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# Scaling Sensory Experiences

## Across Dance, Occupational Therapy and Urban Design

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*Abstract.* The disciplines of urban design, occupational therapy and dance share an interest in how sensory experience and human movement impact the way atmospheres are produced. The global pandemic has brought about radical shifts in our sensory experience of the world. Bodily gestures both big and small participate in the creation of unspoken yet acutely felt atmospheres that invoke new modes of attention. The notion of 'scaling sensory experiences' emphasizes that scale is a non-static continually shifting condition that connects bodies and environments. This research calls for a nuanced understanding of other disciplinary worlds in order to plant the seeds for renewed sensory modes of designing, living and dancing that are much needed as we contemplate our post-pandemic atmosphere.

**Keywords.** Occupational Therapy, Dance, Movement, Sensory, Scaling, Pandemic, Body

### Introduction

During the Covid-19 pandemic new forms of sensory experience and patterns of movement in cities emerged as a result of drastic restrictions put on public life. This situation brought about radical shifts in scalar relations within domestic and urban environments. For example, bodily-scaled gestures such as clapping and singing resonated at the scale of the city. In this moment of heightened awareness, we began to consider the potential for re-examining sensory experience and movement through different disciplinary lenses in order to reflect more broadly upon how atmospheres are perceived and produced. As a result, a collaboration was formed between three researchers: Rennie Tang, urban designer and educator in landscape architecture; Elisa Seidner, pediatric occupational therapist (OT) certified in sensory integration, evaluation and interventions; Dr. Lisa Sandlos, dance educator certified in Laban Movement Analysis (LMA).

OT and dance offer in-depth knowledge about the sensing moving body that calls into question the way in which the human body is conceived within the urban design process. One of the most common terms used in design is 'human scale' which refers to the dimensions of the human body in relation to objects in the built environment which should be designed for optimal human use. This anthropometric approach to design denotes a preconceived notion of sociability (Kuchenbuch, 2016, 1045) that glosses over sensory aspects of the moving body. The reductive notion of human scale fails to acknowledge the body as a living being that is continually scaling and sensing space, and thereby shaping it, whether for the purposes of participation in daily life activities

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(OT) or expressivity and performance (dance), all of which are also critical considerations in the design of urban environments. The more active term ‘scaling’ suggests that the body could participate in a continuum of scalar relations that change over time as the body moves through space. Atmosphere is produced through the act of modulating across these scales, or put another way “atmospheres change as the body moves through space and is exposed to changing sensory stimuli, and so too does the biological composition of our bodies change as we are exposed to different atmospheres” (Bille, 2015, 36). Another important question we ask is how to design for the human body in a world where the multiplicity of bodies in terms of age, ability, culture and gender cannot be ignored. The pandemic amplifies these multiplicities because each person responds to these new patterns of daily life in unique ways.

The viewpoints of each discipline can offer critical insights into these issues, disrupting assumptions and opening up questions. An understanding of the conventional language or jargon within each discipline is a necessary starting point for moving towards a transdisciplinary mode of working. Using the well-established OT theoretical model Person-Environment-Occupation (PEO) as a template for considering equivalent groupings in urban design and dance, User-Form-Function and Body-Space-Dance are used respectively, as depicted in Figure 1. Each will be highlighted and elaborated upon in this paper. It is our belief that this initial way of entering into the worlds of the other marks the beginnings of a transdisciplinary process.

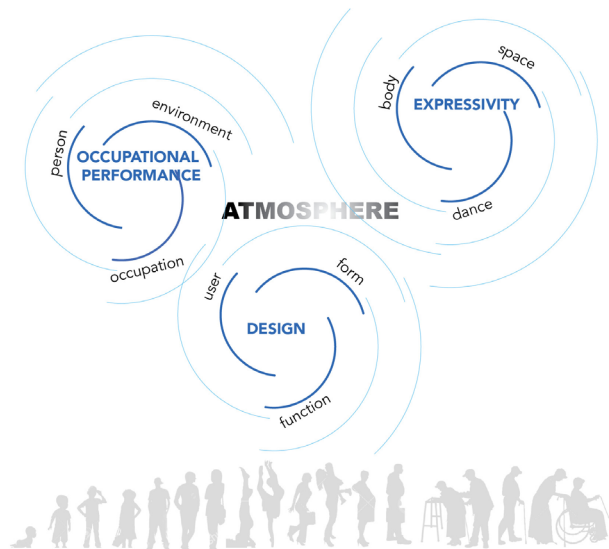


Figure 1. Atmosphere Across Disciplines, Rennie Tang, 29 June 2020.

## USER - FORM - FUNCTION (Rennie Tang)

From my standpoint as an urban designer, the extreme scalar shifts experienced while living in the city of Paris during the confinement period reinforce my concerns about fundamental concepts in design while revealing opportunities for new ways of thinking. At the most fundamental level designers are tasked with the shaping of forms in order to fulfill certain functions that are based on the needs of users. For example, an architect might create a layout (form) for a kitchen (function) to serve a family (user). A landscape architect might design a pathway (form) as a means of moving across a park (function) to serve a park visitor (user). At a larger scale, buildings and landscapes

are designed to meet certain programmatic functions. The phrase ‘form follows function’ often associated with modern architecture is problematic because it does not consider site context, resulting in designed spaces that completely ignore their surrounding environment and atmosphere in the quest to fulfill certain programmatic functions. A reversal of this phrase to ‘function follows form’ prioritizes the existing condition (form) of a space, which includes its physical, social and cultural aspects, all of which influence atmosphere. These critical aspects serve as design drivers that must negotiate with or call into question a given function.

Underlying the term ‘user’ is the assumption that spaces for use and consumption must always exist. During the confinement, such spaces were drastically reduced, thus leaving the body on its own to confront space in its purest form which in fact brought sensory experience, movement and atmosphere to the foreground. However, designers typically lack the embodied knowledge required to understand these aspects of space, especially when design standards predicated on ‘human scale’ and ‘best practice’ solutions no longer apply. In fact embodied knowledge could help designers to avoid spaces that lack site specificity and are generic, consumption-centered, inequitable and ill-suited to the needs and potentialities of a wide range of people. With this in mind, the limits of the user-form-function model become quite apparent. Collaborating with OTs and dancers working across a wide range of sensory and movement scales - or scaling - enables designers to broaden and enrich their understanding of sensory experience and its role in producing atmosphere.

## **PERSON - ENVIRONMENT - OCCUPATION (Elisa Seidner)**

As an occupational therapist (OT) specializing in sensory integration, movement, and human participation in everyday tasks, I am interested in assessing the impact of the global pandemic on human function and adaptation. How have sensory perception and ensuing actions been altered due to global restrictions on movement and social interaction? These restrictions have changed environments, routines, and sensorial experiences impacting the perceived atmosphere. The ability to adapt according to the changing environment is assessed through observed participation in everyday occupations (activities); a person’s ability to fulfill self-delineated occupational performance parameters (engagement in purposeful activities). My disciplinary lens considers the invisible neurobiological socio-emotional human components and the visible body movements occurring in direct response to interactions with the environment. Of the range of abilities existing along a continuum, OTs assist with remediating or adapting (scaling) the person’s capabilities or their environment to promote optimal participation in activities of daily living.

The Person-Environment-Occupation (PEO) model is a practice framework used by OTs to explore the relationship between individuals and their environments (Law, 1996). This model captures the essence of a person’s perception, functional ability, and motivation to engage in occupations within the sphere of the external world (see Figure 1 left side). An assumption of this model is that the person is a dynamic and malleable being that continually interacts with the environment. Occupational desires become the motivating factor for engagement with objects and the surrounding space. A person’s physical, emotional, cultural and perceptual qualities influence their motivation to interact with the environment and participate in occupations. The environment either facilitates or constrains occupational performance of the person, depending on abilities and perceptions. A dynamic interaction between the person and the environment is one of reciprocal influence. The environment and/or the atmosphere is also in constant flux depending on the type of perception and interaction it

receives from the person.

The person searches for meaningful engagement in self-prescribed roles and behaviors within varying contexts. These roles and behaviors are determined by a range of physical and mental health factors. The person's lived experience within surrounding environments creates perceived abilities producing action or inaction. Sensory Integration theory, introduced by A. Jean Ayres (1972), describes sensory perception not only occurring via visual, auditory, olfactory, and gustatory channels, but emphasizes central somatosensory and vestibular processes responsible for body awareness and movement. The ability of a person to sense their own body determines movement and interaction within the environment.

Atmosphere emerges from the dynamic exchange of sensory information between the person and the environment. The atmospheric perception may easily shift from optimal to suboptimal in the presence of person-environment discrepancies. The interpretation of each person's atmosphere and the ability to adapt under the pandemic climate, depends on personal, neurobiological and environmental factors, and their compatibility. For those individuals who are highly over-reactive to visual, auditory, and tactile sensory input, the restrictions provide a welcome respite.

Böhme's (1993) description of atmospheric theory as a space in between the subject and object emphasizes the person's subjective experience of the objective environment. OTs delve deeply into the personal perception of the atmosphere as a milieu for human function, yet as a discipline, we lack a more profound understanding of the environment's influence on human perception of atmosphere. The changing environments and atmospheric perceptions experienced during this pandemic will likely impact the quality of the lived experience and the occupational performance that ensues.

### **BODY - SPACE - DANCE (Lisa Sandlos)**

From my perspective as a contemporary dance teacher, choreographer and former professional dancer, dance offers an ideal framework for thinking about bodies and the dynamic potential of spaces. Furthermore, principles of dance training, performance, and choreography can transform atmospheres in a post-pandemic world.

Dancing requires regular physical practice to develop specialized capabilities of the body including flexibility, strength, coordination and balance (functionality) along with esthetic qualities such as dynamic alignment, shape and stage presence (expressivity). These skills allow dancers to project movements into the space so that clear connections between their bodies and the environment can be made visible to audiences. Contemporary dancers train to be highly attuned to space which can inform their movement expression, enrich their performances or help generate original improvisations. Thus, dancers are highly responsive to atmospheres but the movements they do also enliven the space, thereby *contributing* to atmospheres.

Atmosphere is not a term that is generally utilized in dance, but many dancers are familiar with the related concepts 'kinesphere' and 'dynamosphere.' Kinesphere refers to the bubble of space outside the body where movement occurs and dynamosphere refers to dynamic movement qualities originating from an inner impulse to move expressively within one's kinesphere.

Peggy Hackney (1998) asserts that the kinesphere can be "defined physically by the distance that can be reached all around the body" and "psychologically by the space

the mover senses is hers or his, the space s/he effects” (223). Movements in the kinesphere may be minimal and near to the body-center or expansive, involving the entire body; thus, the scale of the body moving in its kinesphere can shrink or grow. Movements within the kinesphere may lead to locomotion in a shared general space. The term ‘dynamosphere’ was originally used by movement studies pioneer, Rudolf Laban, to account for expressive movement (called Effort) that emerges when the kinesphere becomes charged with dynamic modulations and combinations of time, weight, space and flow (Studd and Cox, 2013, 150).

Kinesphere can be revealed through spatial pathways of gestures, but dancers also recognize the interplay between outward expression in the kinesphere and the dynamic space within their bodies. Through sensory-based training, visualization and subtle movement exploration, dancers develop awareness of their internal somatic space, the structural geometry of their skeletons, the tensegrity of their musculature and fascia and their whole-body connectivity. Moreover, dance can be informative not only about the body *in* space but also about the body *as* space.

The methods by which contemporary dancers train and their skills of sensorial attunement, spatial awareness, and qualitative movement expression are valuable in the context of performing. These skills also help dancers cope with the stresses of their careers as performing artists, adapt to a variety of environmental conditions including studios, theaters, or site-specific performance spaces that are not always ideal, relate to other dancing bodies in the kinespheres they inhabit, and communicate their embodied experiences to audience members. Indeed, these skills are transferable; the embodied movement training that dancers do can enhance resilience, creativity and empathy for anyone affected by the Covid-19 pandemic and its aftermath.

From my dance lens, then, it follows that concepts from dance including body *in* space and body *as* space, the continually shifting scale of the kinesphere and expressive movement in the dynamosphere would assist urban designers in deepening their understanding of how human movement can enhance their work. Indeed, in the post-pandemic world I believe it will be particularly important for urban designers to be proactive in building environments and creating atmospheres that invite people to move with a deeper sense of embodiment, connection to space and expressivity.

## Conclusion

Our coming together as three distinct, yet overlapping disciplines has the potential to enhance the design of urban spaces by developing a more nuanced understanding of how scaling sensory experiences and human movement contribute to the shaping of atmosphere. In urban design the terms ‘human scale’ and ‘user’ are imbued with assumptions that lack consideration of the sensing moving body. The OT’s focus on the reciprocal relationship between person and environment, offers a means for designers to be agents of atmosphere through the act of adapting - or scaling - an environment in support of human function. Dance highlights the dual consideration of the body *in* space and the body *as* space, along with ‘kinesphere’ and ‘dynamosphere’ as integral to the creation of atmosphere. Thus, the designer’s focus on physical and material conditions are positively disrupted in light of reflections on atmosphere offered by OT and dance. This supports the idea that “urban development no longer only concerns built forms and spaces, but also sensory environments” (Thibaud, 2014, 40). A cross-disciplinary perspective is needed at the best of times. This is especially true as our world transitions into a milieu of new spaces, new types of human activity and new modes of expression as required in adapting to the impacts of the global pandemic.

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