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Articles

Timeliness and Timelessness in Spatial Comprehension: Schematicity of Socio-Cultural Knowledge in Space and Place Constructions

Philip Plowright, PhD[1] [a]

[1] Department of Design, Lawrence Technological University

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Traditionally, space and place are positioned as diametrically opposed concepts in which the presence of one excludes the possibility of the other. The axiological content assigned to these concepts follows from this opposition. As place is the site of enriched human experience and significant associations, it follows that space is endless, universal, and empty of human value. This article examines our normative conceptualization of space through considering its relationship with time and human presence. Space, as a situated experience, can be considered to contain a large volume of human meaning activated through embodied structures such as image schemas and conceptual metaphors. The suggestion is that our experience of the built environment should not be considered through diametrically opposed concepts but, rather, increasing, and co-existing, levels of specificity.

This article considers space to be a socially rich environment rather than a volume devoid of human meaning when it is examined through considerations of time, situatedness, and embodiment.

1. Time is space

We *move through* time, we *seize* a moment of time, we *retrieve* a memory, time *passes*, it *accelerates* or *slows* down. What do we mean when we use these words to describe time? If we consider them precisely, we will understand none of these terms are referencing concepts that are part of a domain of knowledge that is defined by time. Rather, all the events in these expressions are ones linked to movement (move, accelerates, passes, slows) or human actions that connect our bodies to objects (seize, retrieve). While these are just a few ways that we conceptualize time, the most common way we understand time is through space and spatial motion. The space-time relationship is considered to be asymmetric in that we conceptualize time in terms of space but do not often conceptualize space in terms of time (Casasanto & Boroditsky, 2008). Yet, while explicit references might be difficult to identify, any discussion of motion or activity linked to space inherently involves the concept of time (Casasanto, 2009).

Time, as an abstraction, is difficult for humans to engage directly. For us to talk and think about something that is not tangible, the standard cognitive operation is to transfer concepts from concrete experiences to engage abstract notions (Croft & Cruse, 2004; Kövecses, 2010; Lakoff & Johnson, 1980, 1999). The most accessible concrete experience is that of our bodies within our environment, and we use this knowledge understand more abstract things like time, ideas, emotions, feelings, and other people. We find examples of these cognitive structures in the way we construct concepts through language, so we have expressions such as *holding* an idea, *giving* advice, or *bottling* rage, where none of these actions are literal. This source experiences use some basic concepts such as physical dimensionality (length, width, height) and spatial positioning (above, below, in front, behind) but also relative relationships such as objectification, adjacency, containment and gravity (Clausner & Croft, 1999; Gibbs & Colston, 2006; Grady, 2005; Kuhn, 2007; Lakoff, 1987; Oakley, 2007; Rohrer, 2005;

a Philip D. Plowright is an architect and theorist with degrees in studio art, architecture, and cognitive linguistics. He is currently Professor and Chair of Design at Lawrence Technological University, USA. His research is focused cognitive semantics, social semiotics, and methodology focused on the built environment. Recent publications include Urban Design Made by Humans (Routledge 2023), Making Architecture Through Being Human (Routledge 2020), Revealing Architectural Design: Methods, Frameworks & Tools (Routledge in 2014) and chapters on theoretical issues of wilderness and sustainable design in Architecture and Sustainability: Critical Perspectives (ACCO 2015) and Sustainability and the City: Urban Poetics and Politics (Lexington Books 2017). His award-winning design work has been published in various academic proceedings, journals, and popular architectural magazines such as Boundaries: International Architectural Magazine (Italy), Architecture and Construction (Iran), Archnet-IJAR (USA), Bauwelt (Germany), and Arkinka, Revista de Arquitectura, Diseno y Construccion (Spain).

Zlatev, 2005). These basic concepts are used to construct embodied knowledge through situated sensori-motor experiences that includes causation and agency (Mandler, 1992, 2005).

Ultimately, the relationship between time and space can be defined as a *correlation-based conceptual metaphor* (Grady, 2007) using space, containment, and spatial motion image schemas (Grady, 2005; Johnson, 1987, 2005, 2007; Lakoff, 1987). Conceptual metaphors should not be confused with linguistic metaphors which we understand simply as an embellishment in literature and speech (Lakoff & Johnson, 1980). Rather, conceptual metaphor has been shown to be a persuasive cognitive operation at the core of human thinking (Gentner et al., 2001; Gibbs, 2008). It is a systematic mapping between two ideas that are found in two different domains of experience, where a domain is a sphere of associated knowledge (Brandt, 2004; Croft, 2006; Gärdenfors & Löhndorf, 2013). In this case, we use concepts that are found in the experiential knowledge domains of space, spatial motion, and human actions to describe and understand concepts of time in a concrete-to-abstract mapping. The resultant relationships are conceptual metaphors because of the presence of incongruence – time is not literally a physical object; it does not really have speed, nor does it move through space. In addition, these mappings are a particular type of conceptual metaphor called a *correlational* metaphor. Correlational metaphors are not created through any resemblance relationship, and they lack any shared features or association which can explain the metaphorical association. Rather these metaphors have evolved through the human cognitive system based on "elements of universal human experience – basic sensori-motor, emotional and cognitive experiences which do not depend on the particulars of culture." (Grady, 2007, p. 321) The act of a human body occupying and moving through space is such a fundamental universal human experience. It is so fundamental, in fact, that we tend to take it for granted or ignore its significance. What we do, however, is establish a recurring pattern between the concrete knowledge of spatial experience which we use to understand the abstract, non-tangible experience of time. To state this in a slightly different way, "we conceptualize the less clearly delineated in terms of the more clearly delineated" (Lakoff & Johnson, 1980, p. 59).

The "clearly delineated" is embodied knowledge that evolves through our physical development in our experience between our sensory experience, our understanding of our bodies, and the environment in which we exist. This includes time-space correlational metaphors which are grounded in sensori-motor experiences structured by image schematic structures (Martín et al., 2020). An image schema is neurobiologically grounded as "recurrent patterns of bodily experience" (Rohrer, 2005). These structures are the foundation of embodiment and most of them "are often spatial, typically topological (e.g., CONTAINMENT, LINK, PATH, CENTER-PERIPHERY) or physical (e.g., SUPPORT, ATTRACTION, BLOCKAGE, COUNTERFORCE). " (Kuhn, 2007). In this way, space forms a primary site of existence – something so fundamental that its significance in the construction in our understanding of more complex socio-cultural meanings is often left unexamined.

This means that our environment and physical experiences, both natural and built, is a source of knowledge used to make sense of our existence through mappings to abstract concepts that contribute to complex socio-cultural meanings. However, an importance aspect is that the relationship is not one-directional. While we use our physical environment and experiences to understand abstractions, we also use our abstract knowledge to enrich our understanding of our physical environment. We project our social relationships, human identities, values, and belonging into our objects and spaces to make sense of them. This starts with aesthetic and experiential qualities such as spatial positioning, directionality, materiality, and scale but extends cultural meanings, beliefs, and ideologies (Caballero, 2013, 2014; Kövecses, 2010; Plowright, 2020; Plowright & Adhya, 2023). We then give our built environment the agency to affect us through the way we see ourselves, what we think we can do, who we think we are, and what we believe. As a circular relationship, the environment in which we have evolved is seminal in shaping the way we think, and then the way we think then influences how we construct our spaces (Plowright, 2018, 2020; Plowright & Adhya, 2023). As part of fundamental cognitive development and processing, conceptual metaphor and schemas are formative to this transfer between environment and human cognition. However, time plays a significant role in helping us understand more advanced overlays into generic concepts of space that evolves into situated space and enriched space (or place).

2. Space is time

One question we might consider is while time is understood through concepts of space, is space understood through concepts of time? Space is in a fundamentally different cognitive category than time as it lacks true abstractness and is directly involved in embodiment (Johnson, 1987, 2007). This means that space can be defined through its observable properties rather than through a correlation to some else. However, we also have a tradition of treating space as a neutral and abstract. Space is simply that a boundless and continuous three-dimensional expanse that makes up our reality. Inside this expanse, we find all the objects and substances with which people can interact. Since space does not have any content or apparent use that humans can perceive, we consider it to be empty. We think about space as something we can fill or an extent that is available to us to occupy and use. In this way, space is defined as an endless, unbounded, generic, and limitless universal resource. Is it?

Space is traditionally defined "by its formal invariants" to be "a priori universal" (Pellegrino & Jeanneret, 2009, p. 279) making it measurable but universal, continuous, generic, and absent of any topographical characteristics. This attitude restricts descriptions of space to only quantitative information and "general concepts of extension and dimension that constitute form" (Smith, 2003, p. 11). As the dominant definition of space, we understand space as conceptualized but not experienced, lacking the capacity of

human meaning. Place, in contrast, is defined as a locale with rich human meaning (Agnew, 2011; Norberg-Schulz, 1996; Tuan, 1977). However, space can hold the status of empty, meaningless, and universal *only if it is considered as independent to time and human cognition*. The interaction of space with time requires the consideration of events, motion, processes (decay, growth) and, important for us, the physical presence and conceptual awareness of a person.

The need to consider something between space as a continuous, formless topography and place as a site of personal and cultural associations has been expressed in the work of Smith (2003). Smith shifts the conversation slightly from definitions of space and place to include a third idea: landscape. For Smith, landscape is the bond between space, defined as forms tied to physical experience, and place, defined as geographic or built forms to which humans attach meaning. Landscape can be understood as "land transformed by human activity or perception" (Smith, 2003, p. 10) which involves both the physical transformation of the ground as an objective action but also interactions that include moving across, settling in, gazing upon, and otherwise engaging that physical territory. Landscape, then, allows us to overlap the measurable concept of space as "the general concepts of extension and dimension that constitute form" with the descriptive concept of place which "refers to how specific locales become incorporated into larger worlds of human action and meaning" (Smith, 2003, p. 11). It reinforces that the human-built environment occurs through a synthesis between *extent*, as defined through the dimensions of height, width and length, and *duration* as defined through the dimension of time. What Smith is describing is a situated space as a significantly different concept to generic space. Situated space is experience through the relationship between presence of a body, which has specific sensory orientations and limitations, and the compositional arrangement of surfaces, objects, and volumes. This type of space is not generic but a *specific* (locale). Our theoretical traditions produce a type of blindness by focusing on the space-place axiology as the extremes between timelessness and reminiscence (Agnew, 2011; McKenzie & Tuck, 2014; Norberg-Schulz, 1996; Tuan, 1977). While situated space might lack access to personal meaning created by memory and reflected experience, it does contain a very rich area of socio-spatial knowledge.

A situated space contains a significant amount of human meaning based on embodied experiences that are shared human capacities. These start with simple morphological and sensory experiences such as directionality (front, top, left and right) and the capacity of our vision and hearing. We look to identify 'fronts' in other people and objects around us because we instinctually understand that it is the site of engagement based on our experience with our bodies. We *know* that things in our line of sight are understandable through visual interpretation. The opposite is also *known* – if we cannot see something, we cannot *know* what it is. We *know* that touching something means that we can manipulate it, control it, or have access to whatever it is. In this way, physical and visual access are important as we relate physical distance to abstract concepts such as relationships, emotional connection, intimacy, control, and power (Plowright, 2020). We understand the relationships of people through their spatial positioning and perceived access things around them. We also make sense of things that are not people in the same way, such as building elements, furniture, or even entire buildings in an urban context.

The major social indicators found in space are based on image schema and correlational metaphors associated with sequential temporal interaction. These are directionality, orientation, proximity, vertical positioning, visibility, and exposure (Plowright & Florence, 2021). In practical terms, we can understand them by simply considering which way we are facing, which direction we can move, what is close to us, what is above or below us, what we can see, and what can see us. This content is held in the spatial composition of a bounded and situated location through the arrangement of physical elements which indicate or influence how that space might be used by people in that location. It is not possible for space, in this sense, to be inert, abstract, or lacking in human meaning. The compositional arrangement of that space will suggest expected social relationships between the individuals regardless to personal or idiosyncratic memories. This allows us to avoid creating a false dichotomy through the Hegelian separation of space from time (Smith, 2003, p. 11) which positions only place as meaningful to human experience.

3. Place is space

While we have two types of space, the generic space as an abstract concept and the situated space of human experience, we also have to consider the notion of place. Place has traditionally been considered as a juxtaposition of three major constituent elements: "conceptions, activities, and physical attributes." (Canter, 1977) Physical attributes are provided by situated space through the extension and composition of forms in context. In addition to this information, activities and the values people hold and prioritize are involved in our recognition of place. To say it another way, place is the integration of space into constructed narratives of human meaning and human action (Smith, 2003). We can understand the three concepts – conceptual space, situated space, and place – operating at three different levels of schematicity in the same locale. These include differences in the type and complexity of schema and correlational metaphors as well as the application of time. Situated pace is experiential focused on how forms delimit physical interactions (i.e., the production of boundaries) while place would extend into memory, emotion, and time-based experiences. Both space and place would produce meaning but that meaning would be significantly different in its epistemological boundary. When we engage a specific locale, it includes both space information, as compositional affordances that denote human engagement capacities, and place information, as connotations through the projection of socio-cultural human values.

Time is impossible to separate from any human experience, but that sense of time can be sequential or episodic. As we occupy space, we engage a finite and bounded area

with specific composition, scale, and arrangement of forms. This engagement is a direct experience that involves an understanding of time based on duration, or a linear series of connected moments of experience without interruptions. However, as we construct a place identity, we experience both sequential time as well as episodic time. Episodic time recognizes and links memories of past experiences and interactions to enrich our current experience. We can consider people inhabiting an environment and understand that location as a place through reflections such as: what experiences do they associate with which spaces? Where do experiences of dwelling, home or refuge occur? Are there particular places one person returns to but others do not? What is the relationship between that place and the person as an individual? These familiar personal recollections allow us to build a sense of security that associates our identity with that of a specific locale through memory and anticipation. Meaning is created for those individuals involved in the experiences through the use of aspects of the physical environment to trigger reflections or to link abstract associations. Through this association, the physical environment acts as a symbol to hold, represent, and project those idea back into the individuals who invested the original ideas (Backhaus & Murungi, 2009).

Another distinctness between space and place can be seen in the activating image schemas and correlational metaphors. Space, as discussed above, is understood through fundamental spatial descriptions (up, down, front, back, length, width, height) spatial positioning (front, adjacency, vertical elevation), spatial motion (forward, backwards, momentum), and sensory information (visibility, exposure, sensory awareness). Place, in contrast, is a locale whose sense of distinctness is associated with the human capacities of belonging, engagement, and purpose. It layers our experience of space with additional socio-cultural associations such as identity operating through temporal knowledge of memory, prior experience, and recollection along with actions of involvement and preference (Plowright & Adhya, 2023). The basic cognitive operation behind these complex experiences is the experience of a bounded and situated space through both difference and similarity as extensions of the image schema group IDENTITY and its relationship to body schema and body image (Carruthers, 2009; Torras De Beà, 1987).

Difference allows us to distinguish one area of space from another through characteristic features, disruptions in patterns, or moments of contrast. The larger the degree of distinctiveness of a location within its context, the stronger possibility for interpretations of place to develop. However, while one aspect of place is defined through difference, it also requires similarity to exist between the environment and the occupant. Similarity is a projection of our values to see a locale as an extension of ourselves. We relate to that space in a way that builds a relationship through individual associations of belonging and identification. This includes how we evaluate and find alignment between our own values and the compositional elements in the locale as well as past activities and connections with other people associated through memories in that locale. Both difference and similarity require episodic temporal associations to be activated as discrete applications of memory to space associations.

4. Conclusion

At the core of these observations is a perspective of cognitive focus that allows space and place to co-exist without conflict if considered through informational hierarchy, levels of schematicity, and different temporal factors. It also allows the placement of phenomenological positions within a realist framework. While place is prioritized through the transcendental phenomenological experience of an individual, space also contains a significant amount of information about the human experience. Even if space is considered as an "abstract scientific, mathematical, or measurable" description of a locale, that locale is still specific. We can consider how one understands spatial as well as place-based information in terms of human knowledge through a notion such as interiority (Ionescu, 2018; McCarthy, 2005). Interiority, as the sense of being within, can be considered as a phenomenological experience through the feelings of shelter, protection, and a sense of safety. It can be linked with concepts of home as well as dwelling and we can explore personal reflections of places that elicit such a feeling. These memories can be mapped onto current moments in the built environment so to transform a generic location to something linked with a specific human identity – i.e., a place. However, interiority can also be defined through the physical and measurable characteristics of space and, when considered in this way, is no less particular (Plowright, 2020, p. 154). We can identify shapes, recesses, and locations where a sense of interiority should occur through the spatial composition and arrangement of forms in that space. These will be related to human movement, human vision, generic senses of exposure and perceived spatial hierarchy – all basic and fundamental information but specific to locale and unique compositional arrangements. The base information is experiences and knowledge aligned with embodied thinking structures foundational to all humans. This information is less rich than the descriptive and personal reflections created through place, but it is still unique to a context, situation and event which involve specific human interactions.

Space and place, when considered through the foundational structures of schema knowledge, are not dichotomous but parallel and supportive experiences. They both include socially constructed meaning but that meaning is focused on very different content and uses different application of temporal experience (sequential versus episodic). For space, meaning is generated through the location and orientation of a human body in relation to other human bodies and the potential interactions mediated by the physical environment. Even complex social constructions, such as culture, can generate space-based meaning when it involves physical factors such as compartmentalization, containment, proximity, adjacency, and contiguity (Gupta & Ferguson, 1992). The specific compositional arrangements of objects, surfaces and edges in space can communicate a large volume of basic social information without includ-

ing individual lived experiences. Place, as an enrichment, builds on situated spatial experiences through individual interpretations activated through memory and the projections of identity into our surroundings.

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