

DANCE AS A COMPLEMENTARY PEDAGOGIC TOOL IN ARCHITECTURAL EDUCATION

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ABSTRACT

Architectural education is complex as it requires the development of both objective and subjective knowledge. While explicit knowledge that meets the trends in universities to create value by preparing students for industry, are easier to include in a curriculum, implicit knowledge based on personal experience that facilitates flexibility and creativity is more challenging. An example in the training of future architects is highlighted by the tendency to rely heavily on the visual sense in relation to buildings, which tends to objectify them, thereby ignoring their experiential components. The move towards digital applications in design further alienates the designers from this experiential aspect, as the technology leads to disembodiment and hence the sensitivity to subjective aspects of design. Design of space is influenced subconsciously by habitual patterns of behaviour embedded culturally and autobiographically in body memory. Dance as a complementary pedagogic tool can develop understanding of self and the body, bringing such habitual patterns into awareness. In addition to creating awareness, dance offers the tools to explore alternatives, creating a new meaning and relationship to space thus aiding the design skills of students. A curriculum that includes the subjective and autobiographical aspects of the student reflects the educational theory of *Currere* proposed by William Pinar and a pedagogic approach that reflects the theories of Georgio Agamben's "rhythm" and Alfred Whitehead's "cycles in learning".

Keywords: architectural pedagogy, dance, digital application, design, knowledge creation

INTRODUCTION

One of the challenges facing university education is the tension between the different requirements and expectations of industry and the economy and, the soft skills needed in a knowledge-based society that places value on creativity and ingenuity (Hargreaves 2003). External pressures from government, funders, and industry put pressure on universities to create value for money (Deem, Hillyard, and Reed 2007). The danger of only focusing on a curriculum driven by these pressures means that softer skills based on creativity and personal exploration assume lower priority. This is evident in architectural education where the requirements of the profession demand clearly defined skills and competencies. Expediency in teaching these

dictates a teaching model in which students are seen as a homogenous group passively receiving (Crysler 1995) a standardized curriculum (Hargreaves 2003).

Yet as Hargreaves (2003) points out, it is precisely the ability to be flexible and creative that will allow students to adapt to an ever-changing society. Educators find themselves caught up in the complexity of addressing such diverse requirements, as for example in architectural education, focusing on the immediate skills required to function as competent architects, and simultaneously providing the tools for students to adapt and change in the future (Kanu and Glor 2006). While the requirements of the profession are fixed by external factors in the industry, the development of metaskills in students that facilitate future flexibility, are by more fluid. One of the ways this aspect of a curriculum can remain relevant was first proposed by William Pinar (1975) through his method of *Currere*. This method can be applied as a pedagogic approach that utilises autobiographical material and one's own existential experience as a source of self-awareness that allows future development (Pinar 1975; Kanu and Glor 2006; Sierk 2014; Soare 2018). A pedagogic approach that encourages self-exploration is one where the student actively engages in thinking and creating their own educational experience.

Within the context of *Currere*, Jessica Sierk (2014) identifies "soulful moments" as providing opportunities for a curriculum to be a "living entity" that can adapt. This exploration is characterised by unforeseen moments that arise through improvisation which can be facilitated through something like dance improvisation. Another aspect of *Currere* that aligns with dance is the development of agency. Employing autobiographical data in conjunction with a process of self-reflection allows the student to actively engage in their own development.

This article proposes to use dance as a tool for developing metaskills (Amy Mindell 2003) that facilitate flexibility. Dance is a universal human activity (C. Sachs 1937) making it possible to cross the barriers that one might otherwise find, such as in language. Dance includes body movements contained and structured within spatial frameworks. This incorporates both the external space through which one moves and an internal body map (Longstaff 1996; Leisman and Aviv 2019). Despite the subjective nature of dance, it can be used as a pedagogic tool including cognitive functions such as knowledge creation and self-reflection (Shusterman 2006; Kirsh 2010; Loftus 2013; Sheets-Johnstone 2010; Boyce 2011). Enactivism sets out the position that cognition takes place through a dynamic interaction between a person and their environment. Movement is a critical aspect of this process and plays a role in learning, knowledge creation and sense-making (Merrit 2013). Dance improvisation mirrors the process in a controlled environment thus contributing to its value as a pedagogic tool (Sheets-Johnstone 2010). Thinking and knowledge creation are not seen as being separate functions but are integral to the whole-body experience of the dancer as discussed below.

Architectural education is complex and draws on various disciplines (Saridar 2017). However, at its core, architecture is about creating the spaces within which human activities take place. To become proficient in the design of space, one of the primary metaskills (Amy Mindell 2003; Neumeier 2013) architectural students need to develop is that of spatial intelligence (Van Schaik 2008). This is challenging to teach, as it relies on both objective and subjective sources of knowledge. Subjective and personal relationships to space are shaped by autobiographical and cultural factors (Bourdieu 1989; Huang 2019), which influence architectural designers at a subconscious level. Entrained thinking (Snowden and Boone 2007) means that students will automatically respond to spatial problems from their own perspective. As this knowledge is implicit, there is a need to bring tacit knowledge into awareness to avoid all future spatial design considerations of the student from being determined subconsciously. Educational practices that focus on intellectual transmission of knowledge tend to dissociate the body and wealth of implicit or tacit knowledge, such as that held through body memory. Individual conceptualisation of space is an example of knowledge held in implicit memory. This type of knowledge is difficult to articulate through verbal or written media, let alone to successfully transfer it through teaching. Relationship to space is formed through habitual patterns of movement, which invariably include an emotional component. One of the ways in which awareness of tacit knowledge can be accessed is through movement and dance (Vroman et al. 2012).

Dance incorporated as a pedagogic approach to architectural education reflects the theories of Agamben's "rhythm" and Whitehead's "cycles in learning". Alfred Whitehead cited in (Lewis 2011) proposes that learning is composed of alternating cycles of freedom, discipline, and reflection. These three phases set out the notion that learning consists of moments of self-discovery, engaging with specific knowledge, and finally the freedom to reflect from a new perspective.

The distinction between non-directed and directed learning can be framed in terms of Italian philosopher, Giorgio Agamben distinction between poiesis and praxis. Praxis is wilful action with intention and a definite outcome, while poiesis represents an open state of potential (Lewis 2011). Poiesis is the rhythm that Agamben describes as a process in which linear time is disrupted and defining and seeking to solve a problem in a linear fashion is suspended (Lewis 2011). Poiesis encapsulates both problem and solution in a state of being which Sheets-Johnstone (1990; 2013) articulates as *spatio-temporal-energetic* when she discusses the dancing body. In dance, time and space are not outside of the experience but are set up as an integrated kinesthetic experience a spatio-temporal framework in which thinking and learning take place in a non-linear manner (Boyce 2011; Loftus 2013; Kirsh 2010; Sheets-Johnstone

2005).

Poiesis and praxis are not incompatible, and a pedagogic approach that integrates these encourages a creative environment of learning by facilitating a free and inquiring learning environment (Davids and Waghid 2017). Learning should not only be seen as the accumulation of skills, exam grades and, fulfilling industry requirements that leaves little room for the personal development and engagement of the student. Davids and Waghid (2017) conclude that by being open to the rhythm of both poiesis and praxis can make work both productive and creative. Self-awareness contributes to success in the workplace by developing the skills to interrogate and make good choices (Eurich 2017; 2019). Developing self-awareness is one of the characteristics of dance (Schwender et al. 2018).

The collaboration between architecture and dance has a long and varied history. The most famous example in the field of education is the Bauhaus movement founded by Walter Gropius in Weimer, Germany in 1919. This institution integrated architecture, the visual arts, and theatre, supporting the notion that the creative work and experience can give rise to knowledge (Schlemmer et al. 2015). The practice of including dance in the design studio to create knowledge through, and explore space from, an emotional experiential perspective has continued (Ersoy 2011; Gavrilou 2003). The relationship between architecture in the form of flexible stage sets and movement has been explored by choreographer Martine Moeller (2006) in various works. These works are an exploration of how movement can shape space and vice versa. Within architectural practice and urban design, dance has been used to explore the relationship to site (Barbour and Hitchmough 2014; Brown 2015; Hunter 2005; 2015a; 2015c). One of the most famous examples is Lawrence Hatpin's work in the city of Portland, Oregon (Merriman 2010; Wasserman 2009). Here the public space was choreographed through exploration of movement, which included his wife, choreographer and dancer, Anna Halprin. This movement is embedded in the work and is designed to evoke a dynamic engagement by the public. The diversity of projects and different ways in which dance has been applied demonstrates the value and flexibility of dance as an aid in architectural design. Much like any other medium such as drawing, photography, model building, dance can be used as a tool for exploration and learning.

Movement through space is one of the connections shared by dance and architecture. The connection between dance and architecture creates a cross-modal learning opportunity. The aim of such learning is to develop spatial intelligence in architectural students, by bringing a deeper awareness to the body through its movement in space. However, if dance is to be used in architectural education, clarity is required to understand not only how dance could be used and to what purpose, but more importantly to understand *how* dance works and *why* dance works.

With a better understanding, the use of dance as a pedagogic tool can be better guided and used to its maximum potential. Unlike language (to which dance is often compared), the component movements in dance are themselves not symbolic and by definition, as a body-based practice, the experience cannot be directly translated intellectually (Sheets-Johnstone 2011). The experience within a dance creates a self-contained and valid body of knowledge. This can later be explored through language, despite the fact that language does not really describe the actual experience. The aim of dance therefore, is not to substitute traditional modes of learning but to add to the creation of knowledge based on experience. Embodied knowledge is not aimed at achieving specific external outcomes that can be translated into specific skills, but involves the psychological and mental development of students as they create their own meaning through the dance. The desired outcome of better designers is not due to the acquisition of skills, but rather the personal development of the students themselves as greater awareness is brought to behaviour normally driven by the subconscious and habitual behaviour. In this way, dance becomes a complementary but powerful tool for the development of design skills and related outcomes, such as spatial awareness. The fact that dance is non-verbal means that it can create knowledge without the challenges faced by the diversity of multiple languages (Janse van Rensburg 2015). Dance has the power to generate sophisticated spatial concepts in students who have had minimal or no other architectural education (Daskalagos 2019).

DANCE

Dance has always existed as an integral part of human culture (Dale, Hyatt, and Hollerman 2007; Ehrenreich 2006; Sachs 1937; Sheets-Johnstone 2005). It is an activity that interphases with many aspects of human expression, communication and education, making it both complex and by necessity multidisciplinary (Hanna 1987). This makes a definition of dance difficult to formulate. However, broadly speaking, the literature tends to place dance on one end of a spectrum of human movement without an end in itself (Royce 1977), to structured movement intended to give expression to ideas and feelings on the other (Dale et al. 2007). When the definition of dance is limited to movement or mere aesthetics, the opportunity to explore further the power of dance in other spheres, such as in therapy and education, is lost (Spencer 1985). In her definition of dance, anthropologist Judith Hanna encompasses the many aspects of dance as, “human behaviour composed, from the dancer’s perspective, of (1) purposeful, (2) intentionally rhythmical, and (3) culturally patterned sequences of (4a) nonverbal body movements (4b) other than ordinary motor activities, (4c) the motion having inherent and aesthetic value,” (Hanna 1987, 19). As a working definition within the context of this article, the proposal is that dance is defined by three aspects, as intentional

movement accompanied by sound with express intention. The inclusion and interrelationship of these three aspects (movement, sound and intention) form the foundation of what sets dance apart from other goal orientated human movement and gives it its power.

HABITUAL PATTERNS OF BEHAVIOUR

Physically moving through space plays an important role in the experience and understanding of our environment and the world around us. These actions and experiences are not, however, conscious processes; over time, they are translated into a tacit knowledge of the world, which leads to habitual patterns of behaviour. Developing tacit knowledge of space is an important part of professional skill (Klemmer, Harmann, and Takayama 2006; Van Schaik 2008) and cannot be assumed to develop of its own accord.

Kinaesthesia as the primary sense of movement leads to the development of kinaesthetic memory (Sheets-Johnstone 2011). This is muscular and skeletal memories encoded as invariants in the body (Heuer 1991). An invariant is an embedded movement pattern in the body held within the skeletal and muscle structures and is triggered by emotion (Damasio 2006; Dael, Mortillaro, and Scherer 2012; Lhommet and Marsella 2014; Keleman 1985). The first reaction when confronted with any situation is emotional, referred to by Daniel Goleman (1995) as “amygdala hijacking”. This is because all environmental stimuli will first activate an instinctive reaction, which precedes rational thought. Any conscious decision on how to act follows, after being triggered by the invariants. Every situation has its own invariant pattern, which Damasio (2006) calls somatic markers. At the forefront of an invariant is the body’s reaction, stimulated by the emotion as (for instance) a change in heart rate. Action will automatically follow before any cognitive thought. A dramatic example of this is expecting to be pricked by something sharp, or suddenly coming into contact with something very hot or very cold. An invariant is a whole-body experience stimulated by emotion, and to change this pattern requires an intervention that can circumvent the automatic emotional response. While some invariants are a necessary part of survival, others have become habitual patterns of behaviour based on an earlier experience and may no longer be of use. Dance is well placed to create new experiences with the entire body, creating new possibilities for any given situation. Dance, and in particular music, evokes emotion. In the context of learning, new patterns stimulating emotion means that first, something that is automatic or subconscious can come into awareness, facilitating more choice in future actions. Second, stimulating emotion creates the opportunity to safely experience, amplify and discharge the emotion as appropriate (Sachs, Damasio, and Habibi 2015).

Each invariant has an emotional component, which becomes the trigger for determining

habitual patterns of movement and interaction in response to similar external stimuli. Re-learning becomes possible when new physical and emotional response patterns are imprinted onto the body, through the implicit knowledge of muscle memory. Emotion, movement and memory are not discrete experiences and invariants include a number of reference points in a holistic system, which is instrumental in both establishing new memory and recollecting old ones. The combination of movement and emotion in dance exposes the dancer to new and alternative possibilities, which are real-time simulations involving being both totally present (“Present-ness”) and include physical, emotional and cognitive participation (“Whole-ness”). Dance is not an abstract process of imagination or contemplation – it is an experience in real time. When an event is first experienced, it is integrated into muscle memory and becomes a pattern (or habit), so that when we have to subsequently execute the same action, we do not have to ‘re-learn’ an appropriate response, but can instead draw on this implicit memory. The emotional content of that experience will also play a determining factor in the way we execute any similar future action (Damasio 2006; Keleman 1985; Robles, Viera, and Pérez 2014).

Habitual patterns of behaviour are largely subconscious, and it would not be easy to change these through merely directing the rational mind to do so. The amygdala, which processes the emotional aspects of action, cannot be engaged consciously. The memories that constitute habituation are emotional and sensory; to change these would require entering into whole-body experiences, which would provide the opportunity for re-learning (Toro Arañeda 2009).

The experiential/implicit knowledge, generated by an interaction between an individual and space, forms the framework within which they operate (Marmeleira and Santos 2019). This embedded knowledge is drawn upon during the architectural design process. This is done subconsciously, as the invariant is held deep in the body structure (Silk 1996). The aim of dance is to bring awareness to habitual movement patterns and to the relationship between the dancer and space. This aspect of creating knowledge through movement uses dance to expand the awareness of architectural space (Alaçam, Kotnik, and Çağdaş 2014). Klemmer et al. (2006) and Sheets-Johnstone (2010) refer to this as “thinking through movement”, and describe how the integration of body (movement) and mind (thought) are instrumental in learning.

ARCHITECTURE

Over time, architectural pedagogy has developed from the simple action of describing buildings as static structures or objects in space, to a discipline that recognises the dynamic aspects of space as an experiential event, which includes a temporal component through movement (Harris 2014). However, all too often design reverts to simple engagement with a building, which relies

heavily on visual interpretation (Virilio 1994). This can in part also be attributed to the progressive disembodiment created by digital applications. Dance offers a way of returning to engaging with and understanding space through an embodied experience. This practice encourages students to go beyond the visual and utilitarian aspects of building spaces, into engaging with subjective aspects, thus creating a different level of awareness that can only really be explored through personal bodily experiences (Ersoy 2011).

The proposal is that dance can be used as a complementary tool in architectural education, to balance the tendency of treating a building as an object devoid of experience and the shift toward disembodiment brought about by three things: an educational approach that places greater importance on explicit and empirical knowledge, the predominance of the visual sense, and the need to develop competent skills in digital applications. By its very nature, architectural design is a process that begins with ephemeral abstract ideas that gradually take form through drawings to eventually become manifest as solid structures. While the technical and ergonomic requirement of the final building can be taught, the ephemeral aspects of which spatial intelligence is one, cannot.

VISUAL SENSE

The visual sense has become dominant in our interaction with the world, especially in Western cultures, where we are continuously bombarded with visual stimulation (Colavita 1974; Sinnett, Spence, and Soto-Faraco 2007; Sheets-Johnstone 1990). For example, this is clear in the important role the visual sense plays in social interactions (Ellyson and Dovidio 1985) and motor learning (Tloczynski 1993). This is interesting, as visual stimuli are relatively weak in comparison to other senses, particularly auditory stimuli, which suggests that visual dominance arose from the need to pay additional attention to it (Li et al. 2017; Posner, Nissen, and Klein 1976).

Architectural design and representation tend to rely on the visual sense. Drawings that are usually composed of plans, sections and elevations fail to convey experiential aspects, such as time and movement through space. By definition, a drawing represents a static state, often devoid of qualitative aspects necessary to create relevant architecture (Virilio 1994). Architectural drawings that focus on representing the building in this fixed state focus on the objective requirements of space, alienating the subjective and embodied experience of space (Vroman and Lagrange 2019). To achieve sound architectural design, it is important to include both the objective and subjective requirements of the body, thereby incorporating the whole person (Fitch 1965). Unfortunately, three-dimensional digital applications extend this dissociation and encourage the treatment of the design and building as an object, not an

experience.

DIGITAL APPLICATIONS

Prior to the introduction of digital applications, architectural design was closely related to space and time, with a closer link between building, medium of design, and architectural representation (Rosenberg 2015). Using digital media is a disembodied process. Through this process of abstraction, we lose the haptic and tactile connection to the world (Alaçam et al. 2014). The movements we employ when engaged in drawing by computer-aided design (CAD) are removed from the experience of the concepts that are being represented. Whereas in drawing the hand (to some extent) follows the action of that which is being drawn, the keyboard does not. Klemmer et al. (2006) makes a distinction between two types of action as “pragmatic” and “epistemic”. Pragmatic action manipulates objects in space to accomplish a given task directly, whereas epistemic actions bear no resemblance to their intended outcome. To draw a line or a curve by hand is very different from typing or using the mouse to create digital vectors on a screen. Pragmatic action allows for improvisation, exploration and understanding different options through the movement itself – thinking through the movement. Engagement through the body and senses allows for a reflective process to take place instantaneously. For example, the act of drawing is directly related to the designer in time and space, and contains an embodied relationship between them. The digital space sets up an alternative virtual space dissociated from the designer. The act of drawing now becomes the manipulation of a mouse and keyboard, where all elements of the design are produced in the same way and are one step removed from physical reality. The architectural designer operates in what are essentially two realities, and Popat (2015) draws attention to the possibility of a hierarchy between these physical and virtual realities. Virtual space takes precedence in the act of designing, using digital applications and the question arises as to the role of movement and how the physical body encounters and interacts in these spaces. The generation of abstract and conceptual ideas cannot rely solely on digital applications, especially in the early stages of design. “In order to gain a holistic insight, we need to factor in the body, which perceives and interacts in-the-world through sensory-motor experience and cognitive processes,” (Alaçam and Çağdaş 2016, 312). The result is a poorer appreciation of the effect of space that ordinarily refers to those qualities that extend beyond the objective and measurable aspects of design. Furthermore, as we become more reliant on digital models, we risk losing awareness of the animate body in architecture (Spurr 2007). Not only do technical drawings tend to be absent of people, but the manner in which precedents are studied also objectifies the building, excluding experience and human presence (Mitchell 2009; O’Neill 2001). The use of digital applications reflects a mechanistic paradigm

of production with a division between thinking and doing, “where we witnessed the division of ‘thought and action’, ‘conception and execution’, ‘hand and mind’ in several disciplines, including the field of architecture,” (Alaçam et al. 2014, 1). A mechanistic mode of production can reduce architectural design and representation to a rational and objective description of space in terms of plans, sections and elevations, while ignoring the body and its subjective experience of that space (Salama 2008; Vroman et al. 2012). This subjective experience of space is difficult enough to express, let alone teach. Dance as a complementary pedagogy can bring awareness through the body to the subconscious embodied relationship of designer to space, opening up the possibility of including this during the design process. Dance generates non-verbal knowledge, which is difficult for second-person interpretation, but which is expressed directly by the dancer, as expressive movements and patterns in space (Vroman et al. 2012). Interpretation of these experience does need to be integrated and made conscious (Perry and Medina 2011), and therefore dance in the context of architectural education is complementary and should be integrated within a comprehensive programme, balancing the effects of disembodiment.

DEVELOPING SPATIAL INTELLIGENCE

Architectural space cannot be separated from the lived experience. Moving through and occupying architectural space is influenced by intention, emotion and past experience. While space can be described objectively through measurement, subjective knowledge of space is reliant on feelings and sensations emanating from the body, creating a personal reality that is generally perceived as meaningful (Madsbjerg 2017). We carry with us the memory of all the spaces we have ever inhabited (Sheets-Johnstone 2011), as the archetypes that are embodied subconsciously (Chodorow 2013; Arnold Mindell 1993), and this will determine how we experience and design space. This aspect of architectural space is a qualitative experience closely related to human experience and behaviour (Vroman and Lagrange 2019). In particular, individual experience and cultural influences shape personal experiences of space, which begin to define personal identity (Bronet and Schumacher 1998; Montello 1995). This embodied sense of space is so entrenched that it becomes difficult to differentiate it from our identity. One of the ways in which we define ourselves is through continuous interaction with the environment. Dance includes the concept of wholeness and helps to facilitate a rediscovery of self, and in this context, self in relation to space (Sansom 2011).

When confronted with language in this context, syntax and meaning can be confusing, which limits an intellectual approach to teaching anything about architectural space. Knowledge acquired through dance is non-verbal, which can potentially offer an alternative

and complementary channel of learning. Dance is able to create knowledge through senses beyond the cognitive. Information is created through the body as a felt experience; through physical sensation and emotion (Silk 1996).

The kinaesthetic sense is what connects us to awareness of our own body movement in space (Farnell and Miller Jr 2015; Jones 2000). It plays an important role in experiencing architectural space, and conversely can be used by the imagination as a tool to visualise the sensuous potential of design (Brabrand 2005). Improvisation of movement provides an opportunity for imagination and creativity to create knowledge and intellectual growth (González 2019; Hagendoorn 2003; Hermans 2002; 2015; Ririe 2002; Silk 1996; Wright 2018). By exploring the experience of space through the dance, it is possible to connect with the experiential aspects of personal emotions and meaning. The knowledge created through direct experience can never be interpreted by a spectator and by extension cannot be taught either. Knowledge is communicated through expressive movements, which are closely connected to emotion and meaning (Arnheim and McNeill 1994; Coeckelbergh 2013; Dael et al. 2012; Damasio 2006; Duclos et al. 1989; Farnell 1996; Goldin-Meadow 2000; Lhommet and Marsella 2014). Dance is often referred to as a universal language, with music postures, gestures and movements that can be understood cross-culturally (Balkwill and Thompson 1999; Fritz et al. 2013; Maiello 1999; Russel 1994), making dance an appropriate vehicle for investigation and learning. Dance is proposed as a complementary pedagogic tool and the knowledge gained implicitly through the body would need to be integrated explicitly. This can be done through processes of reflection (Niedderer and Reilly 2011; N. Thompson and Pascal 2012), which could lead to further investigation of movement, creating a cycle of learning (Vroman et al. 2012).

MECHANISMS OF ACTION

The proposal to use dance as a pedagogic tool is a way of deepening our understanding of architectural space through haptic perception, “a holistic way of understanding three-dimensional space,” (O’Neill 2001, 3). João Araujo cited in (Mitchell 2009) writes that the value of inter-disciplinary processes is the willingness to question the way we do things, as a way of learning. Through juxtaposition, it is possible to bring new awareness to both disciplines. In exploring a relationship to space through dance, knowledge can be developed through personal experience and awareness. Movement and the body become the starting point from which to understand space, by being fully aware of and present in it. Engaging with the body in movement creates a personal and felt experience, which becomes instrumental in creating new ways of thinking. Movement itself becomes the medium for learning.

First, the relationship between architecture and dance exists because they both engage the body in space as well as through movement. It is possible to transfer feeling, thinking and ways of doing from dance into architecture, through the shared experiences of bodies and space (Spurr 2007). In addition to the more ephemeral qualities they share, they also deal with practical aspects, such as consideration of gravity and structure (Spurr 2007). Second, dance is an art form that can incorporate the whole-person experience. Movement and embodiment closely relate to our psychological experience and development of self. This opens up the possibility that by understanding individual relationships and ideas of space, we are better equipped to design meaningful architectural space. In choosing the medium of dance it becomes necessary to question why dance should take preference over other expressive art forms. Does it offer something unique, and what are the elements in its methodology that ensure its efficacy? The methodological mechanisms of action proposed as being instrumental in making dance both unique among the expressive arts and that which gives it its power are, “Present-ness”, “Whole-ness” and “Non-ordinary states of being”. The tools that bring the dancer into this experience are the specific combination of dance; movement, sound and intention.

DANCE MOVEMENT

The word “dance” has many preconceived associations for people, which can sometimes lead to resistance in engaging with it. While movement can be interpreted more neutrally, it is still important to distinguish between the two. The reason for the need to differentiate and define dance relates to dance’s unique characteristics, which create the value of its use in many areas beyond recreation or artistic expression. Dance contains movement, which consciously gives form to inner feelings and ideas (Dale et al. 2007). When physical action includes emotional and existential elements, it shifts into the realm of dance. The specific relationship of music, movement and emotions is what differentiates dance from other type of human movement. This reinforces the value of using dance over other physical movement. The type of movements used do not have to express emotions explicitly in the form of recognisable postures and gestures (Christensen et al. 2016). The aim is to create movement, which in itself will elicit a direct emotional response, due to dance opening the possibility of new learning.

In addition to the working definition given above, we can add that the physical movement of dance both contains and creates meaning for the dancer. The aim is to demonstrate that *dance* in preference to other expressive arts is the modality that has value inter alia in architectural education based on its unique characteristics of “Present-ness”, “Whole-ness” and “Non-ordinary states of being”, which are created through a combination of movement, emotion and intention.

SOUND MUSIC EMOTION

The emotional component of movement through space is experienced kinaesthetically (Sheets-Johnstone 2018b). Whether it is crouching low in an intimidating space, moving slowly down an alley that appears unsafe, or feeling expansion in an awe-inspiring cathedral, the experience is embodied through movement and emotion. While some movements and emotions arise from common physiological responses, such as withdrawing when startled, smiling when pleased, other learnt behaviours are encoded in memory as invariants. This means that our reaction and interaction to space becomes habitual and is based on both biological and learnt experiences. The challenges of changing these learnt patterns or teaching new concepts of space are that the emotional aspect cannot be altered intellectually, and the semantics of language mean that any interpretation is self-referential. The emotional aspect of the musical component of dance can bring subconscious feelings into awareness. Dance can evoke particular experiences through the appropriate choice of music, exposing the dancer to new interpretations (Toro Arañeda 2009), such as that of space. The emotional component of this experience is key to creating existential meaning. “Dance is one of the most expressive types of affective body language,” (Christensen et al. 2014, 1).

Sound and movement share similar and related expressive qualities (Altenmüller, Schmidt, and Zimmermann 2013; Stevens 2014).

Music elicits emotions through its structure, and will determine the emotions perceived (Bunt and Pavlicevic 2001; Egermann et al. 2015; Christensen et al. 2016). Musical characteristics, such as valence, tone, and tempo, have an impact on the affective responses of dancers (Christensen et al. 2014; Herbert 2013; Thompson 2009). Music and the psychological impact it has means that it can be a powerful tool for transformation and change (Warburton 2011).

There is a strong relationship between emotion induced by music and movement. The emotional stimulus presented by one sensory modality can be altered by the emotional content of another (Christensen et al. 2016). In terms of methodology, if they are congruent, then the intended experience will be reinforced. When they do not correspond, there may be a dissonance of emotions, which creates confusion. Therefore, the choice of music and movement are important to create and reinforce learning opportunities that create new meaning and relationship to space.

Both music and dance can have a cathartic value in being able to release pent-up, blocked emotions (Spencer 1985). The cathartic process facilitates transformation, which creates new relationships to space. Emotion is experienced physically, with psychological implications.

Stimulating emotion through the dance is not necessarily about re-living that emotion. Dance creates a safe environment in which a greater awareness of habitual emotions can be brought and processed (Habibi and Damasio 2014; Sachs et al. 2015; Thompson 2009). In this way, emotion plays a role in developing spatial intelligence.

INTENTION

One of the intentions of movement is the integration of physiological and psychological aspects, so as to create an experience that reinforces personal identity (Stück et al. 2018; Toro Arañeda 2009). At the same time, it allows the individual to transcend beyond known and held experiences, beliefs and knowledge, to explore alternatives.

The word “dance” covers a wide range of human experience. The focus of this article is on dance as structured improvisation, bringing both attention to the movement and setting an intention to create learning situations by shifting habitual patterns of emotion and behaviour. These are held in the body as memories embedded in movement, patterns called invariants (Heuer 1991). The connection between the body and restricted movement arising out of emotional and biographical experience keeps these invariants in place (Keleman 1985). Working with music, which induces emotion and movement that goes beyond the boundaries of habitual practice, creates a non-ordinary state of awareness that facilitates growth and change (Chodorow 2013; Keleman 1985; Arnold Mindell 1993).

PRESENT-NESS

The nature of dance is such that it increases awareness of self in the here and now. This is described as “Present-ness” by Hunter (2011; 2015b) and “*vivencia*” by Toro Arañeda (2009). This is different from being merely self-conscious, rather involving being totally present with all senses, emotions and intellect in the experience, while still maintaining one’s personal identity. Hunter (2011) describes “Present-ness” as being an active process of focusing on the immediate (being in the present moment), while disregarding anything that may be unnecessary. To be present in the here and now is not a static moment, but rather to maintain a continuous awareness (Hunter 2005). When one is engaged in dance, the physical action and sensations are brought into focus leaving little room for that which is not required to execute the action. Expanding awareness and raising consciousness is created by the interaction of the body with its surroundings. As a body moves through space it intuitively creates meaning. “Present-ness” and movement create a state of heightened awareness, where the body becomes the vehicle of investigation (Hunter 2005). When one is fully present this engagement is pure perception, which becomes the tool of learning; interpretation and integration take place

afterwards.

“Present-ness” also differs from performance, which is the usual way in which we experience dancers. Performance is the outward projection of expression, which also demands being focused and present. However, this is different from “Present-ness” as described here, as the focus is turned inward on the dancer’s own awareness of self, and their engagement with space. This approach also shifts perception of the body as an object in space, to a body in space and time, with its own frame of reference. This sets up an experiential space that is not measured through empirical means, “but is an experiential dimension of movement itself,” (Sheets-Johnstone 2010, 172). Focusing on the experience of the movement in the dance opens up the possibility of engaging with all aspects of space (Sheets-Johnstone 2010), physical and emotional, as dance integrates the whole being.

WHOLE-NESS

While “Present-ness” is the concept that focuses on the relationship of the body in spatio-temporal terms, “Whole-ness” focuses on the body itself, which not only addresses the “what” of being present but also the “how”. The concept of “Whole-ness” views the body not as a physical composition of parts but as a living entity in constant relationship with its environment (Fernandes 2015). From birth, our existence and experience of ourselves and the world around us includes movement, perception through our senses, and emotional responses (Sheets-Johnstone 2018a). These embodied aspects are inseparable from one another. A dualistic perspective arises when we differentiate aspects of being into mental, physical and emotional components. In addition, the individual does not exist in isolation and their interaction with the environment will be influenced by cultural aspects, such as language, belief and social systems, which are integrated cognitively, emotionally and physically (Hanna 1987; 2006).

As architectural designers, our relationship to space tends to be dominated by the sense of vision (O’Neill 2001), which is a natural development of a body’s physical presence in space (Sheets-Johnstone 1990). Analysis and description of space tends to be visual, which also leads to predominantly visual representation (Mitchell 2009), while other aspects of the lived experience are neglected. We learn about space kinaesthetically by moving through it; the concepts that describe its physical characteristics such as up/down, front/back are learnt in relation to the body (Sheets-Johnstone 1990). Reliance on vision as a reference for space reinforces the dualism of object-subject by creating distance and separation between the body and space. The body loses its materiality and is abstracted as an object separate from space (Marble, Smiley, and Al-Sayed 1988). Our experience of space is more than visual. With our whole body we are continually engaging with our surroundings, through presence and

movement. Whether we are aware of it or not, we do engage the whole body and all the senses in experiencing architecture – i.e., a whole-body relationship. Our sense of touch engages with things like floor surfaces and textures, the smell of new materials or those spaces that have aged (Sara 2006). This combination inevitably leads to emotional responses that create meaning for us. Emotional and physical experiences also lead to setting up habitual patterns of behaviour, which are embodied as invariants; memories encapsulated within the skeletal and muscular structures of the body (Heuer 1991). Within a non-dualist paradigm, the experience of being in space includes the whole body. Physical presence and movement, emotional and mental engagement, formulate our habitual patterns of behaviour in relation to specific spaces. This experience cannot be reduced to its constituent parts and learning. By not being aware of these other aspects we approach the design of space from habitual patterns of behaviour.

To extend awareness of space, designers can create an alternative experience by exploring the living body in relation to space. Engagement needs to come from a place of “Whole-ness”, bringing awareness to habitual emotional, physical and mental patterns. Dance is a non-dualistic approach, which does not separate the body from experience. Intellectually, dance can be analysed in its components of movement and the body in space, but the experience is ultimately inseparable from the medium. Movement, perception and the body are one (Sheets-Johnstone 2018a; 2018b).

In dance, where one is totally present, there is an integration of body, emotion and mind, which Merleau-Ponty cited in (Hunter 2011), and which he calls “whole-self”. A whole-body experience, which includes being present and focused, means that awareness can be developed from those aspects that are sometimes suppressed or discounted, such as an emotional response. For example, awareness of the emotional response to space may facilitate the process of creating new meaning. Engaging with the body can lead to new responses to space that open up awareness and learning that deepens understanding.

There are many somatic systems that connect movement and the body with feeling and emotion, such as Rolando Toro’s Biodanza (Toro Arañeda 2009) or Gerda Alexander’s Eutony (Eddy 2009). Knowledge that is merely intellectual information does not necessarily lead to behavioural change. The concept of “Whole-ness” in dance recognises the integrated relationship to the world and its relationship with emotions and movement (Sheets-Johnstone 2008). Dance uses the concept of “Whole-ness” to reinforce a presence in the body as a means of expanding awareness of the lived experience (Marble et al. 1988).

When dance is fully in “Present-ness” and “Whole-ness”, it is analogous to a peak experience (Maslow 1962), which can be a state of profound learning, insight and transformation. At this moment, the dance takes us out of everyday consciousness into a non-

ordinary state of being. For this to be effective, “Whole-ness” is a prerequisite to the shift of consciousness from the ordinary to the non-ordinary state of being, which it needs to involve the entire being, physically, mentally and emotionally (Drury 1982).

NON-ORDINARY STATES OF BEING

Non-ordinary states of being can be defined as altered states in which experiences are different from those associated with normal, ordinary, everyday functioning (Bucci and Koroma 2019; Tart 1972). Altered states are a universal phenomenon found in many cultures and are associated with healing and learning (Chodorow 1991; Drury 1982; Eliade 2002; Arnold Mindell 1993). They are effective in doing this, because in these non-ordinary states a person functions in a psychologically different manner from the normal (Kjellgren and Eriksson 2010). The shift from ordinary to non-ordinary states removes us from our habitual patterns of behaviour, exposing different ways of being. Altered states of consciousness have a number of common characteristics. These include perceptual changes that alter sense of time, space and self, and are usually emotionally charged (Rock et al. 2008). These are often verbally indescribable experiences. The shift of consciousness from ordinary to non-ordinary can be induced in many ways, one of which is to intensify sensory stimuli through music and dance (Drury 1982; Kjellgren and Eriksson 2010; Winkelman 1986).

Non-ordinary states of being relate to the surrounding world in a phenomenological way, and are aided by the suspension of intellectual activities, such as language and thinking into non-verbal awareness. There is a withdrawal of consciousness from the everyday world and a shift toward an inner world of sensation and images (Drury 1982). Dance provides a way of moving from the intellectual realm into the sensation experienced through the body. As multidimensional beings, we are able to experience the world through different channels, which include the intellect and body. This distinction between mind and body reflects different areas of the brain (Arnold Mindell 1993). Non-ordinary states are induced by complete release into the experience of the dance. By suspending language and thought in this way, dance brings focus on pure sensation, emotion and feeling. This shift in consciousness opens up a creative energy, which is experienced viscerally through movement and not as some conceptual model (LaMothe 2014). Dance sets up an unconscious sense, through the kinetic sense and proprioception, which open up a direct first-person experience of space (Berrol 2016; Sheets-Johnstone 2011). The visceral responses induced by movement through space offer an opportunity for insight and knowledge creation (LaMothe 2014). This awareness is created as the dance shifts consciousness from the ordinary into the non-ordinary state of being (Chodorow 1991; Arnold Mindell 1993). Two pioneers of modern dance, Isadora Duncan and

Mary Wigman, proposed that dance is a transcendent experience, which in essence is not an interpretative expression of an idea but conveys a deeper meaning and essence of something (Ragona 1994).

For the architectural designer, non-ordinary states offer an opportunity to shift perceptual frameworks of space created through cultural and individual processes. By exposing students to haptic and somatic sensitivity, it is possible to bring awareness to spatial complexity, which could otherwise be overlooked when dealing with the challenges found in a diverse studio environment (O'Neill 2001).

CONCLUSION

Human movement is elevated into the experience of dance when movement, emotion and intention are integrated to produce a state of being where the dancer is fully present in the action (“Present-ness”), involves the whole body’s system of mind, physicality and feeling (“Wholeness”), which allows them to enter into experiencing the world in a different way (“Non-ordinary states of being”). By using carefully structured dance experiences, it is possible to bring awareness to habitual patterns of behaviour, which facilitate new learning. For architectural students, this could mean the possibility of exploring their personal relationship to space so that with insight they can become better equipped as designers to create buildings that address specific issues, problems and needs. A pedagogic approach which integrates the opportunity of self-exploration offers an opportunity for students to reflect upon their relationship to the more explicit knowledge based requirements of the curriculum. Dance can provide moments of freedom for self-discovery and engagement leading to the development of metaskills that provide more flexibility and creativity in their practice.

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