**Five Levels of Sustainable Design Aesthetics**  
Perceiving and appreciating developmental complexity

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**ABSTRACT:** Aesthetics is a major concern for designers operating from the ‘experiences perspective’ on sustainable design. This paper applies human developmental theory to propose a progression of five increasingly inclusive levels, i.e., stages of sustainable design aesthetics, illustrated with built examples. New levels require increasing integration of understandings as well as representations of phenomena revealed from different sources, methods and tools. Visual aesthetics values visual experience and order, where objects always show up as objective form. Phenomenological aesthetics refers to the experiential side of process; that is, what is beautiful is how we experience something with our whole being in multiple senses, such as the aesthetic experience of riding a bicycle. Process aesthetics recognizes the ‘patterns that connect,’ the elegant fitness and interplay between form and process. Something is beautiful if it reveals a process and if the patterns of space help resolve the inner forces present in its contextual situation. Ecological aesthetics appreciates the beauty of things whose patterns create ecological health and are thus aligned to ecological principles and order. Evolutionary aesthetics perceives the ‘order’ of process. Something is beautiful if it reveals how it changes and evolves over time, especially toward greater integration, order and complexity.

Keywords: aesthetics, beauty, perception, visual, phenomenological, process, ecological, evolutionary, experience, perspective, sustainable design

**THE FOUR INTEGRAL PERSPECTIVES**
This paper expands on the theoretical views introduced in writings on Integral Sustainable Design [1, 2] which is the first work to apply Integral Theory [3, 4] to design, and in particular to the field of Sustainable Design. Figure 1 shows one of its fundamental concepts, ‘the four Sustainable Design perspectives.’ The proposition is that each perspective is ever-present in all languages and cultures; each both discloses and occludes certain phenomena. Each of the four uses different methods and has different and irreducible criteria for value. They represent the classic academic domains of arts [UL quadrant], the humanities [LL], the basic sciences [UR], and the complex sciences [LR]. Applied to the consideration of Sustainable Design, the framework reveals that much if not most of the current dialogue takes the Perspective of Behaviours [UR] and is concerned primarily with performance that can be ‘measured and weighed.’ Though extremely important, it remains a partial view. The Perspective of Systems [LR] reveals that eco-efficiency is not enough by itself to create healthy ecological pattern, and that a logic of ‘systems and relationships’ can be used to organize the UR logic of ‘parts and performance.’ However, even taken together, these objective-only right-side perspectives are incomplete and leave out the entire realm of human interiors. It may be that paying more attention to the Perspective of Experiences [UL] and The Perspective of Cultures [LL] has the potential to vastly expand the effectiveness of the objective arguments for ‘design with nature.’ Simply objective, mental arguments...
to me) and its logic of ‘intentions and experiences’ and the inter-subjective (what is means to us) with its logics of ‘myths and meanings.’

LEVELS OF COMPLEXITY
Humans in many domains of life grow and develop over time through a sequence of predictable sequential stages or levels of structural development. Once a level is achieved the awareness or abilities of that stage do not disappear unless the body’s cognitive hardware is damaged or wears out. This assertion is borne out by hundreds of developmental researchers across a wide range of fields: the increasing complexity of biological evolution, Abraham Maslow’s hierarchy of needs, Jean Gebser’s epochs of worldviews, Don Beck’s ‘spiral dynamics’, the progressive development of monetary exchange systems, Aurobindo’s spiritual stages, the life cycle of organisms, Alistair Taylor’s stages of social organization and so on.

Integral Theory finds that several characteristics of stage conceptions seem to be universal to all systems:
- The same developmental characteristics can be investigated using different scales or subdivisions.
- Each progressive level transcends and includes its predecessor. It is not necessarily better, but is more inclusive, deeper, more embracing and for individuals, more expansive in its awareness.
- Lower levels are fundamental to higher levels. Stages cannot be skipped.
- Higher levels organize relationships of lower levels. Complexity increases.
- Stages are like overlapping waves or ‘probability clouds’, not like discreet levels in a building.
- Each level has light and dark expressions and can have both healthy and unhealthy expressions.
- Any state of consciousness is theoretically possible at any level.

Each structural stage represents a level of increasing complexity with identifiable emergent qualities of its own. In biology each new level is more complex than its predecessor, includes the predecessor within it and exhibits new characteristics and behaviours not found in the lower level (as in the sequence of atoms, molecules, cells, organs, organism). Integral Theory often uses stage conceptions such as those of orders of consciousness developed by Robert Kegan [5], self-development in the work of Jane Lovinger and Susanne Cook-Greuter, and values in the Spiral Dynamics system of Don Beck and Christopher Cowan [6].

FIVE LEVELS OF AESTHETIC COMPLEXITY
Aesthetics is a major area of attention for designers operating from the Experiences Perspective (UL). Of course, experience is at the root of aesthetic explanations. Aesthetic experience is a response to conditions of beauty. Aesthetics as a study of philosophy is an attempt to explain the human aesthetic experience. The sustainable designer might ask: What if anything is different about aesthetics for Sustainable Design?

In thinking about Sustainable Design aesthetics both logically and experientially, I have generated a proposition that I submit for your consideration. What follows is an idea for a progression of increasing inclusiveness, that is, five stages of Sustainable Design aesthetics. Each new level requires the increasing integration of understandings and representations of phenomena from different sources and from extensions of the senses via the application of certain tools. As an integration of Sustainable Design aesthetics through the lens of Integral Theory, consider these five levels of increasing complexity and inclusiveness.

VISUAL AESTHETICS
This refers to the aesthetics of visual experience and order, often referred to as formal aesthetics because the objects of consideration always show up as objective form. From this aesthetic perception emerge the formal compositional principles of colour, unity, balance, variety and repetition, proportion and so on. This notion of beauty tends to be static: a tree, plaza or building is experienced as a fixed object to view. Most people consider Nature visually beautiful. A sustainable building that is also visually beautiful can open people to its other green benefits. Sustainable Design can also become a foil or a frame for a way to present the visual power of Nature.

Figure 2: Visual Aesthetics beauty in form, colour, tone, structure, repetition.
PHENOMENOLOGICAL AESTHETICS
This refers to the experiential side of process; that is, what is considered beautiful is not confined to only what something looks like, but also is constituted by how we experience something with our whole being using multiple senses, such as the aesthetic experience of riding a bicycle. The bicycle is a beautiful experience not merely as a visual object of art hanging on the wall (although it may be that, too) but because it connects us to the subtleties of air and terrain, changes our perception of time and space and creates the opportunity for the pleasure of movement. This notion of beauty can be dynamic and includes time and change. A Phenomenological Aesthetic does not reject visual aesthetics; it includes the visual as one important means of perception. A Sustainable Design can be experienced with all the senses. It is possible for the designer to create form with the intention of bringing users into a rich full-body experience of Nature.

PROCESS AESTHETICS
This refers to the recognition of the ‘patterns that connect’, the elegant fitness and interplay between form and process. Something can be beautiful if it reveals a process and if the patterns of space help resolve the inner forces present in its contextual situation. The aesthetic experience of a great meal is more than the taste of the food; it is the entire ritual set in a particular place. Process is also the order of change. This notion of beauty is always dynamic. A Process Aesthetic includes phenomenological experience as one type of process and one mode of perception but transcends it by expanding to many others. A sustainable design, in this view, gives people a beautiful experience of Nature through highlighting the elegance of both the design’s and Nature’s processes. A sustainable design may also forward the interaction of these processes with the patterns of space in the design, revealing the beauty of their connections.

ECOLOGICAL AESTHETICS
This refers to appreciation for the beauty of things whose patterns create ecological health and are thus aligned to ecological principles and order. How can something be called beautiful if it destroys our living systems? Like process aesthetics, this requires a certain level of ecological awareness from the perceiver (or designer) to even have the perception that yields the aesthetic experience. This notion of beauty is complex and systemic. One can find beauty in the perception of the web of life and in the relationships of human constructions to it. One can see beauty in the network.
Consider that an ecologically sophisticated Sustainable Design makes a place that is a whole living system. Such living systems organize many processes: water, food, information, energy, human activity, the habitats of other species, etc. For this reason an ecological aesthetic transcends and includes process aesthetics. Ecological aesthetics can be thought of as one type of contextual aesthetics focused on our perception of the elegance of ecological contexts and the beauty of their relationships to the sustainably designed patterns. Said another way, ecological aesthetics is the perceived beauty and appreciation of the degree to which Nature and societal products are integrated at the biospheric level as one system.

The same physical facts might be observed in a visual aesthetic perception, but depending on the type of prior knowledge and conceptual framework, these experiences (taken in at the level of feeling) may show up in potentially very different ways. I once took a walk in the St. Louis Arboretum with a knowledgeable landscape architect. He pointed out various ecological communities, from sunny rocky glades to seasonal wetlands. He could identify plant communities and associations and their relationships to slope, solar aspect, soil, moisture, underlying geology and on and on. He was able to reveal patterns that my eyes could take in but my mind could not before interpret (and new patterns I could not even see). Emerson called this the ‘instructed eye’: the more we know, the more we can appreciate. In doing so, the landscape architect revealed an order and a beauty that is clearly an ecological aesthetic. A sophisticated Sustainable Design might aspire to such a revelation of beauty in and via design.

**EVOLUTIONARY AESTHETICS**

This refers to the perception of the order of process. Something can be considered beautiful if it reveals how it changes and evolves over time, especially toward greater integration, order and complexity. It is in one sense a very indirect perception, one almost entirely detached from the senses and yet, in another sense, very direct because the same phenomena are taken in by the organs of perception. Memory and a long-term perspective are required. The term evolutionary is used here in a loose way to mean change over long periods of time (not limited to the more restricted definition as the genetic change of biological evolution).

Carl Steinitz, the Harvard landscape planner, once lectured that to truly know a place, a designer should live there for at least 20 years. He was talking about taking in a long view of how the landscape (as a mosaic of ecosystems) patterns and processes change over decades and centuries. It requires the tools of natural and cultural historians and the extensions of the senses with aerial photos, mapping, change models, and satellite multispectral imagery. This notion of beauty is highly intellectual and abstract. However, evolutionary aesthetics still transcends and includes ecological aesthetics.

**AESTHETIC PERSPECTIVE ON PERSPECTIVES**

Jusuck Koh discusses some of the distinctions between formal, phenomenological and ecological aesthetics in his article, ‘An Ecological Aesthetic’ [7]. Koh’s article is significant for its time. However, he tends at times to collapse the UL Experiences Perspective into the LR Systems Perspective. He seeks a synthesis of aesthetics and ecological thought in a ‘general theory of creativity.’ However, the domains of these distinct perspectives have an irreducible character, even thought they are clearly related. The Sustainable Designer endeavours to consider the aesthetics of phenomena as they also appear or are disclosed by individuals’ experiences (UL experiences) as well as from the other major perspectives (behaviours, systems, cultures).

An Integral view of aesthetics will honour and integrate the multiple aesthetic perceptions of the same designed object. For example, consider the following many views of a bridge:

- The average citizen can look at a bridge and appreciate the beauty of the line of the arch, the rhythm of its elements and its contrast with the...
horizontal line of the river and the organic shape of the surrounding terrain.

- If we consider a bridge from an engineer’s aesthetic perception, we will see the elegance of the efficient relationships among the forces at work expressed in the form of the bridge.
- If we look at the bridge from the view of a systems thinker, we can see the elegance of the bridge as an element in the larger system of traffic and circulation carrying people, vehicles, goods, etc. We may also then see the way it creates a primary axis in the city around which urban life is organized.
- At the same time, its form can also be appreciated as an expression of the materials, technologies and aesthetics of its particular place in the cultural history of that city. It can be seen as a beautiful and efficient connector of two subcultures on either side of a gorge or as a bottleneck that limits their connection.

AESTHETICS AS A LINE OF DEVELOPMENT
Abigail Housen’s Harvard doctoral dissertation research reveals five stages of aesthetic development. The significance of this is that it appears true that aesthetic appreciation, at least with regard to the kind of art viewed in museums, develops in individuals in a stage-wise fashion in a particular sequence, described briefly as follows [8].

1. **Stage I, Accountive Viewer:** ‘Lacking a framework upon which to organize his responses to works of art, the Accountive viewer relies on sense perceptions of the subject matter as his guide to the work’s meaning.’

2. **Stage II, Constructive Viewer:** Uses sense perceptions and memory, but also makes reference to ‘rudimentary aesthetic traditions, principles and values.’ The goal is to construct a framework for viewing art.

3. **Stage III, Classifying Viewer:** ‘Looking for clues which reveal the art work’s messages, the viewer tries to decode the structure of patterns within the work.’ This is a diagnostic, active, abstracting, analytical approach.

4. **Stage IV, Interpretive Viewer:** ‘Focusing on the expressive aspect of the work, he accepts and tries to cultivate his intuitive reading of the work.’ Stage IV is an individualized quest characterized by a resurgence of emotional sensual response.

5. **Stage V, Recreative Viewer:** ‘The standards, rules, theories he has learned in the past, he realizes must be willingly transcended as the artist himself transformed or transcended, even violated those rules.’ The Recreative Viewer searches for embedded meanings; becomes interested in visual play, ambiguities, paradoxes; and plays with suggestions possibilities and multiple interpretations.

Figure 6: Traditional worldview on the aesthetics of Sustainable Design. Solar Farmhouse, Fox, Arkansas, designed and built by Professor Gary Coates and Kansas State Architecture Students.

Housen notes that the sequencing of stages continues though adulthood and is correlated with age and degree of previous aesthetic exposure. There is a progression from egocentric understanding to a rule-based ‘ethnocentric’ perspective to multi-levelled and multi-perspectival aesthetics. We cannot now say with certainty from an empirical perspective that the succession of more inclusive aesthetic views proposed here (Visual Aesthetics to Phenomenological Aesthetics to Process Aesthetics to Ecological Aesthetics to Evolutionary Aesthetics) is in fact developmental. Housen’s evidence does suggest, however, that artistic production communicates to different levels of seeing, aesthetic response and meaning making. A child at Housen’s Stage 1 and an educated landscape architect at stage 5 experience the aesthetics of a sustainable landscape in very different ways. The implication for the Integral Sustainable Designer is found in the question:

**How can we design for a variety of different aesthetic experiences for an audience interested in or capable of vastly different aesthetic perceptions?**

AESTHETIC LEVELS AND WORLDVIEWS FOR SUSTAINABLE DESIGN
An expansion of the views presented here would look deeper into the ideas of levels of complexity in human development and how development of our worldviews impacts our design perspective on aesthetics and perception. The speculative aesthetic levels presented here are specific to considerations of Nature and Sustainable Design; however, a broader view of Sustainable Design aesthetics would include levels of development along lines of worldview, values and cognitive structures. From many years of observation, experience and contemplation, it appears that as individuals develop in these self-related lines, they also shift from one way of appreciating design to another. While the explication of the research into and the various
systems for understanding the development of worldviews and values is beyond the scope of this paper, some examples may serve to illustrate the point. Two examples of different perspectives that designers might take on the aesthetics of sustainable design are illustrated in Figures 6 and 7.

The Solar Farmhouse (Fig. 6) is organized as a vernacular dogtrot intersected with an atrium type and modified by a solar greenhouse, manifested in a traditional Ozark mountain farmhouse form language. In many ways, it represents a Traditional worldview. Ventilation is via windows, shading via overhangs, etc. Such ‘Traditional’ approaches to aesthetics are based in rules, traditions and code-based systems manifesting the successful and long appreciated experiments of a culture. They tend to employ primarily Visual and Phenomenological Aesthetics. They use vernacular and regional form languages in which users experience visible responses to natural forces. Designers may have the intention of engendering primal, archetypal and emotional responses. It is a world where Sustainable Design and natural beauty are experienced as mysterious and wonderful.

In contrast, the Blue Ridge Parkway Destination Center combines steel and concrete elements in Modernist eco-functional facade with a more Traditional, vernacular-related, pitched, wooden, exposed beam ceilings with the more recent expression of a green roof [10]. In its pluralism, it is clearly a composition manifesting a Postmodern worldview on design aesthetics, including recognizing the [LL] Cultural Perspective in its symbolic and educational communications. Passive solar performance (thermal storage walls) become aesthetic expression, while as the designers put it, “Nestled into a hill, the building evokes a ‘tree-house’ atmosphere that allows the visitor to experience the majestic views …”

A Postmodern, pluralist aesthetic transcends and includes both Modern and Traditional worldviews of aesthetics. It is informed by multiple aesthetic theories from multiple cultural traditions and appreciates ecological process. It is the first worldview to consciously and spontaneously manifest Process Aesthetics. It finds the beauty of design as multiple readings of Nature and has a high tolerance for formal ambiguity and paradox. The Postmodern sustainable design aesthetic translates ecological technology to artistic expression with an emphasis on aesthetic fitness to ecological context. It is also then an aesthetic of context. From this perspective, Sustainable Design and natural beauty are experienced as the result of optional constructed perspectives.

A fuller exploration of this topic might include in addition to the Traditional and Postmodern worldviews mentioned here, the Modern worldview and the leading evolutionary edge, the Integral worldview.

CONCLUSION
None of these aesthetic levels is inherently better or worse than the others. Each one has its appropriateness. A less complex level is more foundational and is included in all other more complex aesthetic levels. Unfortunately, sustainable designers operating at less complex levels are not often aware of levels above their centres of perception. Visual Level aesthetic practitioners can usually not understand or appreciate the Phenomenological Level aesthetics, and so on. Pluralists (which goes along with Postmodern thinking) also typically reject the abstraction of the Modern mentalists and their tendency to rational reductionism, as the Modernist rejected all forms of Traditional aesthetic expression for a century or more. Often, a more complex level rejects its predecessor’s claims to authenticity and value, while a less complex level cannot see or even imagine anything more inclusive.

Note that the development of experiences in Sustainable Design applies both to the designer’s intention about designed experiences, and to the user of space, the one who experiences, who brings a certain level of experiential awareness to the designed place. The sustainable designer can design for one level or another and the audience can inhabit the design and experience it from one level or another. Unconsciousness on the designer’s part about her/his own level of developmental consciousness or a lack of awareness that the public inherently always inhabits a variety of different levels is
fraught with potential disasters of miscommunication and misinterpretation. One can be designing for one level of experiencing Sustainable Design and have another experienced by the user. An example is designing for a user to experience the ecological contextual fit of a design when the user (as is most common) has little awareness of ecology.

A more integral view of aesthetics, and of sustainable design aesthetics in particular, would perceive the developmental process and appreciate the dignities of each aesthetic level. For Integral Sustainable Design there are many ways to express and to construct experiences of ‘design with Nature.’

REFERENCES