DESIGN DECISION MAKING as EFFECTED by DIFFERING MODELS of HUMAN PERCEPTION

Stephen Temple
University of Texas San Antonio

Introduction

Predominant operations of present day architectural design education pedagogies favor working in visual abstractions apart from reality, with outcomes of design processes as predictions of the experiential disposition of actual reality. Despite this, our actual connection to the designed environment occurs only within and through our experience. Relationships between human beings and their surroundings are constructed within human perception and thereby structure how we come to know the actual world. Human experience is the primary measure of the efficacy of architectural design decisions. Thus, the problem of the designed environment is tied to the problem of perception. The practice of philosophy has debated the true nature of experience since its beginnings. In order to cast design decisions, designers seem to accept only perfunctory descriptions of human experience, typically rooted in narratives received in childhood. These narratives spring from simple descriptions from elementary school biological science courses and thereafter remain unconscious and unexamined by reflection. It is highly influenced by designers’ knowledge of how they think perception works. Unconsciously held assumptions by a designer about a particular model of perception cause design decisions that configure architecture consistently only with that particular model of perception. Assumptions like “mind/body dualism” and “sense-data,” if uninspected, become unwitting determinants of design decision making that prefigure issues like materiality, detailing, and finally, experiential apprehension of substance and meaning. I contend that understanding perceptual models enables deeper comprehension of relationships between perceiver and designed environment that will result in greater unanimity between experience and the actual world.

Juhani Pallasmaa’s call for architectural design to become more responsive to the sensory aspects of human relations to the designed environment is essentially a call for design to more greatly consider the depths of human experience as both determinant and measure of architectural design. Pallasmaa’s criticism of architecture’s “over-emphasis on conceptual dimensions” stems from reliance on a “retinal gaze” that preferences imaginary representations in favor of active, multi-sensory engagement within our perception due to multi-sensory movement in and around the space of buildings. (Pallasmaa 1994) Working by way of representation in design is far from giving clarity of ourselves as beings-in-the-world, as they are nearly entirely frozen visual moments. The abstracting act of representation itself, as a framing of actions, intentions, or thoughts accomplished without the perceiving body effectively results in architectural design decision-making out of touch with experience, instead abstracted into mere imagery, like a dream that, so real in sleep, is only vaguely recalled on awakening. The image of architecture often becomes more credible for a designer than the building itself. To the contrary, our perception operates precisely because of the action, movement, and scale of our bodies in space as “architecture directs, scales, and frames actions, perceptions, and thoughts” (Pallasmaa 2005, 60)

This paper suggests a theoretical relationship between visual perception, design methodology, and material presences. I believe attention to the study of visual perception on the production of architecture suggests that philosophical insight into how we come to know our surroundings will produce designs enabling greater bond with the depth of human nature. Most designers unknowingly hold a set of unconsidered assumptions about how visual perception correlates with the way we humans operate in the world. In turn, these sets of assumptions unwittingly form the basis for design decision-making that operates to determine such aspects as the shape, color, material surface, configuration, joinery, and detail of the designed surroundings, ultimately determining how it is apprehended in perception. I think it justifiable to conclude that for most present day designers this basic set of assumptions is not derived from any elaborate epistemological position. To the contrary, these assumptions follow an over-simplified, philosophically dualistic model of visual perception, one that separates mind from matter -- of meaning from material -- through the mediation of visual images, thereby limiting possibilities for meaningfully complete interaction with the architectural environment.
The limitations of architectural interactions are specified by the underlying model of visual perception, especially with respect to epistemological implications of its philosophical, psychological, and scientific lineage. Models of the relations to the world through perception are of ancient philosophical origins that have, over time, been redeveloped into models of psychological and scientific thought. Pallasmaa’s argument has correspondence with recent models of perception and intends a more direct relation to the world around us than the static moment of perception necessary to models of perception held over from Renaissance thinkers still within 20th Century scientific models. This paper will outline two proliferating models of perception and elucidate a position that a working understanding of human perception as an underlying actor on design thinking remains largely unquestioned in architectural education and practice. Pallasmaa, and writers such as Kathryn Moore, have only insinuated a new approach. Interrelationships between theories of perception and design decision making practices offer challenges to design education apart from perceptual studies.

**Experience and Perception**

Contemporary psychology models visual perception following two main currents: those positing that abstract representations are the primary source of meaningful experience versus those proposing that experience is concretely based in perceptual acts. Although both models characterize human conduct as being of relations between an inner state and an outer world, their distinctions rest on how this is raised in consciousness and resolved in experience, with implications for the verity of the external world. The first model of perception encourages abstract visuality that separates generation of meaning away from concrete physical origins into singularly mental conceptualizations that are abstracted encodings for their origins in the actual physical world. The second emerging model of perception encourages a visuality inextricably bound up in a bodily origin in direct experiential connection with the actual world as it is lived.

**Mind/Body Dualism and Perception**

The philosophy of Renaissance philosopher Rene Descartes recast Platonic distinctions between the sensory world and the “world of forms” into a dualism of mind and body, wherein thought is held to be privileged over both experience and the world itself. Descartes’ claim that nothing could be known for certain but one’s own thoughts effectively reduced one’s *being* to “thinking substance.” As in Platonic thinking, the world of material things, despite its existence, was considered unknowable, except through the mediation of abstract, mental constructs or images, or through objectivizing narratives such as those of science. Descartes’ dualistic philosophy would crystallize Renaissance era philosophy and alter forever considerations that represent a model of seeing that characterized the visual process as a mechanistic optical system which focused an image on a receptive retina for subsequent interpretation by an interior thinking being. (Descartes 1637) Descartes’ account of perception delivered upon the chain of causality from matter to mind an inscrutable threshold between interiority and exteriority. Optical imagery of the outer world focused on the retinal sense organ as a boundary where the outer world ended and where the inner world began as encoded transformations for use by abstracting mechanisms of mind. The retinal image was then delusory and meaningless, as the mind became the source of visual perception. This presupposition of mind/body dualism conveys a highly symbolic dualistic model of visual perception advocating a “primacy of image” in an absolute separation of interiority from exteriority where interiority defines only itself and only on its own terms of abstraction, necessarily disconnected from any actual exterior.

In centuries hence, Cartesian dualistic visual perception became a dogmatic paradigm for an epistemological separation of interior from exterior and of subject from object. Cartesian dualism defines the commonly held model of the visual system learned in elementary school via the easy rhetoric of simplistic diagrams of perception. Extrapolations of Descartes’ model have been the preferred model for scientific inquiry into perception within the bounds of this “visual processing,” even at the cellular scale of the nervous impulse (Atkinson & Hilgard 2009). As a simplistic paradigm, mind/body dualism formed the underpinnings of the production and reception of artistic and non-artistic objects, as well as the production and experience of the designed environment. For example, whereas Palladian architecture is unduly orderly on the level of mathematically derived proportion, Modernist production, and Post-Modern following it, has effectively dematerialized the surfaces of the physical world in favor of abstract meanings derived from the priority given in their
image and interpretation over their direct experience. Cartesian dualism would have that, if a building is a "duck," as Robert Venturi has it, it is indirectly referencing something other than its existence as a building, and calling then for its direct experience to be meaningless until rendered so by abstract interpretations. By extension, the world in-itself would possess no intrinsic meaning until interpreted. The contentions of this model of perception offer great difficulties for design decision making as it intends persistently direct and measurable judgments onto actual experience. Design cannot prefigure conscious interpretations of individual observers. To do so would require omniscient powers over all possible meanings, and would inevitably result in reductions and abstractions.

**Perception from an Embodied Mind**

Contrasting with Cartesian dualism is a model of visual perception that addresses the question of relationship between interiority and exteriority in experience by acknowledging the substantiating effect of our *embodiment* on the structure of experiential relations within a unified body and mind in perception. Stated plainly, "Every person has a body, or more properly is a body. One does not live within the body or in a detached world of spirit outside the functions of the organism. Life is the functioning of what is called body." (Frohse, Brodel, Schlossberg 1942) No matter the Cartesian picture of the body as mechanistic activity, it does not result in living purpose. Squaring these oppositions points to life having purposes derived from its own concrete nature within the world, as lived through body.

Psychological scientist, James J. Gibson's *ecological approach to visual perception* posits that we experience our surroundings directly - not through mediating stages of abstract processing by any interior state. Against a dualistic model of visual perception described as a "pictorial" model of perception, Gibson characterized perception as involving an ecological relation of a sentient organism to its visual environment with, "Eyes evolved so as to see the world, not a picture." (Gibson 1967, 140) Abandoning the retinal image model of perception, Gibson redefined the visual system around an assumption that the physical surroundings are physically structured in relation to an observer and form the *ground* against which an observer lives and moves. (Gibson 1979, 246) Gibson believes that visual perception operates due to, and within, the medium of light as a function of the light reflected from properties of material surfaces and their configurations with respect to eye position. The *structure that exists* in the attendant surfaces of the physical surroundings *structures the reflected light* which reaches the eye position of an observer in an "ambient optic array." Thus, environmental *information* "is given in the optic array" and "picked up" by the visual system rather than being constructed by the mind out of retinal "sense-data." (Gibson 1979, 65-92) Thus, optical information affords direct perception of the environment without mental interpretation of sensory stimulus and directly "specifies" material features of the environment with specific respect to the position and size of the observer relative to the environment. Properties such as size constancy, spatial orientation, and distance occur without "visual thinking". (Gibson 1979, 65-92) Thus, perception directly confers our being within the surroundings, in constant univocal relation to its environmental character.

Similarly, phenomenological philosopher, Maurice Merleau-Ponty, developed a "theory of the body" that characterizes our embodiment as endowing our consciousness with a physical subjectivity within the actual occurrence of the perceptual act itself. Merleau-Ponty held that, through embodiment, the act of perception is the locus of innate and acquired capacities and orientation toward the world, characterized as a "corporeal scheme" of an embodied consciousness always already in the world, situating itself according to the nature of "its" physical surroundings within the immediacy of "tasks-at-hand." An embodied mind is not hermetically removed from concrete experience, as Descartes claims. Rather, consciousness IS the world as lived body in space. Body is not a mere "thing," it is a "body-subject," the locus of innate and acquired capacities and orientation toward the world. The world is not "objective," rather embodied experience is *that through which there comes to be a world* for each of us. (Merleau-Ponty 1945)

Both Gibson's and Merleau-Ponty's positions model perception not as the mind's view of a picture of the world but as an innate awareness of operating physically *within* the world in embodiment. Where the world is denied in Cartesian models in favor of representations, in an embodied model the world exists innately because of the body existing within and
operating within the world. Embodied models of visual perception imply that the perception of the material existence of things is \textit{innately meaningful}. Rather than being meaningless until interpreted, meaning is thus directly bound into embodiment in direct perception of surroundings.

\textbf{Design Decision Making Affected by Perception Models}

A designer unknowingly holding a dualistic model of visual perception predisposes architectural design within a particular visuality reliant upon reception through abstract mental operations like rationality, signification, and association outside of immediate experience. Architectural decision-making from an underlying dualistic model of perception embraces \textit{image and interpretation} as the primary basis of apprehension of meaning, resulting in an architecture of indirect references alluding to externalities dismissive of the actual presence of the architecture. This pictorial architecture of "easy symbolism," (Judd 1989, 187), forms an assemblage of outrightly readable cues. Forcing interpretation of architecture into a "language" of cues meaning to be developed in deference of the immediacy of the perceptual act in submission to interpretation as if the architecture’s only value is its abstractness. (Lobell 1988, 206) Correlation with cultural narrative is forced \textit{a priori} to be a chief measure of meaningfulness because direct relation to immediate surroundings through embodiment is excluded as insignificant, thus, muddling experience. For example, the physicality of Post Modern architecture, relying on interpretation as it does, does not correspond with its imagery. A visual reference to characteristics of actual mass and solidity portends a similar requirement of materials and workmanship, which design as imagery fails to accomplish. Requiring reference to the physical traits of materials through its imagery in an abstract reading leaves a feeling of an intended narrative on the part of the designer toward the inauthenticity of the designed environment. Imagery lacks immediacy and thus obfuscates direct architectural meaning in perceptual experience as its far less substantial replacement.

Any system of architectural knowledge assumes an underlying epistemological position regarding the nature of visual perception as a primary locus of relation between interiority and exteriority. If as I contend, most architectural design decision making occurs without awareness of a particular attitude toward the question of perception, the preponderance of narrative driven, image-heavy buildings in our time finds the question of perception obscured by architecture measured simply as cultural artifact, with architecture’s "meaningfulness" being situated primarily within culturally mainstream symbolic life. While there is no denying the existence of our minds and their attendant abstract structures, and that our reflective experience utilizes symbolism, the experience of symbolic disassociation from any concrete materiality threatens the loosening of our apprehension of our own physicality into realms of abstraction distended from our well-being and likely contrary to it. What is demanded of architecture by dualistic models of perception cannot be physically realized without continued denial of our nature as sentient beings or relegation to artificial spaces of the type necessary to digital environments or film making. (Benedikt 1991)

\textbf{Making Architecture Substantial}

Contrasting with dualistic perception models, models of visual perception developed from the individual perspective of our embodiment are bound into the concreteness of things. Within embodiment, mind-body dualism is unified within a direct and explicit immediacy of the material surroundings. An embodied model of visual perception predisposes an architecture meaningful within a contingent materiality that substantiates experience in the moment-to-moment judgments of our direct actions in the world rather than only from externalities. For architectural theory, meaningfulness has traditionally been derived from such abstract intersubjective structures as canons, rationality, signification, narratives, hermeneutics, and/or attributed to mirroring power structures. These abstract structures obfuscate the primacy that is each embodied individual. As abstraction increases in stature, the body, our embodiment occupies a diminished position in inverse relation until we, as individuals, can identify only with minuscule aspects of the actual world that may slip through the filter of cultural convention. Shifting value toward the cultural imposes on the individual a sense of diminished connectedness with the profundity of the actuality of the world. On this basis, the aesthetic agenda of architecture becomes the expression of the "collective" only on the contingency of the "individual." Achieving a more tenable relatedness in the direct participation achieved through an embodied perceptual model, one is in
possession of the physical surroundings within a living wholeness of reciprocal, creative relations between perceiver and surroundings. Against constantly shifting values of an underlying dualistic approach, architecture from an embodied model affirms the full participation of human actions within perceptual primacy, thereby establishing a substantive, fundamental presence.

For the designed environment to become viably affirmed in experience, that is, for its representational symbolism to become substantiated, perception must be borne out in concreteness. The ecology of perceiver and environment requires this affirmation as an enabler of our trust in our perceptions as viable information about our surroundings. (Gibson 1979) Within the formation of our sense of being, the primacy of perception offers an always already established linkage between observer and the concreteness of the world. When that world is configured in such a way as to demand abstracted apprehension apart from its concreteness, our living moment-to-moment experience becomes disembodied and diminished. Likewise, a world devoid of abstractions would provoke only an automatic, bodily response and would allow no conceptual, reflective connectedness. An underlying model of embodied perception for design asks for consideration of the shape of the experience of architecture instead of the shape of the architecture alone, that occupants consider only the shape of abstractions and interpretations. Within embodied perception, reflective interpretation arises from our direct contact with the surroundings, within a spatial, temporal, shared immediacy with bodily experience. Recognizing that neither abstract ideas nor the concreteness of the physical body can occur discretely, the experience of architecture must necessarily involve the relation of the abstract to the concrete.

For this to become evident through the experience of architecture, a level of design refinement must be achieved through a material basis for representation in which acts of careful making, emphasizing concreteness, are an essential feature. Thus, in the making of architecture a cogent material basis for abstractions can be actively constructed. This can be accomplished in the depiction of abstract content supported by specific materials and methods of craftsmanship within the visibility of the techniques of making.

Louis Kahn’s Kimbell Art Museum is an example of such relation of abstract to concrete in experience. This harmony becomes evident in the experience of the Kimbell through a reduction of the representational references to only that which has a substructure in the material presence of the constructed material surfaces. This balance is manifest at both distant and detailed scales chiefly through methods of workmanship that develop the individual materials in a discreet joinery, thereby manifesting any fictive apprehension within one’s actual experience of the building itself. (Figure 1) The detail of making that is evident in its material surfaces and its clear joinery has as its purpose the achievement of a holistic object rather than as a composition or construction so as to limit referential abstractions in the engagement of the observer. The treatment of its surfaces fosters a visuality of reciprocal relations between abstractions and their concrete substructure, giving, within the experience of the building, a deep, holistic engagement.
It is in the execution of detail that architecture can most easily fail to sustain the symbolic roles called for in the abstract intentionalities of its design. Delivering architecture as symbolic is not simply a matter of procuring an abstract image. Symbolism must be sustained on the substantive level of the perception of its materiality or it will, by appealing only to abstraction, call into question its relation to the individual, and hence, a muddled relation to the cultural. If the visual surfaces of architecture present the conditions of their own visuality in substance, then it behooves architects to more consciously consider the nature of perception as a foundation for design decisions. This call into question what designers do and what design educators teach in a manner I pose in the following way: Do we wish for an environment that is in full accord with our nature as perceiving beings or do we continue to unconsciously accept a model of visual perception that drives our built surroundings more and more toward culturally bound abstractions at the risk of the diminishment of our individual and fully alive status?

Notes


