theoretical frameworks that would support a choreographic lens to observe children’s dancing-bodies.

Dancing Bodies: Seeing and Thinking with Deleuze

The tendency to cast the body in Cartesian, dualistic terms still underpins most Western educational and medical systems. Cartesian dualism stipulates that the brain is distinct from the body and the mind is the locus of knowledge. This is inconsistent with current scientific understandings that conceive the mind as rooted in bodily action and interaction. To redress this problem, we used Deleuzian concepts that disrupt predetermined, systematic ways of thinking that categorize children in terms of their identities, movement abilities and ways of learning. These concepts move us beyond what has been defined and habituated through familiar ways of thinking, talking, and doing, and deconstruct traditional codes and habits in order to connect them in new, unexpected ways. Some early childhood educators have concurred that Deleuzian approaches can cause the “vertiginous feeling” of losing one’s balance, but it is at the same time “a very joyful and affirmative affair, since it can give us access to universes we did not know anything about” (Olsson 2009, 26).

Following Deleuze's admonition to "unsettle" rather than "settle" old questions, we cast children's bodies as sources of knowledge replete with physical capacities yet unknown. Viewing their bodies through a choreographic lens also moved us beyond conventional ways of seeing-and-thinking about children and their capacities. We did not categorize them as disabled or nondisabled. Instead, we observed how all child-dancers physically disrupted such classifications through their experimentations and bodily encounters with objects, persons, and classroom spaces. For example, we observed and conceptualized the processes by which children "deterritorialize" spaces to escape intrinsic and/or extrinsic physical constraints as "lines of flight" (Deleuze and Guattari 1987). Deterritorialization is the process of fleeing, altering habits, and discovering something new. Lines freed to travel, having pushed past critical thresholds, form new territories when they intersect with other lines of flight and elicit new experiments. We used these concepts to "[pry] open vacant spaces" (Massumi 1992, xv)¹¹ and rethink children's movements in terms of their intensive connections.

Moving Spaces: Seeing and Thinking with Gibson

To contextualize movement in space, we drew on ecological theory, which assumes that environments are inherently discoverable and experiential (James 1909/1978, cited by Heft 2001, 31). The central feature of an ecological approach is the notion of reciprocity: people selectively enter and engage with their physical environments to discover physical properties and modify the functional opportunities they offer (Heft, 2001). Hence, people and environments are not cast as separate, discontinuous entities, because environments are experienced through their bodies. In contrast to Cartesian body-mind dualism described above, people are considered "embodied agents that reside at the storm centre of experience" (Heft 2001, 57).

James Gibson (1979) casts physical environments in these relational, ecological terms in his theory of affordances. Contributing to the psychological subfield of visual perception, Gibson suggests that physical environments contain information that is directly, visually accessible. This information does not have to be processed cognitively for people to interact with their environments. He coined the term "affordance" to emphasize the interactive possibilities that emerge between environments and their human occupants. All environments are comprised of objects and features that offer potential interaction; however, such perceptions only emerge when observers' characteristics (e.g., size, gender, abilities, social needs and/or intentions) match these affordances (Kyttä 2004). Although potential environmental affordances are infinite, actualized affordances are those that are perceived, utilized, or shaped by occupants (Heft 1989; Kyttä 2002).

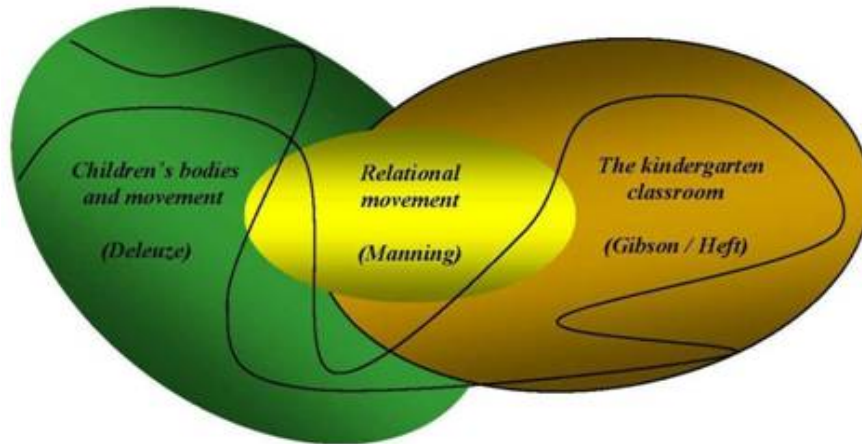
Affordance theory has been widely used as a framework for analyzing nondisabled children's interactions in outdoor environments (e.g., Heft 1988). We used a similar but modified Gibsonian-inspired taxonomy to analyze children's diverse movements in an indoor environment. For example, we observed how children balanced or leaned on tables and actualized the crawl spaces underneath. Similarly, mobile stools invited children to experience their roll-able or spin-able features. As such, the classroom was cast as actively participating in, rather than containing, children's movement (Perez de Vega 2007). This enabled us to see the reciprocity and dynamic encounters that emerged in this space.

Dynamic Relations: Merging Deleuze, Gibson, and Manning

In that no single framework provided the theoretical underpinning needed to reconceptualize children's relational movement, we merged Deleuzian and Gibsonian concepts. This conceptualization of children's bodies and spaces revealed latent connections and widened the scope of the contextual factors that influence movement. Deleuze and Gibson clearly articulated the co-constituting relationship between bodies and spaces. When their ideas are coupled, the total ecological environment, i.e., the interdependence of physical, social, and personal components, becomes visible (Moore 1985). Following Deleuze, we considered these interdependencies as "assemblages" in order to expand possibilities, inventions, methods, and perspectives. Assemblages are not static; they are processes of putting together, arranging, and organizing diverse elements (Dewsbury 2011). The goal was to attune ourselves to see/sense the assemblages that emerged between children's bodies and classroom affordances, and those that emerged between and amongst the children themselves (Anderson and McFarlane 2011). For example, we observed the dynamic relationship between a boy, his wheelchair, and the connections his body-chair made with classroom affordances. Following Deleuze, we asked: What does this actual thing repeat or synthesize in this child's habit and memory? What is it driven to repeat or synthesize in terms of intensities? What is the "sum total of the material elements belonging to it under given relations of movement and rest, speed and slowness . . . the intensive affects it is capable of . . . its local movements, differential speeds?" (1987, 260).

Contemporary dancer/philosopher Erin Manning¹² extends Deleuze and Guattari's conceptualization of relational movement and the notion of the "event" (1987). She posits that events are changes immanent to a convergence of parts, sustained as pure virtualities (i.e., real inherent possibilities) that are distinguished when they are actualized. She contends that events are as much vibration as they are action and believes that "for an event to occur, movement has to be pulled out of the indeterminate and activated from the virtuality of the not-yet" (Manning 2009, 37–38). She further argues that an event is not comprised of movements that occur, but arises from a set of synthesized forces or productive intensities. Following Manning, we attuned ourselves to classroom movement events that emerged from the middle—interactions that appeared to have no beginning, end, or goal. We were drawn into the productive intensities generated by "catching the edges of their contours, and participating in the relations they call[ed] forth" (Manning 2009, 81). This "seeing-and-feeling with [children's] movement moving" (2009, 86) resonated with the dynamic sensations I sensed in my dancer body and enabled me to articulate how intensive moments transformed all bodies that were caught up in the event.

Manning contends that there is rhythm in such events. Rhythm gives affective tonality to experience by "mov[ing] us before we know where we are going" (34). Accordingly, we set out to observe how changes in children's rhythm altered the event, and how fluctuations changed movements by intensifying, slowing down, and changing them into something new. We considered these rhythmic events in terms of their potential: how they elicited ways of moving. According to Manning, when people move in new ways, they continue to experiment with that movement, thereby opening up possibilities that become emergent potentialities or invitations to "move-with in ways which even yesterday we wouldn't have imagined possible" (2009, 39). The diagram below illustrates the assemblage of the theoretical frameworks we merged to underscore our research project or "dance-in-the-making."¹³



Assemblage of theoretical frameworks

Gathering and Organizing Compositional Elements

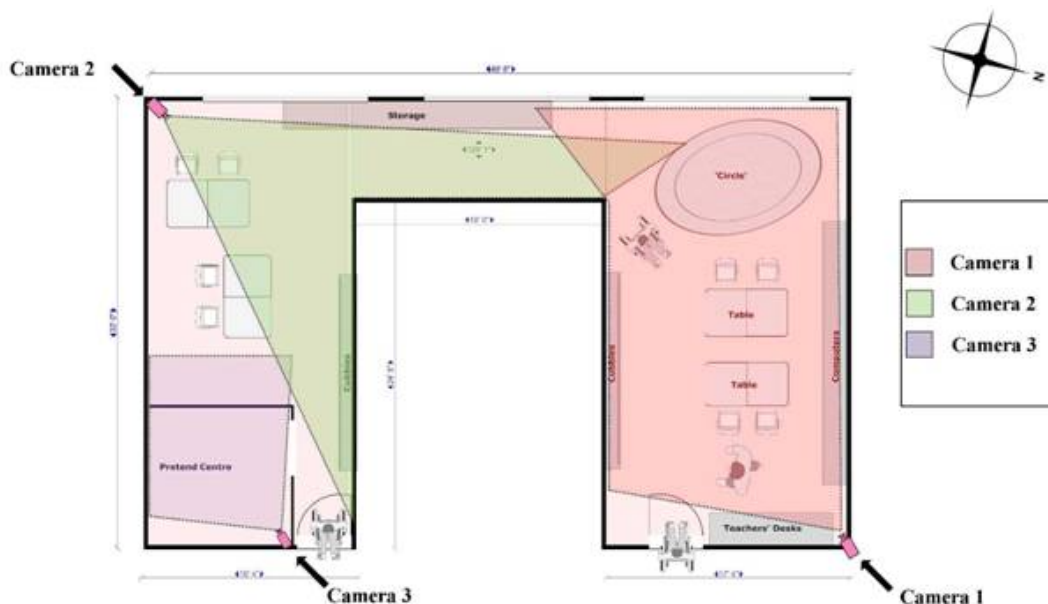
Research-Choreographic Design

Carrying out ethnographic research¹⁴ in school settings raises ethical and feasibility issues related to gaining and maintaining informed consent from the children and adults who inhabit the space. For these reasons, this focused ethnography was comprised of shorter field visits, intensive, multi-method data collection and analysis techniques, a predetermined focus, and prior knowledge of the classroom (Knoblauch 2005). After receiving ethics approval from the hospital, university, and school research ethics boards, all twenty children enrolled in the integrated kindergarten program were invited to participate and were cast as dancers. We conducted ten weekly structured observation sessions in the classroom, followed by short interviews with each child-dancer. The kindergarten teachers told us that they believed that movement was integral to learning, that they accommodated all children's strengths and weaknesses, and that they promoted understandings of equity, fair play, and diversity.

The sample/cast of child-dancers consisted of nine boys and eleven girls. Eight had mobility impairments affecting their ability to stand and/or walk independently, sensory conditions involving reduced hearing or vision, and/or mild cognitive impairments. Four of these dancers used walkers, one used a manual wheelchair, and three walked with or without ankle-foot orthoses. The remaining twelve children had no known physical or cognitive disabilities. The cast was diverse in terms of ethnicity, socioeconomic status, physical ability, and body size. The sample size was consistent with similar ethnographies designed to garner comprehensive data in a single setting (Morse 2000; Sandelowski 1995). We created colourful packages for children and parents that included study information, letters, consent/assent, and demographic forms. All textual and visual information was consistent with young children's reading abilities and assured child-dancers and parents that they had the right to withdraw from the study at any time.

Observing and Recording

Initially, Heft's modified taxonomy focused our attention on how children actualized classroom affordances. In that movement and classroom objects/features were considered co-constituting, neither was privileged. Three video cameras were mounted strategically on classroom walls to maximize and overlap fields of view.



Classroom floor plan, features, and camera positions

Video recordings augmented my direct observations and revealed those that I overlooked. Ultimately, the video recordings constituted the primary source of observational data. By staying in close proximity to the children, I noticed how they negotiated rules and shaped affordances despite teachers' admonitions to move in safe and/or socially approved ways. Hence, I began to experience the classroom physically with these children, feeling-and-sensing their movements, and the emergence of similar, past physical experiments in my own body. Following Delamont's suggestions (2001), I wrote reflexive notes following each session to record my sensations and theoretical insights, and to account for decisions made, dilemmas, reflections, and experiences as a nurse-researcher-dancer.

Seeing, Hearing, and Listening

After each observation session, I conducted twenty-minute, individual semi-structured interviews with two child-dancers. These interviews began in the Pretend Centre, a theme-related, partially enclosed area where children moved about with minimal teacher supervision. I attempted to reduce the inevitable adult-child power and size differentials by engaging in children's activities and by sitting on the floor with them during the interviews. Because children think more clearly when their bodies are in motion (Cook et al. 2008; Broaders et al. 2007), I encouraged them to move about during the interview. This enabled me to observe their gestures and movements while listening to them.

Most children spontaneously moved beyond the boundaries of the Pretend Centre and guided me on "mini-tours" of the classroom. A small, hand-held audio recorder captured their words as we moved and danced through the space. I asked them to show and/or tell me about their favourite ways of moving, things they liked/didn't like to play with, their favourite areas and how the classroom would look if they had magic powers to change it. I asked the disabled children to show and/or tell me how they liked to move with their walkers and/or wheelchairs, and the space/places where these movements could be best accomplished. Audio recordings constituted the primary source of analyzable interview data.

Analyzing Compositional Elements

Following Miles and Huberman's approaches (1994), I developed seven analytical steps to analyze the video and audio recordings. I conducted minute-by-minute analyses of the video recorded sessions (fifty-two hours of data) to identify conceptually relevant interactions between individual children and the affordances they actualized. I then created movement/affordance profiles for each child-dancer that were enhanced by field notes. Each profile included the child's movement characteristics (e.g., smooth, risky, unusual), actualized affordances (e.g., jump-off-able chairs / glide-able pathways), contextual data (where interactions occurred) and assemblages (objects, features, and moving bodies). Next I coded, displayed and expanded these profiles using Heft's functional categories. Emerging conceptual themes were tracked separately.

Movement assemblages were coded as key analytical events to enhance understanding of children's actualization of affordances. Although a taxonomy formation was integral to the analysis, it did not fully capture the dynamics and intensities of movement interactions. To redress this, I re-analyzed the video data drawing on some of Manning's concepts to describe children's encounters with assemblages of classroom objects, features, and other moving bodies. Finally, the themes that had been identified/coded in the audio/interview accounts were refined, analyzed, and compared to findings from the video analyses.

Rigorous research practices were achieved through meticulous attentiveness to the data and subsequent reflections. Analytical rigour was assured because the conceptual framework underpinned all theoretical insights. Multiple methods increased the dependability of the findings, and confirmability was established through an audit trail that clearly illustrated how conclusions were reached (Brewer 2000).

Findings (Variation) I: Classroom Affordances

The taxonomy of indoor affordances captured the children's interactions with the classroom's physical objects and features. The resulting categories included: 1) flat, relatively smooth surface or open pathway;¹⁵ 2) rigid detached objects; 3) nonrigid detached objects; 4) attached objects; 5) shelter/enclosed spaces; 6) modifiable objects; and 7) moving bodies. The categories actualized by most children and which elicited nonhabitual movements¹⁶ were: 1) the open pathway; and 2) moving bodies. Some rigid detached objects (chairs, stools and mobility devices) and nonrigid detached objects (exercise balls) afforded risky movements for nondisabled and disabled children alike. All children actualized attached objects (tables, shelves) in traditional ways and those with mobility impairments used them to stabilize their movements. Enclosed/sheltered areas (the Pretend Centre and cubbies) afforded privacy and social interaction. Pretend Centre configurations included modifiable objects (castle doors, modular chairs) that elicited creative, nonhabitual movements.

Descriptions of classroom affordances explicated the functional significance of the classroom's features (Heft 1988), but those that elicited children's "flexible potentialities" warranted my particular attention (Ross 2004, 179). The "open pathway" and "moving bodies" elicited frequent, diverse, and nonhabitual movements in most children. These movements were characterized by rhythm (e.g., running or galloping along the pathway), playing with gravitational forces (e.g., suspending and gliding-with walkers), and testing the physical limits of what bodies with a range of

abilities *could do*. In less rule-bound or prescribed areas (i.e., the pathway), children experimented, mimicked, and triggered others to move in nonhabitual ways. The relationship between the open pathway and moving bodies seemed as important as the categories themselves.

In other contexts, researchers have found that pathways are associated with social interchange (Evans and McCoy 1998; Ogden et al. 2010). Although we did not set out to examine children’s social interactions, their actualization of each other’s movements resulted in rhythmic synchrony that connected them both physically and socially. Such movement encounters did not seem to involve cognitive decision-making, but rather seemed to be reflexive, *bodily* responses to changes in movement dynamics and flow. The video data illustrated how moving bodies swept up other bodies, transformed their rhythms, and elicited new movement responses along the pathway. This finding may be attributable to the pathway’s transitional function and visibility from either side of the classroom. Furthermore, this bi-directional open space afforded children opportunities to encounter others in close physical proximity, harness their rhythms and momentums, and experiment with movement.

Rigid detached objects, the pathway, and attached objects were relate-able affordances. Depending on how children assembled them, they enhanced or inhibited movement. For example, a run-able open pathway and a glide-able walker together afforded some children the opportunity to harness the pathway-walker’s speed and momentum and facilitate their ability to skim quickly across the floor (see below). In contrast, assemblages of bodies, walkers, and tables sometimes inhibited movement by restricting children’s ability to penetrate in-between spaces (see below). Some children managed to forge through such spaces by abandoning their mobility devices and using adjacent tables or chairs to support and stabilize their movements. Essentially, where/when diverse objects and features were assembled, children negotiated the relationship between and among affordances.



Jumping-gliding girl¹⁷

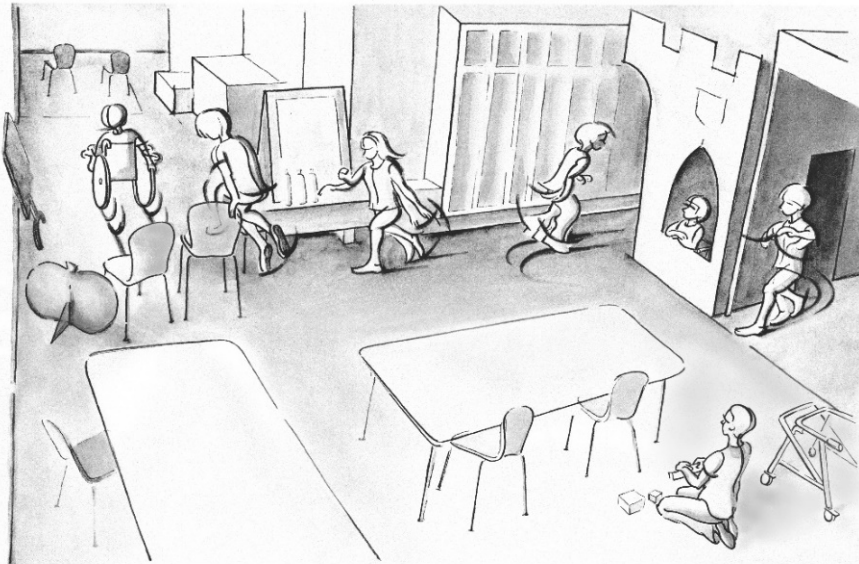


Navigating-spaces boy

In enclosed/sheltered areas such as the Pretend Centre, modifiable objects, rigid and nonrigid detached objects, and moving bodies were assembled in many ways. We had anticipated that children would move in prescribed ways in the Pretend Centre based on the learning theme and classroom rules. However, the privacy the space afforded and children’s ability to stretch the rules and move relatively freely elicited nonhabitual movements. Modifiable objects were manipulated and/or transformed with minimal adult surveillance or intrusion. All children’s bodies appeared somewhat “unhinged” in this space through unsanctioned movements, games, experiments, and risky behaviours (e.g., ball-surfing). Similar to the pathway, most children moved and played in close physical proximity to one another and frequently mimicked and triggered each other in this space.

Disabled children who were able to manoeuvre short distances device-free pushed their walkers aside in the Pretend Centre or left them at the entrance in order to move and experiment with more ease.

Although the identification and description of children's actualized classroom affordances was an important first stage of this research, the findings did not adequately describe children's engagement with the space. Missing from these categories were the seemingly imperceptible and intangible variations of movement that became visible to me when I saw-and-felt them as a dancer. I realized that Heft's categories overlooked the relationship between actualized affordances and the movements they incited: the swirls-and cascades of activity and the ways children moved (or almost moved) in response to the movement intensities. I could not ignore the changes in rhythm, movement phrasing, and the recombination of bodies, objects and features and their intensive affects. Using my choreographic lens and guided by Manning, I describe next how these intensities became visible and transformed children's interactions during one notable movement event.

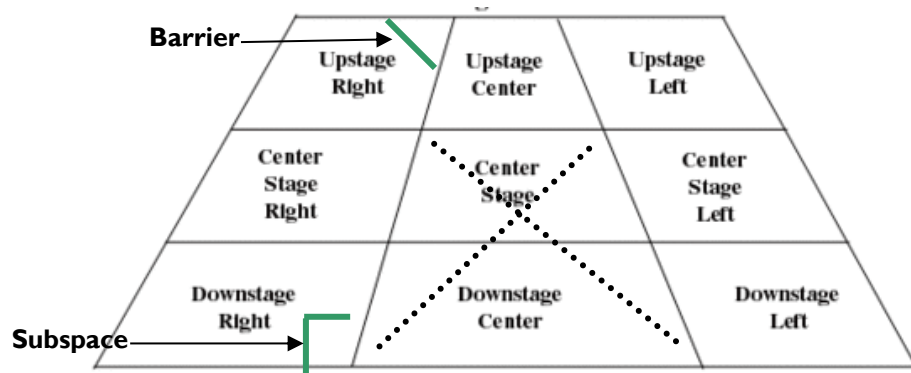


A movement event (classroom, south side)

Findings (Variation) 2: The Classroom Event

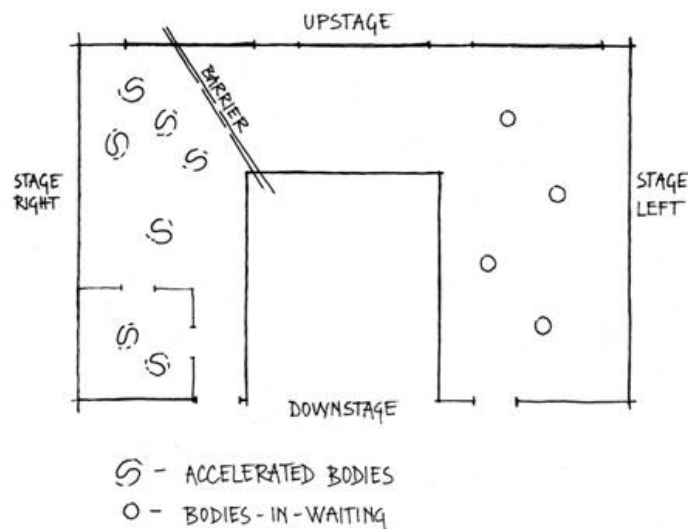
Da capo: Accelerando¹⁸

All twenty child-dancers had gathered on the classroom-stage when the event emerged. They were playing an improvised game that they referred to as the Secret Club. Although the rules seemed fluid, I understood through observations and interviews/informal conversations with the dancers that the game only included children, a newly configured physical barrier (a collection of chairs and objects upstage right), a modified feature (the castle subspace downstage right), and at least seven child-dancers to begin the game (see diagram below). Their unanticipated encounters with each other and the newly configured space elicited new ways of responding and/or moving.

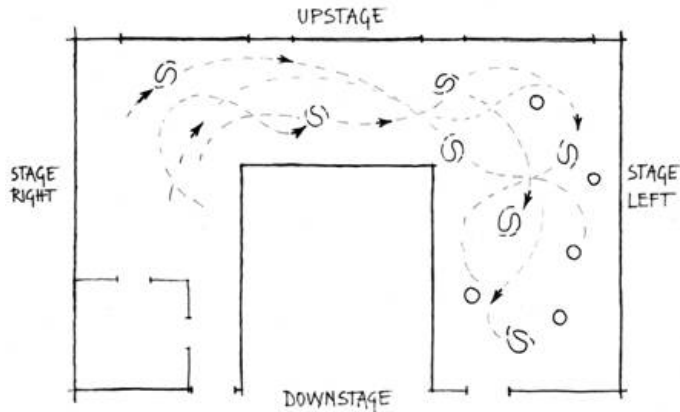


Classroom-stage areas

Although it was impossible to discern how or when the game began to change, interactions between child-dancers and the newly configured space gained momentum stage right. The change in speed felt palpable to me. Unanticipated encounters seemed to elicit excitement in the dancers as they accelerated their movement forwards, backwards, sideways and around. When I observed the game on video, I saw children mirror each other and mimic rhythms, i.e., running-and-gliding, jumping-and-galloping, suspending-falling-and-rocking. I saw only differential speeds, rhythms, momentums, and flows. Bodies collided and the pressure on stage right seemed to increase to a point when/where movement could not be contained (see diagram below).¹⁹ Accelerated bodies dismantled the barrier to follow lines of flight, seemingly freed to travel having pushed past this critical threshold. Moving bodies permeated all areas of the stage, i.e. jumping-and-climbing over the barrier, gliding-with-walkers along the pathway, spinning-with-wheelchairs and hiding-behind castle walls. Movement flowed along the pathway and spilled on to stage left (see diagram below). The cascade of bodies and objects seemed to sweep up other bodies-in-waiting, i.e., gathering, carrying, and releasing them to other areas and spaces. I followed these lines and watched them transform into jig-like-dances and other deterritorialized refrains—dancers in search of new territories, experiments, intersections, and terrains.



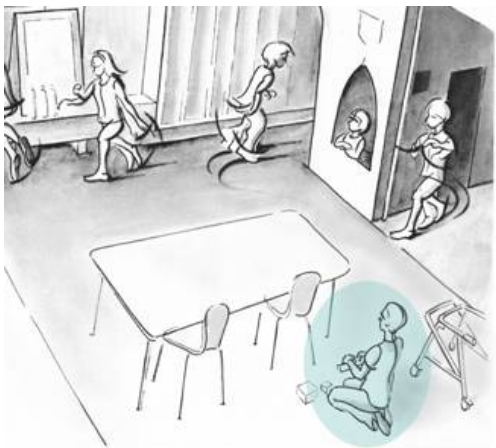
Accelerated bodies contained



Accelerated bodies released

Glissando²⁰

Although a five-year-old boy belonged to the Secret Club, his involvement in the event fluctuated with the movements and speeds that moved and/or spilled in front of him, and when there was not enough space for his body-and-walker to mirror these rhythms. I frequently observed this dancer sitting along the periphery of the classroom (see below). His neurological impairment affected his gait, balance, and coordination, making his movements unsteady and shaky. However, his movement difficulties did not seem to deter him from regularly exploring the classroom-stage and its transformations. He took physical risks such as abandoning his walker, dropping to his knees to crawl through cramped spaces, running-and-gliding with his walker along the pathway, and using the device to crash through objects and barriers. Typically he took these risks to be near, follow, and/or move with other dancers.



Watching-and-playing (centre stage right)

When the event emerged, this dancer was kneeling and playing alone centre stage right, close to other dancers moving. He watched from this vantage point for several minutes before he took a circuitous route with his walker toward the newly configured barrier. He paused at the threshold and then used his walker-turned-snow-plough to crash into, dismantle, and push past the barrier. As other children rushed and spilled past him, he followed them and picked up their speed. In a moment of apparent weightlessness, he pressed down on his walker, thrust his legs forward, harnessed his speed, and glided uninterrupted along the pathway. His glissando-like movement made

it impossible for me to differentiate his body-from-walker-from-pathway. Other dancers mirrored his rhythm and speed, running, sliding and skipping a short distance behind him. He repeated the glissando over and over again, seeming to urge his body-and-walker to stretch further and move faster each time.



Gliding-walker-pathway-boy

When I spoke to this dancer, he likened his body-walker to a police car, suggesting that the movement intensities this assemblage created (i.e., changes in acceleration, momentums, rhythms and flows) were as important to him as the individual components of the assemblage (body, walker, pathway). Although he did not respond to my direct question about what it was like to glide along the pathway, he indirectly answered this question when I asked him to describe his favourite way of moving around the classroom-stage:

DP: I like driving my police car!

CM: Oh that's right. Your walker is your police car. That must be fun.

DP: Yep. I can go fast you know.

CM: Show me again how you do that (ran, picked up his feet and glided along the pathway).

Wow! Are you okay? Did it protect you?

DP: Yep!

Recapitulation/Conclusions

Our findings suggest that thinking-and-doing movement comprises a large part of young children's school lives. They concur with Deleuze's/Manning's belief that the capacity to move is immanent in all encounters. By observing disabled and nondisabled children interactions, we witnessed their desire to move and experiment with classroom affordances. These desires were accompanied by a physical tenacity that seemed to drive even the most cautious children to escape their physical limitations. In their interview accounts, children compared and/or described their movements according to the rhythms and the physical sensations that were elicited in their bodies. Regardless of their physical abilities, children sought out and assembled affordances to test gravity, experience changes in speed, incite new rhythms and elicit novel, nonhabitual ways of moving.

We concur with Manning's assertion (2009) that objects-and-spaces can become thresholds for thinking-feeling. Our findings indicate that children's perceptions of objects are not limited to seeing objects they can use and/or play with. Children perceive-with objects, "participating in the relations they call forth" (2009, 81) and finding ways to reconfigure and/or assemble them into something that moves beyond their "matter forms." Disabled and nondisabled children's bodies alike were swept-up by other bodies seemingly in search of integration and/or fusion-with environmental affordances. Hence, this cast of child-dancers dismantled ways of thinking about human capacity by smoothing-out the boundaries between their bodies-and-objects and reconstituting themselves as capable in recombination.

This conclusion is supported by behavioural and neurophysiological research that indicates that action perceived (e.g., seeing someone running or dancing) activates representations of corresponding motor programs in the perceiver (Rizzolatti and Sinigaglia 2010). Currently, researchers are exploring how this "motor resonance" or "mirroring" contributes to interpersonal coordination. For example, Satori et al. (2011) found that the mechanisms underlying action observation are flexible and highly responsive to the social dimensions of environments. These findings suggest that observation/execution matching systems in human brains may constitute the cortical substrate not only for thinking about and/or imitating observed movements but also responding to movements in complementary ways.

Coda²¹

Composer Burkhart (2005) suggests that having gathered momentum and worked through ideas to their structural conclusions, codas "look back" and bring closure to a composition. Although a sense of "finality" characterizes most codas, many retain their own interest and offer additional information. The purpose of the present coda is not to bring our "dance-in-the-making" to a conclusive end. Instead, we "look ahead" and consider ways this research could be extended, re-interpreted, re-danced or rewritten.

According to Deleuze and Guattari (1987), new ways of thinking do not emerge between knowing and not knowing. Instead, they emerge through the disruption of ordinary movements, habits, and notions. Revealing children's movement encounters using a research-choreographic framework revealed new ways for us to see-and-think about children and their movement at school. This disruption supported our interest in hybrid observation/creation methodologies that simultaneously engage artistic and scientific sensitivities. Dance provides a powerful anchoring for movement exploration. Our emergent methodological focus warrants further applications to understand its contributions to scientific enquiry. Innovative collaborations among dance artists, educators, health care professionals, disability researchers and children may have the potential to reframe design, rehabilitation, and educational practices and enhance opportunities for all children to move and thrive in their environments.

To conclude, Deleuze argued that by making language "grow from the middle," it becomes possible to rethink that which we no longer understand, situations we no longer know how to react to, in spaces we no longer know how to describe (1985). Our study reflects one attempt to rethink and describe that which remains difficult to understand. Description of children's dancing-bodies and moving-spaces provides only a glimpse of their school lives and relational encounters. However, by "miring language" within the affective tonalities of these relationships and keeping words and ideas

on a plane of composition, thinking, writing and dancing these bodies-and-spaces into worlds better known may be entirely possible.

Notes

1. Human movement or “gait” labs are used to assess and determine optimal treatment for children and/or adults with orthopaedic and neuromuscular disorders such as cerebral palsy.
2. McLaren’s PhD committee included Patricia McKeever (Nursing, University of Toronto), Tom Chau (Biomedical Engineering, University of Toronto), Geoffrey Edwards (Geomatic Sciences, Laval University), Susan Ruddick (Geography, University of Toronto), and Karl Zabjek (Physical Therapy, University of Toronto).
3. Underpinned by Spinoza’s question “what can a body do,” our study aligns with curator Amanda Cachia’s interest in this question to reconfigure understandings of the dis/abled body (2012). Nine contemporary artists demonstrated new possibilities across a range of media by exploring bodily configurations in figurative and abstract forms to challenge entrenched views of disability and destabilize reductive representations of diverse bodies. We extend these ideas to children’s moving bodies, replete with unknown physical capacities unleashed by spontaneous, real-life encounters at school.
4. This research is described in the following section, Prelude.
5. William Forsythe is acknowledged for reorienting the practice of ballet from its identification with classical repertoire to a dynamic twenty-first-century art form. His interest in the fundamental principles of organization has led him to produce a wide range of projects including installations, films, and web-based knowledge creation.
6. Pierre-Félix Guattari is best known for his collaborative publications with Gilles Deleuze, most notably *Anti-Oedipus* (1972) and *A Thousand Plateaus* (1987). He was a psychotherapist, philosopher, and semiotician.
7. The phrase “dance-in-the-making” is derived from Erin Manning’s Deleuzian-inspired conceptualization of relational movement. Key concepts originated by Manning are described in Section 2, Improvising a Framework.
8. The prefrontal cortex is critical for cognitive processing and learning, whereas the cerebellum is critical for motor actions and skills.
9. Bodily control was articulated by Michel Foucault in *Discipline and Punish: Birth of the Prison* (1975).
10. Inclusive education is based on the principles of acceptance and inclusion of all students. Students see themselves reflected in their curriculum, their physical surroundings, and the broader environment, in which diversity is honoured and all individuals are respected (Ontario Ministry of Education, 2009).
11. Brian Massumi is a political theorist, writer, and philosopher well known for his translations of several major texts in French post-structuralist theory, including Deleuze and Guattari’s *A Thousand Plateaus* (1987).
12. Erin Manning is a Canadian philosopher and founder of the Sense Lab, an interdisciplinary research laboratory and international network focused on intersections between philosophy and the body in motion. Notable works include *Relationescapes: Movement, Art, Philosophy* (2009), and *The Minor Gesture* (2016).
13. The use of hyphens between words stems from Manning’s concern with the malleability of concepts that move, the expressivity of thoughts as they become feelings/actions, and the ontogenetic potential of ideas as they become articulations. She argues that to come to language is to feel the form-taking of concepts (2009).
14. Ethnographic research focuses on detailed, in-depth description of everyday life and practice.
15. This space primarily serves as a corridor for children and staff to move from one side of the room to the other.

16. Nonhabitual movements are defined as creative “cracks in habit,” i.e., rare, inventive and/or indescribable movements performed by a particular child.
17. Through an iterative process with artist Jana Osterman, sketches derived from video data evolved to portray: 1) accuracy over interpretation; 2) a sense of dynamic movement; and 3) conceptual continuity, i.e., images that emphasized the interrelatedness of bodies and the environment.
18. da ca•po, music. *adj.* from the beginning; ac•cel•er•an•do, music. *adv.* & *adj.* gradually accelerating or quickening in time.
19. According to Deleuze and Guattari, a diagram is a technique or series of techniques for the open conjugation of intensities (1987, as cited by Manning 2009).
20. glis•san•do, music. *adj.,n.* performed with a gliding effect by sliding one or more fingers rapidly over the keys of a piano or strings of a harp.
21. co•da, music. *n.* The concluding passage of a movement or composition that is distinct from the main structure.

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