Graphic modeling to develop abstraction, meaning and concept

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Abstract This paper will show an abstract visualization technique used to develop a strong and comprehensive understanding of meaning and abstraction in the development of design concepts.
I have employed a number of design communication tools that are invaluable to the design student. One in particular teaches students about abstraction and meaning in design through visual word modeling, which is, at first, a tool used to draw out and organize conceptual design elements necessary to the design process and is also a tool that displays that information in a concise and ultimately useable format. That design information becomes the basis for concept development and the understanding of abstraction and meaning in architecture.
This design information graphic model is used as a foundation to teach abstraction and meaning in design. From this foundation, sketches and models are made that translate the information from words to graphic reality. The foundation is then used to check the design sketches and abstract model for the inclusion of all information from it. If the design does not communicate the information, i.e. transference of meaning, it is readily apparent and adjustments to the design can be made until the information in the foundation can be discerned from the new design.
The Open Response Model or ORM contains the following categorical elements displayed in a graphical/verbal framework:

- The Ensemble: A generic description of the problem;
- Categorical Subsets: The major categories;
- Incremental Subsets: The parts of the categories;
- Elemental Subsets: The elements of the parts.

From the Open Response Model and subsequent sculptural forms, abstraction is taught and explored and design meaning is taught and communicated.
Design Communication can be defined in many ways, here, the intention of the design is made clear, expanded upon, edited, categorized, sketched and built with an inherent communication-checking mechanism. The since the Open Response Model represents the design intentions of the author, concepts can be clarified, and design intentions communicated thoroughly and deliberately.
The presentation of this paper will show how the Open Response Model is made and used and student examples of the process, including final design/initial model comparisons.

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Introduction

Architectural or other art based design is a complex process/scenario of components and the teaching of design takes years of intense studio instruction with a phased educational structure. Basic two-dimensional design, three-dimensional design and color theory are often the beginning components of this process/scenario along with writing/thinking skills.

Writing skills help students probe and organize the complexity of thoughts necessary to perform an art based design. Visual thinking and perceptual cognition skills become apparent in subsequent semesters along a path to the development of a substantial working design process. The product of a thorough design process is free-flowing idea generation, which is rational and logical and also irrational and illogical at the same time, which a free and open idea generation process should be.

The development of this process necessitates, at various times, the development of an orderly approach or at least a conscious organization of thoughts about a specific problem or set of problems at hand. These skills are taught at every level of the design studio scenario. Additionally, an understanding of what individual design thinking is in relation to historical precedent is necessary. What seems to be widely misunderstood or ill-explained is an understanding of exactly what abstraction and meaning are in design and how vital an organized understanding of abstraction and conveyance of meaning are to three-dimensional form.

Abstraction and Meaning

Abstraction and meaning are not well understood by design students and they must be. When asked to define abstraction for example, students will respond that it is something that is strange or different. This may be the case, however, that is not a useful definition of abstraction. Abstraction as it relates to a design process is the removal of representative information to the point that the initial subject is still understood and in the place of that which is removed, additional information relating to and expanding upon the original subject is added. The removal process creates space, maintains original subject information and allows much additional information to be transmitted. This process transfers meaning to those observers of the product or piece. There is tremendous power in abstraction that needs understanding.

An illustration of this is a photograph of a person close up. We would see the person and would be able to identify that person easily. Because this is a photograph and not the actual person, there is a level of abstraction, albeit simple. Now if the photographer backs up a distance, the photograph will still contain the person, however, more information is added about the surroundings, foreground, background and the original subject, thus a higher level of abstraction and now much more meaning is transmitted to the viewer. The person, however, is still identifiable. If the person was a student in a classroom, the first photo would show the student, the successive ones where the photographer backs up, would add more information about the desk the student is sitting at then the student and classmates surrounding the student, then the student, the classmates and the room they are in and perhaps what class they are in, etc., etc. until reaching a point of being "too abstract" i.e. the photographer backs up so far that the original subject, the student, can no longer be identified, hence the meaning is lost.

In the late 1800's, there was an explosion of analytical direction in creative endeavours perhaps first seen in the "Monument to Balzac" sculpture by Rodin and later his well known piece "the Thinker." In those pieces, representative visual information was removed and additional visual information was inserted. No longer did a sculpture look exactly like the subject - a warrior on a horse is a warrior on a horse - but analytical questions were raised by the viewers. Why did Balzac look like he did? What was under that cape? Why would he be hiding something? What was the "Thinker" thinking about? Why was he naked and why did his muscles look distorted? By

removing some of the representational information, Rodin inserted visual information that was transmitted to viewers, i.e. analytical abstractions and no longer pure representational work. Is it coincidental that Sigmund Freud's analytical work was published during the same era? Thus began an exploration into the world of analytical abstraction; taking away too much realism resulted in mis-understanding, leaving too much resulted in boredom.

In architecture and related design fields, our work is abstract and analytical. If it was representational, it would be classical and there would be rules to the classical style being worked in. To understand and work with analytical abstraction allows students and designers alike to design in meaning that can add to the joy and excitement experienced by viewers and users of the work.

The Rigor of Order in Abstraction and Meaning - The Open Response Model

"Information modeling" simply means to display information graphically, similar to diagramming. The "Open Response Model" or ORM, is a very specific form of information modeling. It is a powerful graphic technique that is useable as a "process," a feedback and check mechanism and as a "product". How does one understand what meaning a piece should posses? What level of abstraction does the piece posses - to much or too little? Can the intended meanings actually be understood by viewers? By using an open response model as a design tool, a designer can be assured that the level of abstraction and the meaning transferred are appropriate for the problem at hand.

The Open Response Model is used to:

- probe for information,
- display information,
- organize information and subsequently,
- categorize information.

All of this is about a design project, in a very specific way. The "ORM" takes a design problem definition and in 3 successive steps, calls for increasingly more defined levels of information about that subject. The information is categorically more and more specific from left to right until the smallest pieces of information are displayed.

Within the design process, it is quite possible to forget, misplace, or not even process certain bits of data and information which can affect the design result. The data may be: *form implicit*, having to do with the physical nature or substance of the solution; or may be *behavior implicit*, having to do with the behavioral patterns resulting from the way the space works. In each case, *the data holds FORM GENERATING power* that, if gone unprocessed, could result in an incomplete design solution.

Objectives

The objectives of the ORM are to exhaust, in as methodical a way as possible, the data at hand leading to an organized display of all pertinent information about the subject. The ORM is a bit tedious at first, however, the importance lies in the rigor of its discipline; demanding that the designer assume a "third person" role at the outset and demanding that every shred of information be observed and subjected to scrutiny.

The designer is, of course, "engaging" the problem first hand. Great value lies in the completed display which serves as a testament to the process but also serves as a mechanism to test the future design solutions proposed, for completeness and appropriateness.

The ORM process is therefore "EXPERIENTIAL" and "REFERENTIAL".

Steps in the ORM process:

A: The Ensemble: Generic Definition of the Problem

The first step is to define the project using a generic phrase that describes it in its entirety. This first step allows the designer to become free of preconceptions relating to the problem. In this step, the original problem must not even be written. In this sense, a "church" becomes "a space devoted to the support of collective meditative and reflective activity" or something to that effect. Imagine this problem: you are to design a coffee cup that does not look like any other coffee cup that exists. Just saying the words "coffee cup" conjures up all the coffee cups that you have seen or used in your life. Why be hindered by those pre-conceptions? A "coffee cup" thus becomes "a container for hot, brewed liquid" and that original term is no longer a part of this effort. As one can observe, this generic definition creates an openness to possibilities that might otherwise not be considered when hindered by pre-conceived notions that the original word or phrase contains.

B: Categorical Subsets: The Major Categories of step A

Each problem defined in "A" has significant, overriding characteristics. These characteristics might be physical (size, weight, color, character, content, location, ambivalence, empathy, etc.) or they might be behavioral (gather, collect, isolate, accelerate, etc.). The task here is to break apart the problem into its major constituent parts and no more. As shown in the graphic format, this category contains two or three entries only.

C: Incremental Subsets: Parts of the Categories of step B

This is a listing of the nature of each major category listed in B. What forms contribute to them in the physical sense, and what sub-activities characterize them in the behavioral sense? Begin to describe the categories in terms of scale, dimension, identity, quantity, character, etc. but realize that there is one more category that will contain the smallest parts. There is almost always the necessity to edit and revise these last two categories. Once information is displayed, one can react to and judge the nature of the information and re-categorize the information as necessary. This is a process, several edits are normally required before the proper relationships are achieved.

D: Elemental Subsets: Elements of the Parts of step C

This lists the smallest possible element of the parts listed in C and serves to be definitional of those elemental parts in a physical or behavioral sense. These entries represent the smallest constituent part that can be observed and having form generative value. Again, remember that this is a process and that numerous edits, additions, subtractions and re-arranging of information will be required.

Once this information is displayed, reviewed and edited, the final result is a visual display of organized information that is form implicit and that represents the meaning the final designed product should have and that can be communicated to the user/observer. From here on, this visual word model represents all that will become the product. The model is read from left to right when beginning the design process and from right back to the left when, during the design process, some clarity and simplification is needed. Often times while designing, casual steps backward must be taken to clarify conceptual intent. This model will facilitate those steps and act as a checking mechanism to maintain focus and design intention.

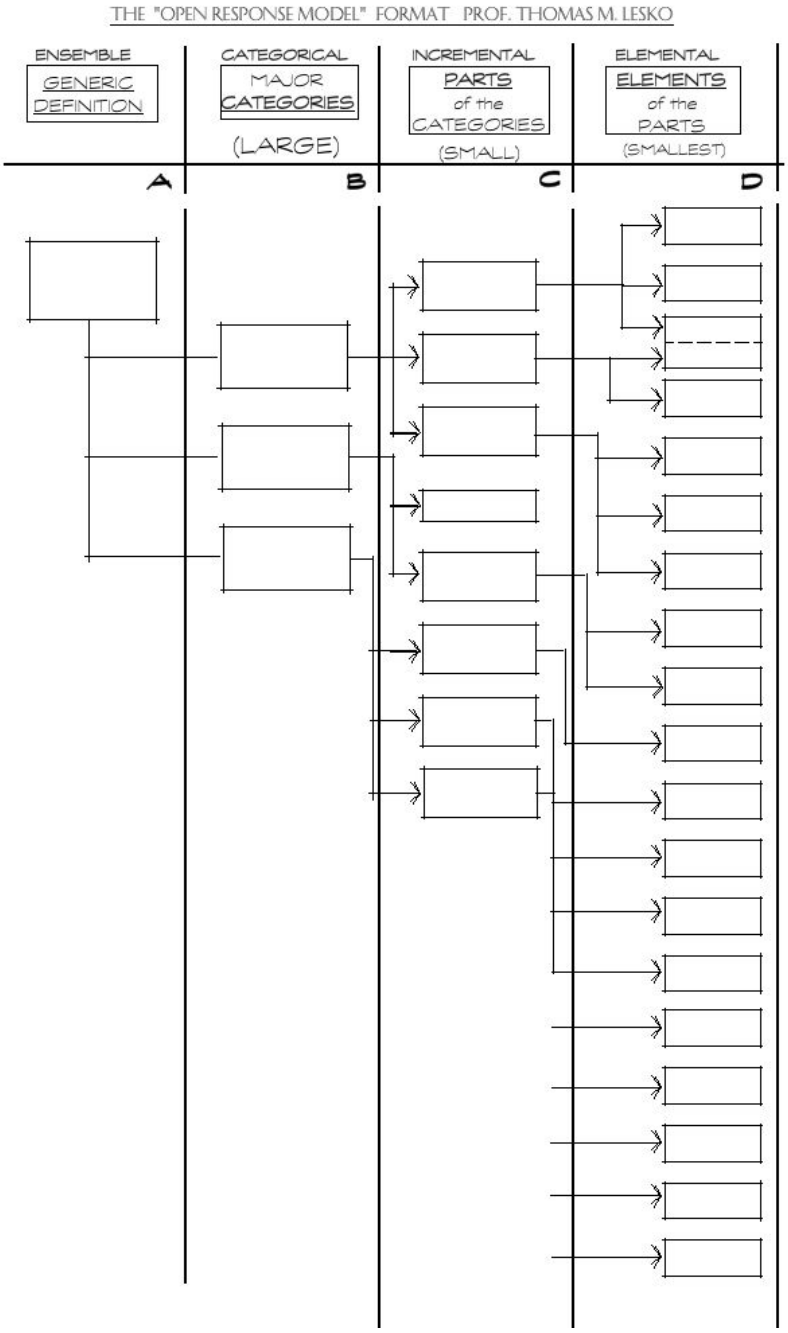

Fig. 1 The Open Response Model Format