

Towards Discovering Design DNA: Froebel's Gifts & Occupations

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IN A CURRENT ACADEMIC ARCHITECTURAL DESIGN culture often characterized by parametricism, cybernetics, and virtual reality, architectural design's visceral and haptic dimensions have assumed an inferior position in architectural design ideation and process. Whether through intentional dismissal or benign neglect, the design process pursued in many undergraduate architectural programs has assumed an occularcentric modality. Students ideate in a weightless, immaterial, design landscape of simulation, devoid of the shifting qualities of color, light and shadow, the nuance of olfactory and tactile cues, and material resonance. Rather than advance a nostalgic, anti-digitally mediated position, the Design process and Making practices described here deploy haptic means to tender a "hands on" design process that advances a tactile tectonic or means of Designing and Making architecture grounded in the DNA or patterns of human experience and nature most elegantly stated by Alvaro Malo when he noted "all kinds of fabrication must be at the beginning, essentially manufacture: that is, they must start with the intentionally directed movement of the hand."

As part of his kindergarten model, Froebel developed his "System of Gifts and Occupations" as a means to enhance a child's interaction and interpretation of the natural world. The first nine gifts were situated by Froebel's successors to foster a child's design skills while gift sets ten through twenty were aimed at developing a child's craft occupations. Gift sets 3-6 are wood blocks of varying size and proportion based upon a one-inch module. Gift set three is comprised of eight one-inch cubes, forming a two-inch cube and gift set four is formed by eight one half inch by one inch by two-inch blocks again forming a two-inch cube. Gift set five is again based upon the one-inch cube but more complex, composed of twenty-seven one-inch cubes, three of which are bisected diagonally, and three which are quadrisectioned diagonally forming a three-inch cube. Thus, the fifth gift set is a variation of the third. Gift 6 relates to the fourth as it contains 36 blocks, eighteen bricks proportioned as per gift set four, twelve half cubes formed by bisecting the typical brick horizontally, and the remaining six column bricks are made by slicing a typical brick vertically. The Froebel method stipulates that children use these blocks to explore form in three types: Life, Beauty, and Knowledge. Forms of Life represent things which are seen in the daily experience of the child. Forms of Beauty explore the imagination with an emphasis on symmetry and Forms of Knowledge express mathematical concepts and expressions. These exercises typically are conducted in conjunction with the use of a gridded mat or "network table" in order to establish a direct part-to-whole affinity amongst all the blocks and achieve compositional unity.

Transforming the development and deployment of Froebel Gift Sets 3 through 6 offers new opportunities for students to discover and interpret the underlying patterns and structures that comprise their world as a preamble to design. Recalling the nature of DNA, the molecule that carries the genetic instructions used in the growth, development, functioning, and reproduction of all known living organisms, the compositional content of the Froebel based exercises reveal aspects of the essential nature of things and their design "codes" or patterns. The Froebel methodological transformation begins by establishing the option to free emerging

compositions from the gridded mat or network table. This simple, but significant, transformation allows the student a broader range of compositional possibilities and design opportunities both "off and on the grid" at the early stages of design thinking.

When considering the gift sets in terms of their new Froebel taxonomy, their use, meaning, and method are transformed. In lieu of Forms of Life, students develop *Forms of Emotion* derived from the landscape of interior human experience. *Forms of Emotion* are investigated through a series of timed exercises that explore form in response to a series of verbal prompts that express an emotive analog (e.g., fear, serenity, angst, etc.). Taking the place of Forms of Knowledge, the study of *Forms of Order* (e.g., linear, clustered, radial, etc.) using the gift sets enables the student to advance new tactics to explore traditional systems of architectural composition considering them from their underlying DNA or design codes. Forms of Beauty become *Forms of Nature* as discovered in the patterns or codes derived from exercises that emerge through the study of events in nature seen through the lens of black and white photography. Freed from Froebel's Forms of Beauty emphasis on symmetry, new formal and ordering possibilities arise from *Forms of Nature* that, at times, defy "naming".

1. **Explore Forms of Order** and **Forms of Emotion** in teams of two or three students through a series of variably timed compositional exercises using all gift set components that will be photographed under varied lighting conditions from multiple viewpoints and drawn to explore their syntax, form, and experiential content.

ORDER

1. Additive and Subtractive
2. Symmetrical/ Balanced
3. Centralized
4. Linear
5. Clustered
6. Woven
7. Organic
8. Fractal

EMOTION

1. Flight
2. Serenity
3. Fright
4. Angst
5. Joy
6. Ethereal
7. Uncertainty
8. Sorrow

2. **Work** in groups of two/three with each participating in a compositional rotation sequence that allows each to speculate, act, and reflect in a manner analogous to spatial chess.
3. **Allow** compositions to develop gradually, as the pattern or DNA emerges through a process of reflection-in-action.
4. **Photograph** the Froebel compositions considering their emotional content while exploring the possibility of imagining oneself as a protagonist in the compositional narrative.
5. **Investigate Forms of Nature** through events discovered in personal, visceral encounters with nature.
 1. Sky
 2. Vegetation (open)
 3. Water
 4. Stone/Geology
 5. Moss/Lichen
 6. Tree
 7. Flower
 8. Algae/Fungi
6. **Describe** an event in nature from the above menu in black and white photography. Using a series of framed apertures of varying proportions, transform the nature image to reveal its underlying ordering codes or “DNA” not immediately evident in original photographic image.
7. **Capture** the underlying pattern (e.g., syncopation in a jazz composition) in a work of music expressed as a formal and spatial compositional sequence.
8. **Draw and Project** yourself into the spatial compositional sequence using large print drawing surfaces and “soft” art stix/charcoal media to discover its experiential possibilities.
9. **Share and Discuss** your drawn outcomes within each group.
10. **Critique and Compare** the outcomes from each group exploring design concepts, patterns + codes (DNA), and *celebrate!*