

Structure/Media/Expression: Drawing Toward Design

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INTRODUCTION

"Between the image of what ought to be there and the actual presence of the object imagined there is that perilous journey where we seek to obtain the right form." John Habraken, *The Appearance of the Form'*

Drawing is a fundamental tool by which architects explore and visually manifest their ideas. From the earliest sketch to the finished presentation lies a realm of creative possibility. To enter this world of exploration and proceed with rigorous development requires a knowledge of drawing in its most essential aspects. The student who lacks this knowledge enters the competitive arena of architecture severely handicapped, both creatively and professionally. With the recent increase in the use of machine representations, the nature of how students draw has come under increasing scrutiny. Whatever students' drawing tools may be, it is imperative that they understand the role of visual thinking as they engage the drawing process. Therefore, it is not only timely, but critical to address this question of how students learn to draw.

We see freehand drawing as an act of visual thinking which combines analytical and intuitive inquiry. It allows architects to effectively probe existing and envisioned worlds. Despite the critical role of drawing, we have worked with a surprisingly large number of students who are unable to satisfactorily use it as a tool of exploration and/or expression. We believe this is partially because of the ways students are taught to draw. Rather than being encouraged to immerse themselves in situations of uncertainty, many students are taught various formulae for producing drawings; they learn to draw "like an architect." A review of books intended to teach drawing to architecture students reveals a variety of formulaic approaches.² Our classroom experience reveals such approaches to be a hindrance to a student's ability to learn to draw. By simply copying objects accurately and in detail, non-thinking habits are encouraged. In Wertheimer's words, it is the distinction between "sensible" and "blind problem solving.' In the first instance a person solves a

problem by understanding the subject matter, while in the second instance the problem is solved by external procedure.

Far from being a process of mere mechanical copy work utilizing formulae and iconic representation, we consider each drawing situation to be unique with its own demands and opportunities. Seen this way, drawing can be understood as a design act. At the outset of a drawing task, it is not possible or desired for a student to predict what the final outcome of his or her work will be. As they draw, students make decisions based on their understanding of the emerging work, as well as the subject under observation. Students engage in a dialog with their drawings and the world around them.⁴

We believe that all people can learn to draw actual environments, and that their drawings can serve not only to record some aspect(s) of the environment, but also as tools of exploration for gaining insights and understandings of the environment. Eventually this ability will fold back into other processes when students design their own architectural environments. While there are some for whom drawing comes easily, anyone can learn to draw and visually communicate ideas.

We have developed our own approach to drawing education which directly counters those based on formulaic procedures. Although our approach can be understood as a method, it should primarily be seen as a way to "think" about drawing. We discourage the development of a "kit of drawing parts" which can be used without regard for particular situations. We share and discover ways of thinking about drawing which can provide an appropriate background for varying situations, both in observational drawing and in working from the imagination.

To do this we have created a drawing course which explores three essential aspects of drawing, each of which is described more fully below;

1. Structural Relationships - An emotionally and intellectually responsive ordering of visual perceptions as one works.
2. Media - How the use and type of media influences the outcome of a drawing.

3. Expression - The interaction of the two above combined with the overall changing intent of the drawing.

Although we see these aspects as inextricably interconnected, we have created a series of exercises which slowly introduce isolated aspects of each aspect so that it can be more fully explored and understood. The exercises presented here represent a small selection from an extended syllabus.⁵ The entire one year course contains forty exercises moving from beginning to advanced levels. Regardless of students' initial drawing skills, they learn to thoughtfully consider each issue of drawing as they engage their work.

Our exercises begin by exploring structural relationships, slowly introduce studies of various media, and end with issues of expression. It is noteworthy that while the final exercises concentrate on expression, they do so with an understanding that previous aspects have been incorporated into the students' thinking, and will be used here as well.

Except for the occasions when we introduce a new media and want to demonstrate some of its possibilities, we typically draw very little for students. By doing this we avoid the problem of students mimicking what we have drawn. When a student asks for help in manipulating a drawing material, a productive discussion might help the student to see, for example, that the direction of a drawing stroke can be used to reveal a form's essential structure. We illustrate the issue by showing works by master artists. These drawings are not shown as a way of encouraging students to imitate another artist, but rather as a way of illustrating how other people have approached similar problems. For example, Alvar Aalto's drawing of a tree simply and directly expresses the solid organic nature of the tree trunk in relationship to the lighter, more spatially flowing branches (Reference Figure One). We note that this can be read through the directional movement and weight of the strokes.



Fig. 1.

We recognize that especially during the early part of our course, there will be some students who, while able to produce convincing drawings, lack an understanding of what they have done. More dangerously they may have developed a formula which allows them to produce the drawings. At the same time there will be students who have difficulty with the exercises. Regardless of a drawing's appearance, we therefore probe students, asking them to explain how they have created their drawing. As opposed to stressing a final product or a "pretty picture," we focus on the thinking that underpins a thoughtful, investigative drawing process. We encourage students to be reflective about their work so they can develop an insightful thinking process upon which to build for the future.

We will now briefly consider each aspect of drawing in more detail, along with a representative exercise form the syllabus illustrating the exploration of those aspects.

FACET ONE - STRUCTURAL RELATIONSHIPS

We begin our drawing classes with exercises which encourage students to recognize a setting's largest and most basic forms as well as the structural relationships between those forms. Students discover that while an everyday setting of objects may at first appear chaotic, the recognition of major forms and their relationships will bring it to order.

For example, in an early exercise utilizing a traditional still life arrangement of a few wooden blocks on a table, students are encouraged to see coherent figures in the blocks as well as relationships between those figures. Consider Figure Two, drawn in five minutes by one of our students. One reading of the still life was to see the arrangement of blocks as creating letters of the alphabet. Such a reading enables the student to bring a larger order to the initially chaotic scene, making it easier to understand and draw while not being distracted by details.

In our selection of still life objects, we intentionally choose rectilinear forms of varying sizes as they are analogous to building form. When continuing exercises transfer

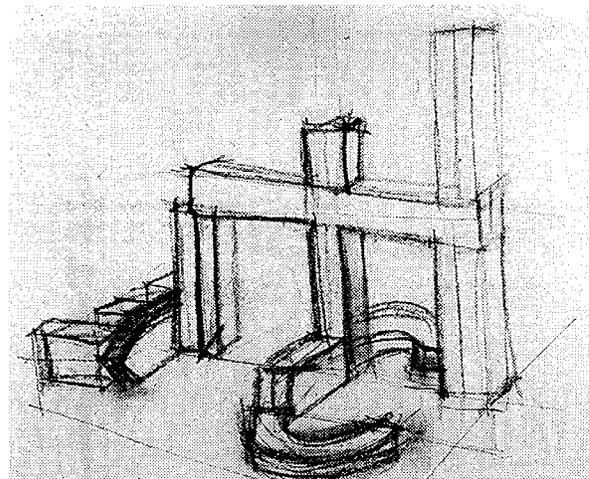


Fig. 2.

study to the architectural realm, students come to see the still life arrangement's similarity to built form. When faced with an actual building or group of buildings, students can apply the same methods learned in the still life exercises, set aside the distracting architectural details, and begin working with confidence.

In later exercises students bring the understandings achieved in the still life exercises to the drawing of actual cityscapes. Figure Three, for example, shows a student example of an industrial landscape drawn from street level in twenty minutes. While the move to cityscapes is difficult for some students, the way of seeing emphasized in the exercises is invaluable. Students are encouraged to see that seemingly complex components of built form can be understood as being comprised of distinct elements, each in particular relationships to one another, forming an overall coherent whole.

Among the master artists whose work is shown in conjunction with these exercises is the Italian artist Giorgio Morandi. We stress the ways in which his work is similar to that of the students. Figure Four, for example, reveals his exploration of the inherent spatial organization and rhythm of forms; an exploration not unlike that encouraged by the exercises.

Some students are initially frustrated that they must begin drawing in the manner described in these early exercises.

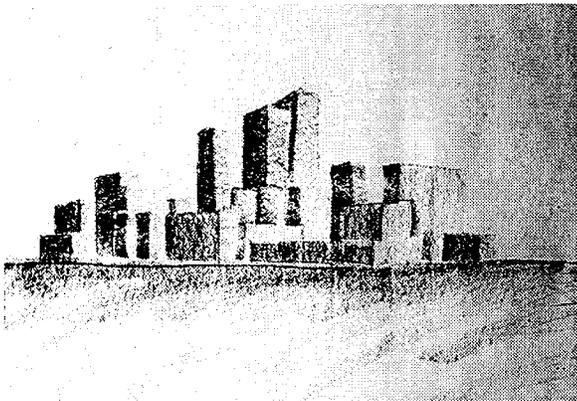


Fig. 3.



Fig. 4.

The urge to "draw like an architect" is strong. We believe, however, that our starting point is critical, and that students, regardless of any perceived drawing skills, must integrate a process of exploring a given scene's structural relationships. We have observed that immersing students in a drawing situation which is too complex encourages them to overlook fundamental issues, thereby missing a variety of understandings which will be of assistance in all future sketching situations.

By the course mid-point our explicit emphasis on structural relationships tapers off as we explore issues of media and expression. By this time, students are well-acquainted with the benefits of seeing major elements and their relationships, having applied this understanding to still life, cityscapes, facades, street scenes, and interiors.

FACET TWO - MEDIA

Our initial exercises primarily use charcoal, a forgiving and flexible media. This allows the students to take risks, make mistakes and change their minds as often as they need while learning to "see" the drawing. As students begin to understand the issues behind these exercises, we slowly introduce a range of media. This range typically includes pastels, gray scale markers, watercolors, and others. We find the use of the computer as a drawing tool a fascinating and controversial subject. While space limitations prohibit a thoughtful discussion in this paper, we find it a useful and necessary addition to a student's repertoire of tools. Our goal is not to provide students with a formulaic approach to each media, suggesting "correct" and "incorrect" uses. Rather, we encourage students to discover the unique possibilities and limitations of each media.

While the emphasis of exercises gradually includes issues of media, we do not abandon our initial investigations into structural relationships. The following exercise illustrates this balance of issues.

Exercise

Working from photographs they have taken of an industrial building, students are asked to create a gray scale paper collage of the building.

This exercise introduces a form of media with which many architectural students are unfamiliar. Through illustrations and discussion we explain many different techniques that can be used in working with paper collage. In this exercise students discover how newspaper can be used for directional movement and value⁶ relationships to create space. They learn to work by starting with a middle gray as an overall background, and to identify the building's largest value organizations, from which increased detail can then be added. Black and white are reserved for accents of intense light and dark.

Because paper collage removes line work, students are forced to explore and understand the major elements and their relationships in terms of value. The student example in

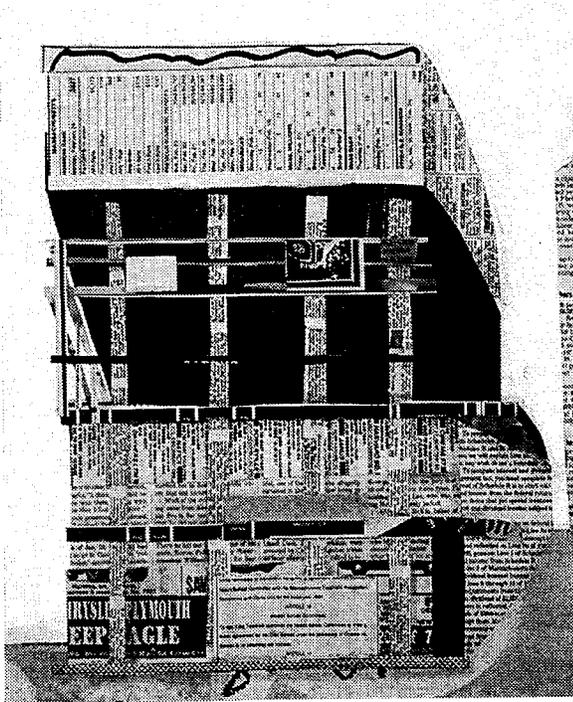


Fig. 5.

Figure Five shows how the use of media is successfully joined to the study of the large structural relationships of the forms. Interestingly, many students who struggle with charcoal line drawings excel with paper collage. Often a new found confidence is then transferred to other drawing efforts.

Our studies ultimately lead students to ask themselves which media is appropriate given their particular goals for a drawing task. A quiet street scene after a fresh snow might ask for very different media than would a frenetic interior. We also ask students to see media selection as integral to a drawing's intended level of detail. A drawing which examines small scale stone detailing may require a different media than a drawing which explores issues related to figure ground relationships. Finally, we encourage students to use media as a tool of exploration and to eliminate superficial responses to their visual world. Automatic and un-inquiring responses can be made with any tool. We stress the need to make thoughtful and appropriate choices as to the use of media in relationship to the content of the work.

FACET THREE - EXPRESSION

Students tend to believe there is a single version of reality which they must capture to a greater or lesser degree of accuracy in their drawings. We believe that there is no one "right" way to draw an actual environment. The observable world contains far more information than a student will be able to capture in any drawing. He or she must therefore decide to draw certain features of a scene while ignoring others. The person's intent in selection is very important to the final nature of the drawing.

As a way of helping students to understand this concept,

we ask them to engage in "expressive drawing" whereby they create a drawing of a given scene, but from a particular frame of reference. These frames are established by a variety of means. First we introduce students to works of similar subject matter, but by differing master artists with differing intents. For example, John Marin's painting of the sunset on the Maine coast (Reference Figure Six) is significantly different from Georgia O'Keeffe's painting of the sun over Lake George (Reference Figure Seven). This difference is far more than a matter of style; it is the result of what each artist wishes to express about the scene. It is probable that neither artist would claim to have captured the site's "objective reality."

It is noteworthy that we see expression as integral to the drawing process: it is not something that is simply "added in." Expressive drawing is a cyclical process of making decisions, both of exclusion and inclusion. It grows out of the initial choice of subject, media and even the first response as one puts hand to paper. It continues as one responds at each level to the structural relationships of the forms, the drawing as it evolves, and one's changing perceptions as he or she



Fig. 6.



Fig. 7.

juggles all of these relationships. We believe this need not be a mystical process. By training one's analytical and intuitive skills, the process is accessible to all level of students.

We also encourage students to discover different frames by using poetry and short stories as a lens through which a given environment can be seen. The many possible understandings of the stories become one means, among others, by which the selection process occurs as particular aspects of the scene are brought forward and others recede. The following exercise illustrates the ways in which we emphasize expression in drawing.

Exercise

Students are given a poem which can serve as the basis for drawings. The drawings may be of any scene which the student desires, and should reflect in some essential way his or her feeling about the poem's inherent mood. Part of the problem is to intensify and invest the scene with emotion, significance, and presence. Students are asked to select a media they feel is most appropriate to the task.

As an example, consider the following student's work as it relates to this excerpt from Conrad Aiken's "The Cloister."

So, in the evening, to the simple cloister:
This place of boughs, where sounds of water, softly,
Lap on the stones. And this is what you are:
Here, in this dusty room, to which you climb
By four steep flights of stairs. The door is closed:
The furies of the city howl behind you:
The last bell plunges rock-like to the sea:
The horns of taxis wail in vain. You come
Once more, at evening, to this simple cloister;
Hushed by the quiet walls, you stand at peace...

In the example shown in Figure Eight, the student has expressed the experiential quality of the poem. We imagine ourselves climbing the steep flight of stairs, moving from one world to another. The use of selected media enhances a sense of mystery with the broad, dark washes and loosely suggested forms. Compositionally, one's eye follows the dimly lit but massive forms up around the curve of the stairs, implying an unseen passageway continuing beyond. Literature, media, and personal intent led the student to create the drawingshown in the figure. A different media or reading of the poem might yield an entirely different evocation of the space.

In our classes students discuss their reactions to the poem they have selected. They are often surprised at how differently they each understand the same piece. Equally surprising to them are those times when similar understandings of a poem lead to radically different drawings. Students come to realize that there are multiple, equally valid realities⁸ They come to understand that drawings can and should, be expressive. With the successful completion of the expression section of our class, the transition from iconic styles of drawing is complete. The student will have begun to develop



Fig. 8.

an inquiring and thoughtful approach to drawing that is both personal and rigorous; one that also lays down a foundation upon which to build a broad spectrum of possible uses.

CONCLUSION

In this brief paper we have argued against the use of formulaic, icon-based methods of architectural drawing which students use to "draw like architects." We have proposed a system of teaching drawing which explores three aspects of drawing; structure/media/expression.

We believe it is important for students to recognize the fundamental structural relationships existing between major elements in a scene, and to use this recognition as they draw. Our first series of exercises encourages students to become aware of the ways in which these relationships provide a compositional coherence upon which smaller elements are "hung," bringing order to what may at first appear a chaotic scene. Approached in this manner, no drawing situation is too complex.

We also believe that students should be exposed to a variety of media. Again, assignments and illustrations should avoid formulaic approaches to media. Rather, students should be encouraged to discover the possibilities and limitations inherent to the different media. Approached in this manner a student's selection of media can be made relative to his or her intent for the drawing.

Finally, we see "expression" as critical to a thoughtful, explorative drawing process. Expression fills a drawing with content as students move toward capturing the experiential nature of space. This approach to drawing stands in contrast

to the strict use of mechanical drafting with its particular graphic language for diagramming architectural spaces. The rigorous habits of visual thinking instilled in the students allows them to confidently and flexibly approach any drawing challenge they encounter, and furthermore to adapt their abilities to many uses including that of the design studio.

In an essay on the novel, Milan Kundera uses the provocative phrase the "nonthought of received ideas,"⁹ to discuss the way in which preconceived ideas are used to reinforce our conventional perceptions of the world. Students are often tempted to please others by conforming to the familiar, and may use graphic conventions to affirm un-inquiring notions of the visual world. These same formulaic conventions often imply pre-assigned results which can be limiting in their nature. Drawing which is derived from a thoughtful investigation of the visual world will eliminate the automatic and superficial response of "received ideas." Because drawing technologies build on one another we should look more closely at that foundation upon which we ask our students to build.

We believe that while students who learn to draw in the manner we describe, may not produce drawings that "look like an architects'," they will have gained something much greater - the use of drawing as a tool of inquiry and expression

that allows them to "think like architects." We must teach students to think visually for themselves. This allows them not only to express their first ideas, but also to explore the rich within and beyond those original ideas, leaving the architectural world open for their discovery.

NOTES

- ¹ Habraken, John. *The Appearance of the Form*, Awater Press, 1985.
- ² For a detailed discussion of this position see, Wiggins, G. *Architectural Drawing as Designing and Creating: A Constructionist Perspective*, MIT PhD Dissertation, 1993.
- ³ Wertheimer, Max. *Productive Thinking*, ed. Wertheimer, Michael. Harper and Row, 1959.
- ⁴ The conversational nature of sketching is discussed in, Schon, D. and G. Wiggins. "Kinds of Seeing and Their Functions in Designing," *Design Studies*, April, 1992.
- ⁵ Our research on this topic was partially funded by an Educational Research Grant from the Boston Architectural Center.
- ⁶ By "value" we mean the relative lightness or darkness of things.
- ⁷ Taken from *Poet's Camera - Selections by Byran Holme and Thomas Forman*, American Studio Books, 1946.
- ⁸ This idea is discussed in, Goodman, N. *Ways of Worldmaking*, Hackett, 1978. Another good source is, *The Invented Reality*, Ed. P. Watzlawick, Norton, 1984.
- ⁹ Kundera, Milan. *The Art of the Novel*, Harper and Row. 1988, pp. 163.