VISUALIZING VISUALITY

INTERACTIVE TOOLS FOR VISUAL LITERACY

abstract

To become literate and articulate in the domain of images, to be competent in understanding the nature and structure of visual messages, is to be keenly aware of one's vision. It also means mastering a common set of terms attached to what one sees and creates. Attaining this comprehensive understanding of visual form is the task of a design student.

Drawing on analog pedagogical precedents, this thesis sets out to examine the ways in which dynamic media can be used as a unique aid to vision, a means to impart greater insight into the designer's vocabulary. Through two interactive tools, *RandStudio* and *LetterForm,* my thesis investigates how using motion and the principles of interactivity to visualize information can complement traditional approaches to teaching visual literacy.

RandStudio is a system designed to help students analyze the work of master designer Paul Rand. By letting users manipulate practically all of the visual elements in a classic Rand poster, the project guides them to discover the formal mechanics behind Rand's refined simplicity. *LetterForm* is an interactive tool that illustrates typographic terminology and allows students to explore the elemental formal properties of the letterform. Both case studies help students to become more aware of the communicative potential of formal decisions—of the dynamic correlation between form and communication—by providing the opportunity to drive dynamic transformation of form on screen.

dedication

acknowledgements

table of contents

preface

DISCOVERY – the act or process of discovering. To discover is to obtain knowledge of, as through study or alternately to reveal or expose. ***Synonyms:*** *exploration, revelation, learning, invention, analysis, disclosure.*

This thesis documents two years of discovery. I eagerly came here two years ago with vague ideas about what interactive media was and unformed interests in educational content, and I come away with both sharpened insights into the design process and a clarified vision for the current function and future potential of dynamic visual form. The thesis projects that I present here are made possible by this process of discovery.

The projects and ideas that follow are all about discovery. They are case studies created with a design methodology that is intended to catalyze this process, or act, and to consequently enable the sharing of knowledge. If anything, I would hope that along the way the reader discovers a few new things about visual form through the complexity of Paul Rand's work or new insights into the formal qualities of the letterform. Whatever the culmination of your discovery, this document marks both the end and a new beginning of mine.

1

contextual issues

the question of vision

DYNAMIC VISUALIZATION FOR VISUAL LITERACY

A perfect solitary o crisply rendered on a sheet of white paper. Centered vertically and horizontally. What exactly is it that you see? The eye perceives a starkly contrasting black character that vibrates against an expanse of white. What the mind senses is individually shaped by a breadth of different conceptual frameworks. The question of vision is a complicated one. Is the image before your eyes simply a verbal symbol? For the literate, the visual sign of spoken language may immediately conjure an association with its aural counterpart. It may spur one to imagine the corresponding vocal utterance and to connect this singular form to a host of hospitable, associated words. To a literate English speaker the visual "O" might evoke the mouth open, relaxed and rounded, or the words "open," "over," "order," and so on. To many pairs of eyes, this is the dominant kind of literacy – the ability to connect visual symbols with spoken language. Yet for others, there is another, parallel form of literacy tied to the visual realm.

This competence in understanding images and constructing visual messages is difficult to define and perhaps even more difficult to attain. Consider the moment of visual insight when the "o" is no longer simply a symbol for the verbal but can be viewed, in addition, as a purely formal element – one made up of positive and negative space, form and counter-form, lines that become strokes, and carefully proportioned and constructed curves. The solitary typographic form on the page comes to be understood as an individual form but one that can be imagined as joined by successive pairs of letters, spaced with consideration to form words, groups of which form lines and lines of which form columns. The ability to visualize successive formal relationships emanating from one letterform is the kind of visual understanding required of the designer, who must have a dual sense of letterforms as belonging to both the realm of language and the broader spectrum of visual form. One must be able to recognize this form as belonging to some greater constellation of typographic history: is it Futura, Bodoni, or Caslon? Geometric, didone, or transitional patterns? To move from individual letter to word, line, and column, is to perceive that what we create on the page is not simply an accumulation of individual formal

specimens of type or a transcription of verbal language but a separate, visual mode of communication. To become visually literate as a designer is to attain a sort of crystallization of verbal knowledge – the principles of good typographic or visual form – transformed into visual intuition. That means, first, learning to speak conceptually of visual form, and second, learning to manipulate type, image, and form into meaning, to "speak" articulately using a purely visual language. How is it that one can attain this kind of insight? This question of "vision" is a question of design education. How do you get the student to stop seeing the "o" as simply a linguistic character and to simultaneously perceive it as a typographic character? How is it, as a teacher, that you can provide or transfer your existing knowledge – your own perception or sense of vision – to your student? The elusive moment when everything "clicks" is a moment of transformation on many levels. It is the instance when the student can accurately perceive in purely visual form that which she once knew as only a word.

VISUALIZATION FOR VISUAL LITERACY

In art and design classes there are well-practiced techniques to aid in the attainment of the basic formal vocabulary used in the construction of visual messages or "vision." Take the composition and view it upside down: view it rotated ninety degrees counter-clockwise; view it reflected in the mirror. Viewing one's work in an altered context is pedagogically effective because it enables instant vision, or insights onto latent formal decisions and qualities. Viewing a drawing of a face reflected in the mirror will often enable one to see oddly asymmetrical elements that may be less noticeable in a regular viewing. As described above, the means enabling these tested manipulations are often quite simple. This thesis begins its investigation by examining ways to incorporate media elements into this process of educational visualization. Specifically, it seeks to explore the use of new media and dynamic visualization as a means to demonstrate principles of visual literacy in the aid of teaching design.

It is helpful to begin by examining the roots of analog precedents, media devised to demonstrate fundamental principles of visual communication such as color, tone, and contrast. A perfect starting point is to consider a common viewing device often used in foundation-level representational painting courses. Consisting of a single square piece of cardboard colored white on one side and black on the reverse, this card is used to aid students in analyzing color relationships. A small square window is cut into the center of the card. Holding the card up to an object of observation such as model or still life, students peer through the card to observe a portion of the viewed scene. Say for instance, a student had set out to paint a still life of a single apple. Viewing the apple through the white side of the card, positioning the window so as to reveal only a small swatch of the fruit, the student can ascertain the quality and brightness of the apple's color in contrast to the white card. The contrast of the color against the white paper will provide insight into the hue and saturation of the color in question. Then, flipping the card to the reverse black side, careful to fix the window on the same area of the object, the student can examine the same area of color in a different context. Viewed against a dark frame the color's consistency will seem different and will provide greater insight into the particular color qualities.

This practice of flipping between black and white sides of the card, of observing a color in two different, contrasting contexts, is a dynamic process. The moment of insight into color consistency comes through the continuous changing of viewing contexts. The states of observation before, during, and after coalesce to ultimately foster a greater understanding or appreciation of the image before the student's naked eye.

This process of visualization is facilitated completely through motion. The student learns by connecting various states of being across a period of time. The act of seeing here consists of more than simply passive watching. It is an action, one that is fully controlled by the student's hands. Flipping a windowed card may be a drastically simple way to enhance one's understanding of basic visual principles, but that only goes to show that the process of revelation, of user-controlled motion or dynamic visualization, holds tremendous potential for teaching visual literacy.

My thesis examines how dynamic media can be uniquely used as an aid to vision, as a tool for teaching the perception of visual form, and as a means to attain greater insight into the nature of visual literacy.

I have investigated user-controlled motion as a method of visualizing and analyzing formal design decisions and typographic form in two major case studies – *RandStudio* and *LetterForm*. By no means are such visualizations comprehensive courses of design education, but rather aids to the overall teaching process. They could be used in group settings, presented in conjunction with lectures or class critiques, or alternately individually by the student outside of the classroom. It is my contention that the ability to "see" – to gain insight and understanding into the nature of images – precedes the ability to speak using visual form.

2

VISUALIZING **VISUA**LITY

THE LANGUAGE OF FORM

TWO CASE STUDIES

quantifying the qualitative

CONCEPTUAL FRAMEWORKS FOR VISUAL LITERACY

Becoming "visually literate" is not only the process by which we attain creative fluency with the component of visual messages but also the acquisition of competency in attaching verbal definitions or terminology to these visual elements. Attaining this literacy can thus be described as a two-way process whereby the visual illuminates the verbal, and in turn, the verbal illuminates the visual. Examining the analog methods used to demonstrate elementary visual vocabulary can clarify the process of teaching visual literacy. Prior to an in-depth discussion of how interactive media can aid in this visualization, we must first define the verbal terms we seek to attach to their visual counterparts. What is the vocabulary of "visual literacy"?

The definition of "visual literacy" and the psychology of perception within art is a well-traversed area of scholarship. Much research in this area seeks to address the necessity of visual literacy to comprehend and create visual messages within an ever more visual world. While interesting, this thesis is not concerned with the philosophical arguments for greater recognition of visual literacy as a body of knowledge equal in importance to verbal literacy nor is it a treatise on the nature of vision. Rather, the theoretical starting point for this inquiry is with research that presents models to represent visual literacy visually, and with a verbal vocabulary that precisely describes its visual counterparts.

The pedagogical model presented in Donis A. Dondis' *A Primer of Visual Literacy* offers a highly comprehensive framework for understanding the terminology that comprises a vocabulary for the basic elements and compositional techniques of visual form. The following section summarizes the analysis and primary contributions offered by Dondis in order to provide the conceptual model that has served as the foundation for my interactive investigations.

towards a system of visual syntax

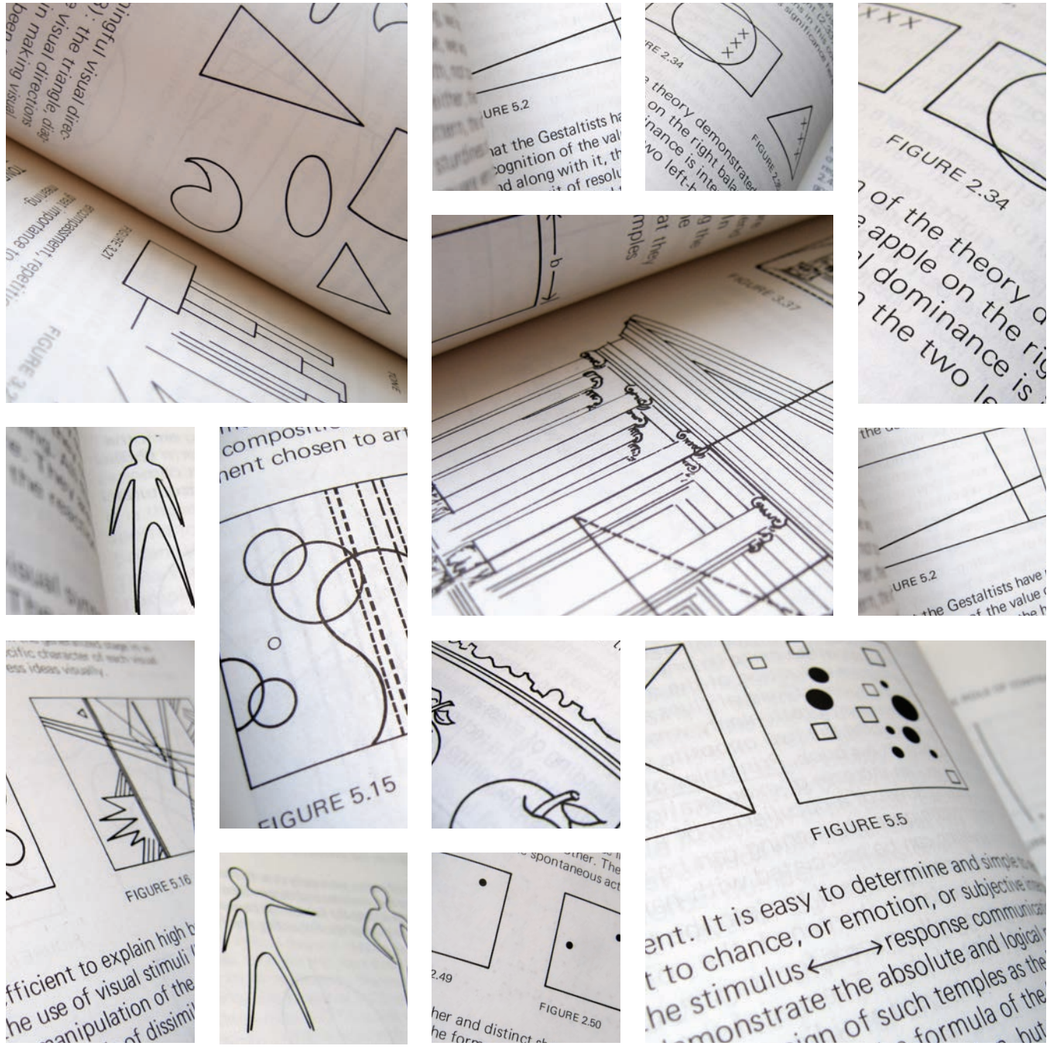
DONIS A. DONDIS'S *PRIMER OF VISUAL LITERACY*

"The visual mode is a whole body of data that can be used, like language, for composing and understanding messages at many levels of utility from the purely functional to the lofty precincts of artistic expression. It is a body of data composed of constituent parts, a group of units determined by other units, whose significance as a whole is a function of the significance of the parts."

—Donis A. Dondis (xi)

Dondis' *Primer of Visual Literacy* lays out a comprehensive modular system for analyzing visual messages. While the book also attempts to connect discussions of broader aesthetic issues of style and the function of "fine" and "applied" art, only the specific structure for understanding and creating visual messages is of particular relevance. Drawing loosely upon the structure of linguistic models, Dondis proposes that visual literacy operates as "a basic system for learning, recognizing, making, and understanding visual messages that are negotiable by all people" (Dondis, x) In this loose linguistic analogy, compositional methods are presented as the syntax for the arrangement of visual elements – line, color, shape, directions, texture, scale, dimension, motion. Dondis focuses largely on human perceptual factors, such as balance, attraction and grouping, negative and positive space, leveling and sharpening, and stress. Shifting from a Gestalt influenced theory that broadly encompasses how we perceive a whole work to the specific analysis of an individual set of visual elements, Dondis sketches a whole/parts model for understanding the syntax of visual messages. From there, Dondis discusses the classification of visual messages as representational, abstract, and symbolic, and the specific visual techniques that enable their creation of visual messages.

Dondis presents a clear, highly organized system of vocabulary for understanding the basics of visual communication. On this front, the book is very successful. But when she moves on to a visual illustration of the verbal terminology Dondis engages in a more challenging topic, and her discussion proves only partly successful. Through a series of simple black-and-white drawings, Dondis lucidly illustrates basic compositional methods and visual elements. The drawings succeed so well in communicating these elemental terms because of their reductivist, almost bare-bones iconographic style. No detail is superfluous, and all details clearly serve to illustrate a concept. This is not to suggest that Dondis succeeds by defining a single, all encompassing, icongraphic representation for each element of visual vocabulary. Rather, the opposite is true. Dondis' makes the terminology highly compelling precisely through the use of multiple sequential drawings to illustrate a particular



Simple drawings from Donis A. Dondis' *Primer of Visual Literacy* demonstrate concepts of visual form.

term; she offers a range of visual examples to illustrate how varying degrees of a particular formal quality affect visual communication. In this manner, Dondis accomplishes a difficult but essential aspect of teaching basic visual communication, showing that a given term is not defined singularly but rather as existing within a spectrum of formal possibilities.

Where Dondis' visual representations begin to fall apart is when she attempts to define broader and less specific, though no less important, visual terms. Seeking to illustrate what she calls the "visual techniques," Dondis again provides a range of small black and white drawings. She presents these broader terms with a series of dichotomies. To visualize the concepts, she matches simple drawings and visual examples drawn from design practice with pairs of opposing descriptive terms such as boldness and subtlety, activeness and stasis. Illustrating these oppositions is a complicated task. Many of the drawings are once again successful in their economy. Other drawings, however, are difficult to distinguish from one another and thus become repetitive and unspecific. Paired with the sparse drawings and reproduced at a small size that makes it difficult to discern crucial details, the examples from design practice often lack the clarity and eloquence of the drawings they accompany. Moreover, the examples are for the most part dated and it is difficult to look beyond the stylized 60s and 70s era graphics. Consequently, the mish-mash of visual styles and lack of specificity in the illustrations makes it difficult to fully comprehend the formal quality in question.

Where Dondis' inquiry both succeeds and fails – the representation of visual terminology both visually and verbally – forms the point of inquiry for my first thesis case study: *RandStudio*. We speak about visual form through a blend of words and images, a specific verbal and visual vocabulary. My own interactive examinations are not an attempt to recontextualize or extend Dondis' work so that it applies to designing for a dynamic context. Rather, I seek to use the unique capabilities of dynamic design to elucidate the vocabulary Dondis has developed. Where Dondis relied on static, sequential, simplified visualizations, I use time-based, interactive demonstrations to present the same elemental visual principles and reveal the spectrum of formal decisions available to designers. The content for this investigation is the body of work of designer Paul Rand.

overview play with your form

DEMONSTRATING THE VOCABULARY OF VISUAL LITERACY

All creative art is intuitive. So if it's intuitive,
how do you know why you do something?
You know why you do something after the fact,
then you make up all kinds of stories about it.

—Paul Rand

In a sense, *RandStudio* is a project about those stories and how we use them.

More specifically, *RandStudio* is a set of visual analytical tools that lets the design student explore the intuitive formal decisions of Paul Rand. It is an investigation of how the use of motion and interactivity can complement traditional approaches to teaching by demonstrating the vocabulary of visual literacy in a time-based context. Conceived as a system that would eventually cover 10 classic Rand works, ranging from logos to posters to book jackets, this demonstration version examines in depth only one work – the *Tokyo Communication Arts* poster from 1991.

The Tokyo Communication Arts poster is a stunning example of Rand's refined simplicity. A series of playful geometric forms arranged in carefully proportioned spatial relationships suggests a bee floating in a garden of colorful flowers.

The prototype version deeply examines a series of formal considerations behind the poster. Users can explore the work within ten specific categories of elementary visual vocabulary: form, counterform, grayscale, color, hue, opacity, rotation, spatial relationships, scale, and direction. Each examination allows the user to selectively modify the property in question in the composition through the use of a simple draggable slider. For instance, in the scale category, the user can drag a slider to examine how enlarging or shrinking individual forms, from 25 to 150% of the original size, affects the composition.

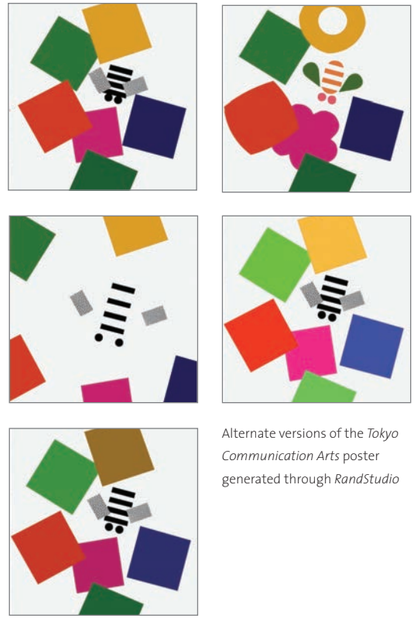
Throughout the categories of examination, the range of possible modification is intentionally limited in order to demonstrate opposing formal states – small versus big, geometric and symbolic versus biomorphic and literal, opaque versus transparent. Unlike a commercial design application, creative manipulation is curtailed – only one property is editable at a time and only within a set range – to clearly emphasize the nature of a particular aspect of the visual vocabulary. These ranges help users see Rand's decisions as points on a series of spectra applicable to all form – colors can be more vibrant or alternately grayed out, tonal value can be darker or lighter, spatial relationships can be tighter or looser.

Each interactive examination is, in essence, an interactive animation. Dragging the slider is equivalent to scrubbing through the playhead of a short timeline. Wildly jogging the slider back and forth or cautiously pulling the bar across the stage

produces different results. The quality of temporal sensations rests in the hands of the user.

What do these interactive examinations do beyond encouraging playful formal exploration? Playing with form, users witness the dynamic transformation on screen while becoming more aware of the communicative potential of formal decisions – the dynamic correlation between form and communication. The potential total number of alternate compositions that could result from each examination is finite but enormous. The potential for alternative communicative interpretations is possibly infinite though the potential number of clearly articulated visual messages is more difficult to ascertain. Between the polar states of each slider's animation lies a range of communicatively "fuzzy" points. When does the square stop being a square and become a circle? When does the circle suggest an organic form and not a geometric form? The system offers no answers but simply raises the users awareness of the range of possible meanings.

Viewing what Rand didn't do, we acquire a greater appreciation for what he did do. Quite frankly, *RandStudio* allows the user to create any number of horrifically awkward interpretations that communicate radically different ideas. By dynamically altering and re-altering the work, we understand the communicative potential of formal decisions. Short movies, featuring informative animations and voiceover, provide greater context for the communicative role of by various formal

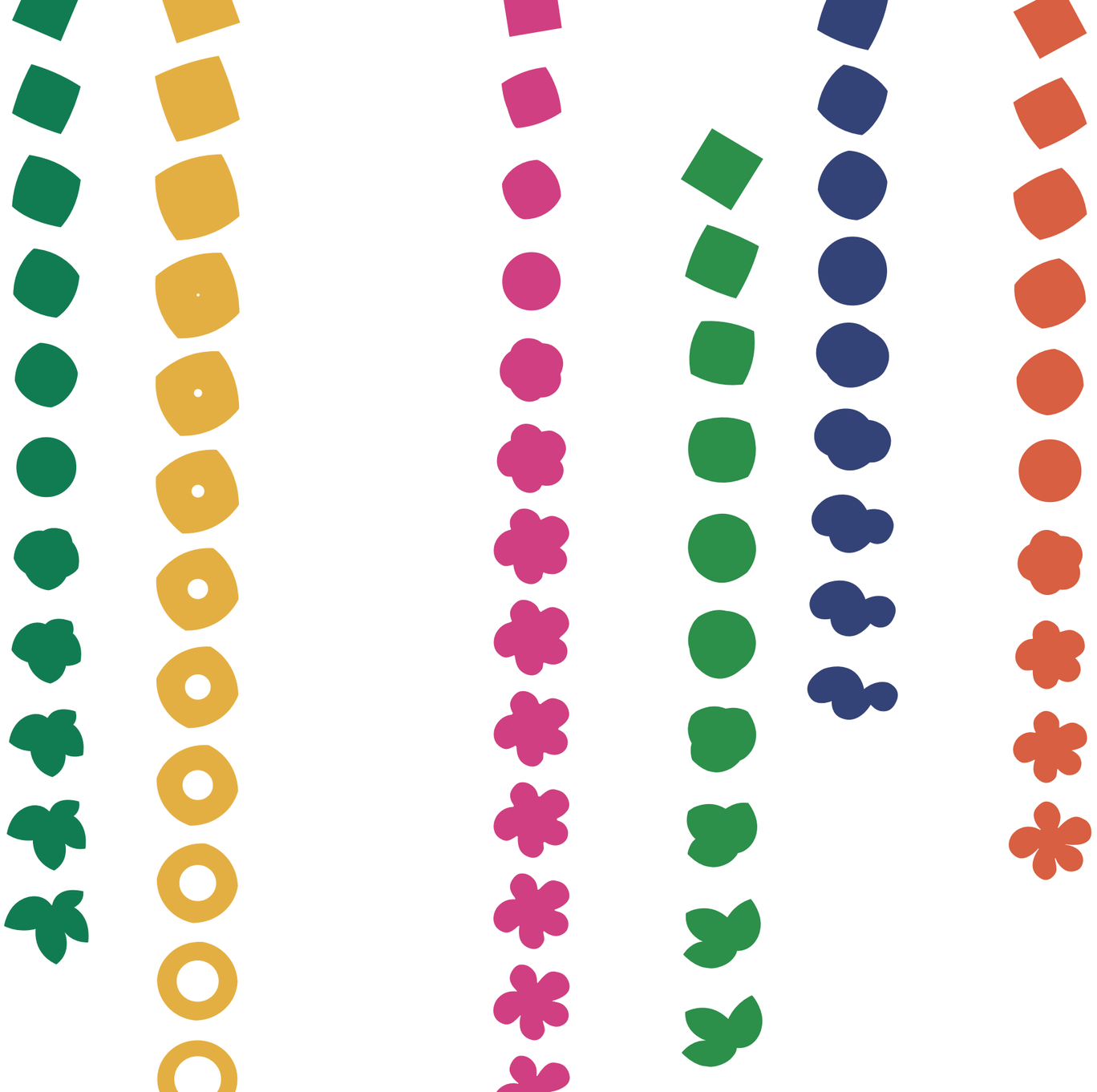


Alternate versions of the *Tokyo Communication Arts* poster generated through *RandStudio*

selections accompany the interactive features. Quotes from Rand's own articulate writings about the nature of visual form combined with these short features provide a framework for the analytical "stories" which users gain from the experience. Coupled with the interactive explorations, these contemplative encounters with form provide a bigger story. They encourage a deeper visual consciousness that is intended to aid students, whether they are beginners or already experienced designers, in developing a greater intuitive awareness of how to manipulate form to communicate meaning.

(This page) Inspired by Dondis, the interface icons for each category were consciously designed to be simple, iconographic representations of the visual terminology. (Opposite page) *RandStudio* interface as shown onscreen.

Frames from animations in the "Form" exploration show a range of possible biomorphic shapes. Smooth transitions from one state to another reveal the "fuzzy" nature of inbetween states.



$100^7 + 100^7 + 100^7 + 100^7 + 100^2 + 100^2 + 100^2 + 100^7 + 100^7 + 100^7$ variations possible

108 variations generated randomly

Graphic design...generated by intuition
or by computer, by invention or by
a system of coordinates is not good design
if it does not communicate.

—Paul Rand

108 interpretations of the *Tokyo Communication Arts* poster as randomly generated through *RandStudio*. How would Rand have responded to an algorithmic filtering of his work? Rand's particularly dogmatic and blunt statement on the role of design and communication is suggestive.

framing the experience connecting the visual to the verbal

DESIGN METHODOLOGY

My intention in creating *RandStudio* was to foster an experience in which a student user could connect the terminology of visual form to examples of form in a manner that emphasized the complexity of these concepts. I wanted a learner to see "color" not merely as question of selecting a particular value, but to understand the symbolism inherent in hue, to see various colors as interrelated and dependent, and to recognize quality of chroma as dependent on the degree of saturation and brightness. That said, most of these lessons are implicit and take place through interactive explorations. In order to group these complicated concepts the student must be prepared intellectually. This is a question of framing the student's mind for the coming demonstration or visual lesson through the targeted delivery of sequential text-based information presenting the terminology of visual form in depth. This verbal component illuminates the workings of the visual.

The text-based information is introduced successively. Increasingly more advanced concepts build on those previously presented. The information is arranged, in order of experience, or appearance, from the visual term, to a more specific definition, to a broad question that frames the interactive exploration, and finally to an insightful animated commentary, presented in audio-and text-based form, that offers deeper intellectual explanation. Each successive bit brings you deeper into a discussion of the formal concept at hand. For example, rolling over "form" reveals the further definition "shape and representation." Clicking on the term reveals the question "How does the use of geometric forms affect the composition? Could more realistic forms be used instead?" and loads a voice-over animated commentary that can be viewed by the user.

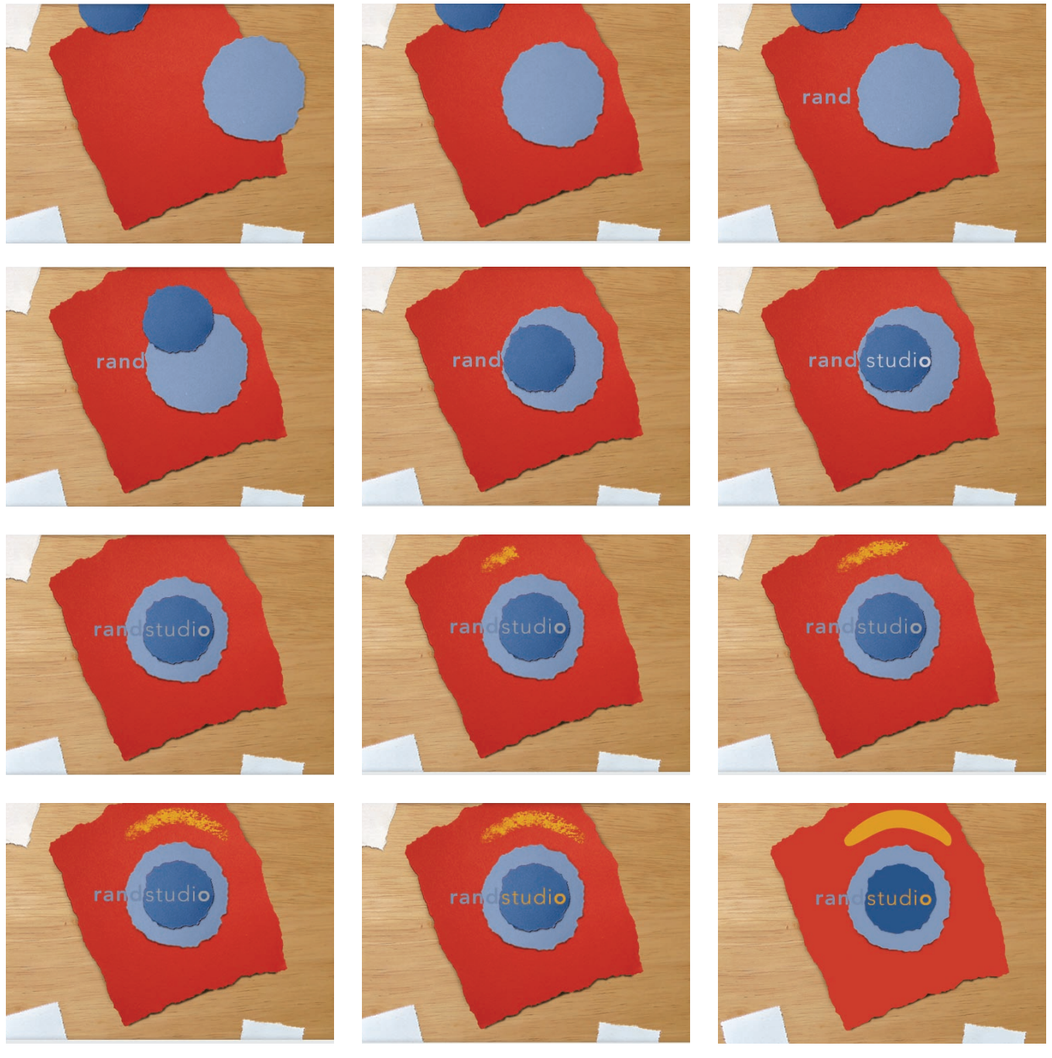
DESIGN METHODOLOGY

What is it that enables this cohesive progression of ideas? Motion, or animation, was used throughout RandStudio both to sequence text-based information smoothly and as a means to illustrating visual concepts dynamically. Motion can be found at different levels – in the most simple rollover animations on the individual visual terms, as broader definitions glide in and out, to the way in which the poster

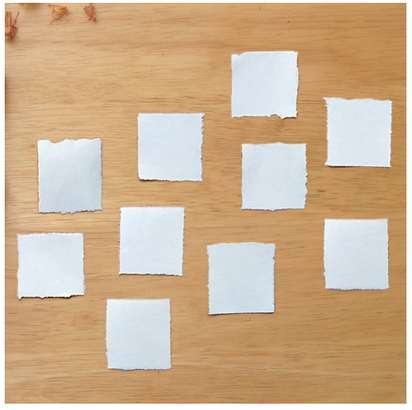
animates to represent the concept under investigation when new "design elements" load. Motion as a design methodology was a guiding principle in the project. This motion can be further distinguished into two categories, passive and active. On the one hand, the user watches the short animated commentary segments accompanying each "design element" section. Here, in these brief movies, animated graphics combined with voice-over remarks provide explanations through motion of the primary visual concepts. On the other hand, each interactive design exploration is effectively made up of single or multiple animations. As the user drags the slider forward or backward, he or she drives the playback of the animated sequence forward or backward in time. Guiding the progression of the animated sequence ahead or behind, the user actively controls the motion and correspondingly the transformation of the visual property.

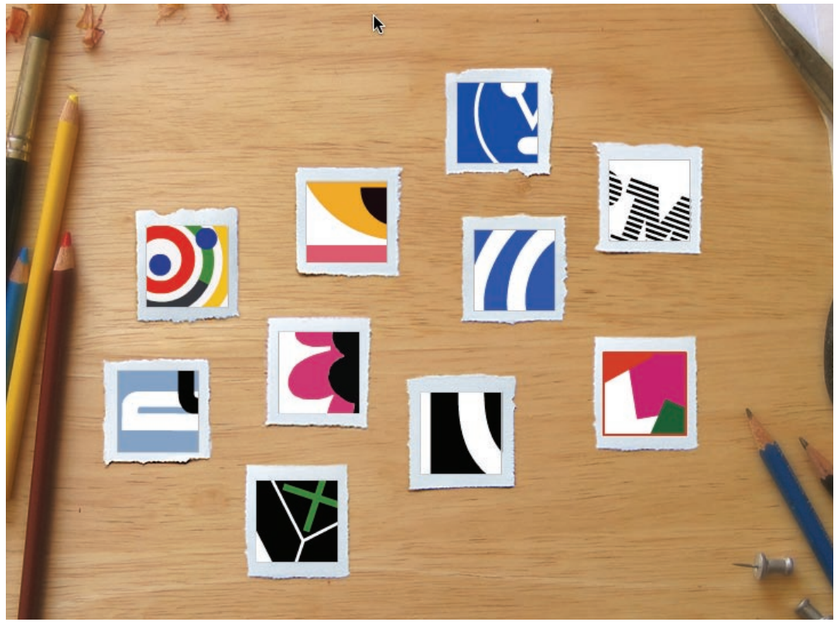
Form communicates meaning and motion is only one significant aspect of the project's design. The design of several interface elements was carefully considered to aid in framing the mind of the user for the experience.

The primary goal of the experience is to provide an environment for playfully examining and manipulating formal elements of a poster. As such, the metaphor of a studio – a setting in which designers are consciously engaged in process of creation – was used for the interface. From the outset of the piece, a studio tabletop, a symbol for a sort of laboratory of formal play, serves as a backdrop setting for the interface. In the animated introduction, pieces of torn paper arrange and rearrange themselves on this tabletop, as if controlled by the unseen hand of the designer, to form the title of the project emphasizing a theme of formal experimentation and creation. With the conclusion of this sequence, a set of square, torn pieces of white paper arrange themselves in the center of the tabletop and a single piece bounces excitedly up and down in place as if asking for our attention, until it is selected by the user. When selected, it triggers the appearance and animated formation of highly recognizable graphic elements drawn from Paul Rand's work, carefully masked, inside the squares. The animated development of these works inside the paper squares underscores the purpose of the project, the analysis of composition. Rolling over these individual squares, reveals tooltips with information on the title and date of the framed work adjacent to the square. These square pieces form the menu of works available for examination. Clicking and selecting a square transforms the interface. The paper squares fall away, the chosen work loads and a menu of design elements, terms drawn from visual vocabulary, appears. Now the process of interactive exploration can begin. These animations and design decisions set the tone of the experience, emphasizing playful and creative formal examination.

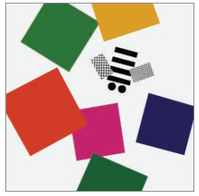


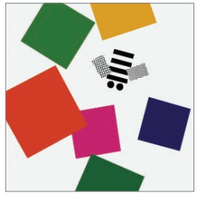
Stills from the introduction sequence in *RandStudio* show the animated development of the project identity.

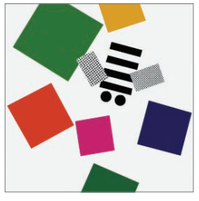


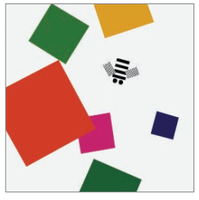


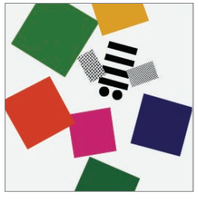
(Clockwise from left) Stills from the animated introduction. The torn-paper squares moving into position and the subsequent animation of Rand's works in the frame form a "menu" of potential explorations.



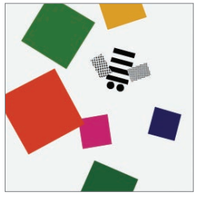




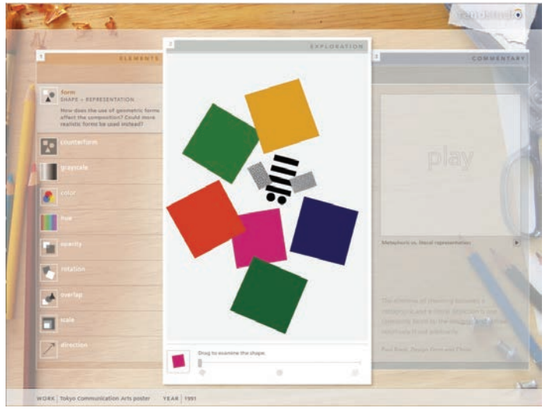




Frames from the animated introduction to the "Hue" section showing the shifting color values of the poster's graphic elements.



Stills from the commentary movie accompanying the "Scale" section show the spatial and compositional consequences of dramatically different versions.



The interface showing the "Form" exploration.

theory critical perspectives on dynamic form + modernism

DESIGN OBJECTIVES

Post-modern ideology gave formalism a bad rap during the 1990s, discrediting a range of pedagogic approaches based on structural analysis and experiment. Students are thus ill-equipped to deal with design in formal terms. They are well attuned to design as a culturally specific vocabulary, but they are less aware of how to manipulate structural conditions to generate meaning.

—**Ellen Lupton**

Shifting to a more critical perspective, there are two key observations to be made regarding the broader theoretical design concerns at play in RandStudio. First, the project makes unique use of dynamic media as a means to visualize analytical formal decisions, and accordingly, it fulfills a critical pedagogical role. Second, the examination of the work of a key modernist designer within an interactive environment offers new perspectives on both the legacy of modernism today as well as the aesthetic issues inherent in 21st century software tools.

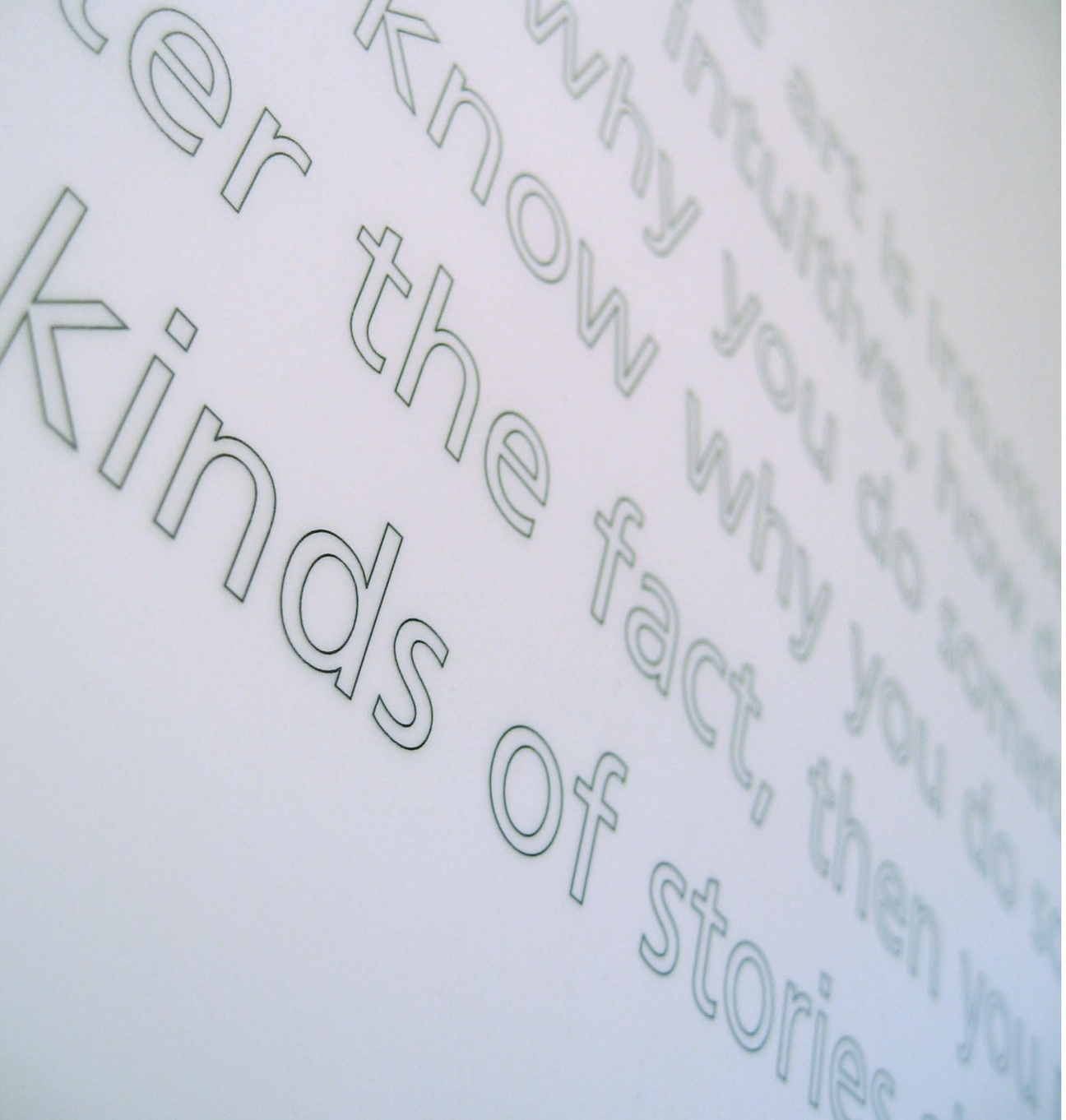
A PEDAGOGICAL ROLE

If, as Ellen Lupton posits, the role of formalism in design education has waned to a critical nadr, a current dilemma for design educators is to refashion formalism for a generation of designers weaned on the instant creative ease of drop-down menus, filters, plug-ins and templates. While Lupton's *Manifesto for a New Formalism* encourages educators to find self-critical approaches to using software in the classroom, how can we think outside the boundaries of commercial applications but still use digital media to talk about form? This thesis takes up that challenge.

Why talk about form through dynamic form?

Design is a dynamic act. Form undergoing the process of design exists in a state of perpetual change: when we design, we are continually and constantly manipulating it, whether in pixel or on paper, moving and shaping the elements of a composition until it has reached that particular point where it speaks the intended meaning. A little bit more or a little bit less of a particular formal element, until it reaches a particular sweet spot – often an appropriate intersection of the conceptual and the formal. Only then does it become fixed.

It is precisely because design decisions are inherently conceived within a spectrum of formal choices that using dynamic visualizations to analyze form succeeds as a pedagogical tool. While, one could argue that in this sense all commercial design



RandStudio was first exhibited at the 2006 CAA Regional MFA Design Exhibit. The facing page is a detail of wall text from the installation featuring the following Paul Rand quote: "All creative art is intuitive. So if it's intuitive, how do you know why you do something? You know why you do something after the fact, then you make up all kinds of stories about it."

applications enable dynamic visualizations of form – that their various filters and menus offer numerous instant algorithmic manipulations – these applications are primarily design creation tools, not design education tools. As a pedagogical visualization tool, the crucial difference between *RandStudio* and commercial design applications are the limitations of control in the former.

In *RandStudio*, the extent of dynamic analysis is intentionally curtailed to limited pairs of oppositions for the purposes of demonstration and learning. In a design application, you can manipulate a form, controlling various properties successively, to your heart's content. But how much of that process of manipulation will inform you about the structural conditions and the formal potential of the object in question? In *RandStudio*, witnessing the limits of dynamic change enables greater learning potential: you see a form as existing within a spectrum of structural conditions, you recognize the endpoints of the slider as representing more or less extreme manifestations of formal properties, and you ultimately attain greater insight into the nature of formal decision-making process. The ability to perceive these ranges of the formal potential and to attain greater analytical insight into the design process is valuable pedagogically and uniquely realized through dynamic visual form.

The use of limited parameters for formal manipulation shares the pedagogical approach that came to characterize Paul Rand's philosophy as a design educator. In over thirty-five years as a professor of design at Yale University, Rand came to articulate a pedagogical style that emphasized the use of restricted problem solving in classroom assignments. In her essay, "Paul Rand: The Modern Professor", Jessica Helfand succinctly summarized Rand's intellectual outlook in the classroom as guided by "the study of limited means – a pedagogical celebration of the modernist ideal."(Helfand, 157) Helfand argues that under this guiding philosophy, "the success of a given problem lay largely in the way it was articulated – and the limitations within which it was given." (Helfand, 156) This educational ethos was encapsulated by Rand's landmark essay, "Design and the Play Instinct." Here, Rand lays out the rationale for structuring assignments as a kind of rule-based play.

> *I believe that if undue emphasis is placed on freedom and self-expression in the statement of a problem, the result is apt to be an indifferent student and a meaningless solution. Conversely, a problem with defined limits, with an implied or stated discipline (system of rules) that in turn is conducive to the instinct of play, will most likely yield an interested student and, very often, a meaningful and novel solution. (189)*

What Rand deemed effective about the "play principle," an exercise of playful exploration framed by a set of structured rules, was that it provided an opportunity

The invisible design process made visible. Detail of installation of *RandStudio* during the 2006 CAA Regional Design MFA Exhbit in the Godine Gallery at the Massachusetts College of Art. 143 versions of the *Tokyo Communication Arts* Poster as generated by *RandStudio* were hung in a grid with silver silk pins.

for observation, analysis, curiosity, and enjoyment – a diversity of "psychological and intellectual factors" fostered by the pursuit of variations within specific limitations. Inspired by the effectiveness of the "play principle" and Rand's pedagogical philosophy, the use of sliders and limited interactivity in *RandStudio* similarly enables playful formal exploration while spurring formal analysis and insight.

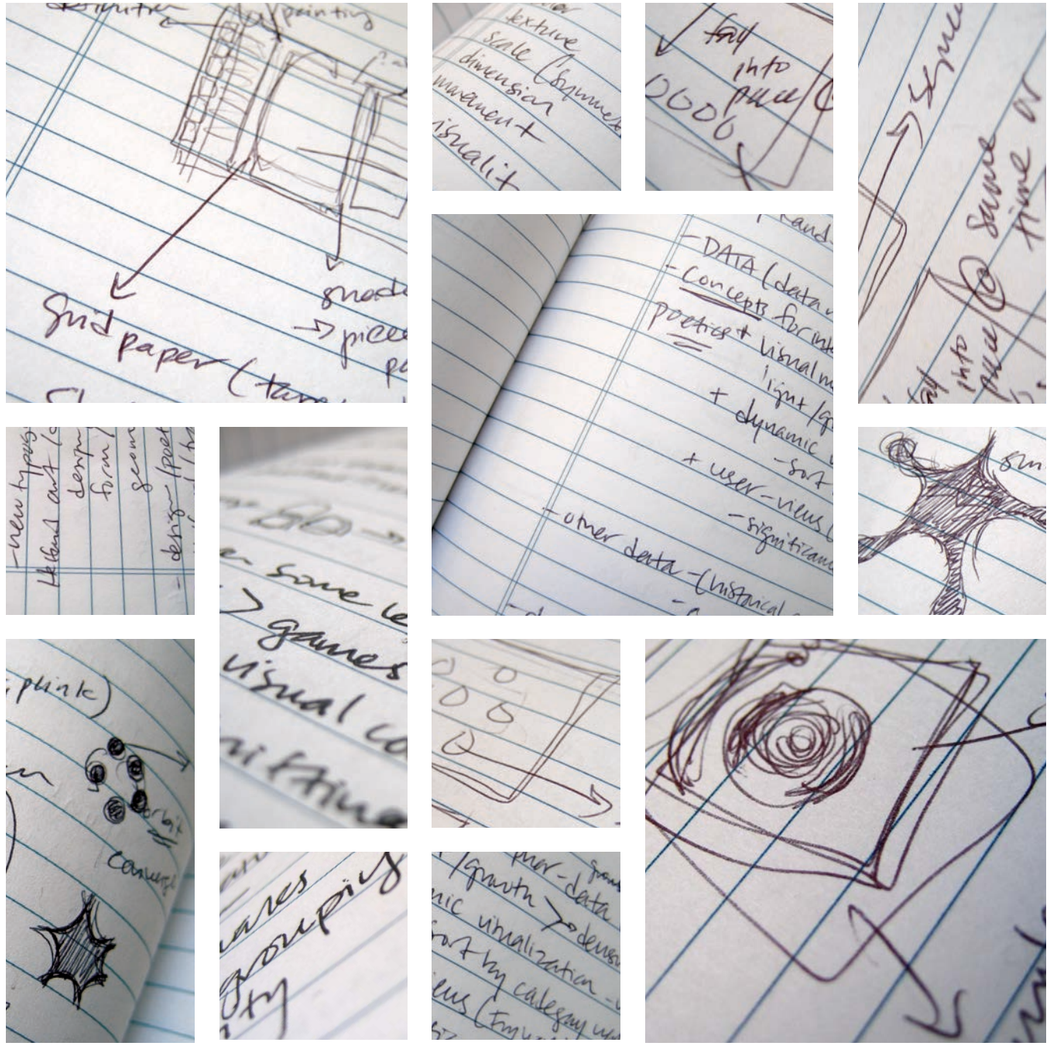
MODERNIST IN THE MACHINE

Aesthetic decisions

Dealing with the polished work of a modernist master requires a certain degree of delicacy in design. An interface in which to examine the work of Paul Rand had to reflect a reverence for his aesthetic sensibility and at the same time provide some form of stylistic commentary on his body of work. The appearance of the interface could not be too graphically transparent but at the same time should enable the work to remain hierarchically prominent. Accordingly, alpha transparency figures heavily in the interface elements such as the "design elements" and "commentary" panels. Furthermore, an outline display version of the typeface Frutiger was used to suggest a similar graphic lightness and transparency.

The graphic "look" needed to be stylistically consistent with Rand's work but not to the point of mimicry – visually it needed to be modernism, remixed and re-mastered for 21st century viewing. The project identity draws upon the typographic and graphic treatments from two important Rand works – the TK book jacket and the "eye-bee-M" rebus poster. The logo also incorporated the typeface Avenir – a not so completely geometric interpretation of Futura. While drawn within the lineage of Paul Renner's modernist masterpiece, Avenir can be viewed as an updated vision of this classic, on that offers an appropriate and divergent commentary on modernism reinterpreted within an interactive context.

But, the design decisions were not solely informed shaped by trying to fit a modernist-shaped peg into a Flash shape hole. Rather, they exploited what Lev Manovitch eloquently termed the "soft modernism" of Flash – the vector graphics native to the application. Utilizing Flash's vector-based drawing tools made replicating the cut-paper graphic shapes of the original works easily possible. The vector-based versions also served to be easily malleable with the controlled use of shape tweens.



Pages from my process notebook show early concept sketches and thought development.

process making randstudio

DESIGN CONCEPTION + DEVELOPMENT

RandStudio was the end product of a semester long process. My two initial concepts were attempts to organize the vocabulary of visual literacy into an interactive dictionary. Both attempts shared a similar approach to mapping the vocabulary around a circle. Inspired by Jessica Helfand's survey of circular information diagrams, I was drawn to this kind of organization as means to visualize the information in a non-hierarchical format.

The first sketch organized visual vocabulary using the definition of the word "design." Classifying the terminology into parts of speech – noun, verb, adverb – I placed the words inside rectangles and grouped them with related terms around the edges of a central circle. In this concept, mousing over the groups of terms would force them to align, while additional, more specific terminology would appear inside the circle. Clicking on a given term would bring up a dictionary-style definition in the corner of the interface.

Critical of what I deemed to be an overly verbal approach, I began to revise the circular concept towards a more visual presentation. Seeking to create a visual metaphor that would be loosely evocative of a color palette, I was additionally inspired by 2x4's Design Classics kaleidoscope movie for Vitra. Incorporating the metaphors of a color palette, and a kaleidoscope, as well as a desire to create a symbolic visual language for the terminology, I created a spare, mandala-like diagram for the terms. Next, I developed an animated explanation of the diagram in Flash that heavily incorporated the use of abstract sounds synchronized to the appearance of words on the screen.

Yet, this second attempt eventually seemed too conceptual visually and still overly biased towards a verbal representation of the terminololgy. How could I create a visualization that balanced the visual and verbal representations and was also a compelling interactive experience?

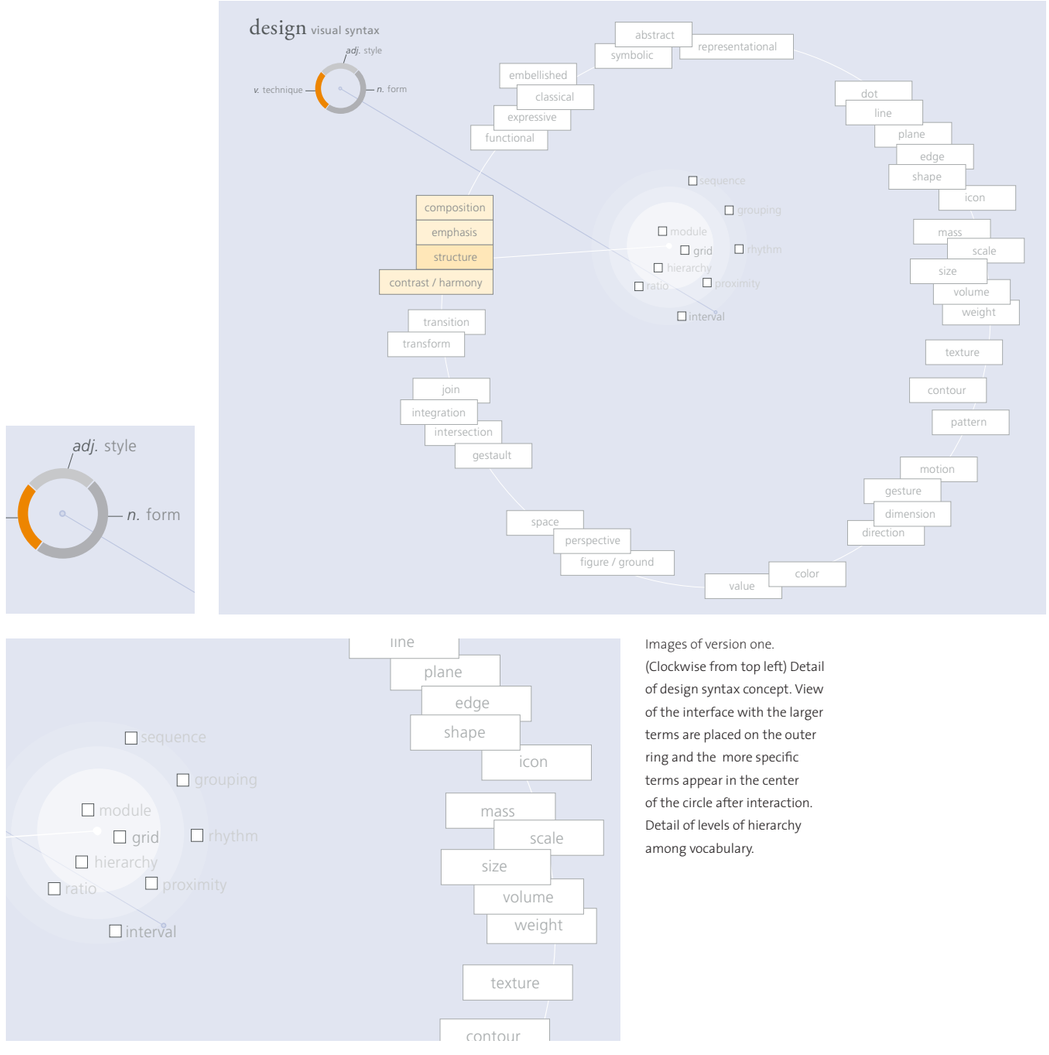
Reading an essay by Tibor Kalman on teaching design through the study of design history, I was struck by his insightful comment on the role of context in understanding visual design concepts. Intrigued by Kalman's challenge, I sought to

devise an interactive experience that would teach the visual concepts using key design works. Who would provide these examples? My initial inclination was to focus on Kalman's work, but after a quick survey of his work I deemed it too difficult to draw connections between a coherent set of pieces using the visual concepts. I sought a designer who was both an articulate critic of design, and who possessed a catalog of work that would illustrate the visual terminology well – the most obvious candidate was Paul Rand.

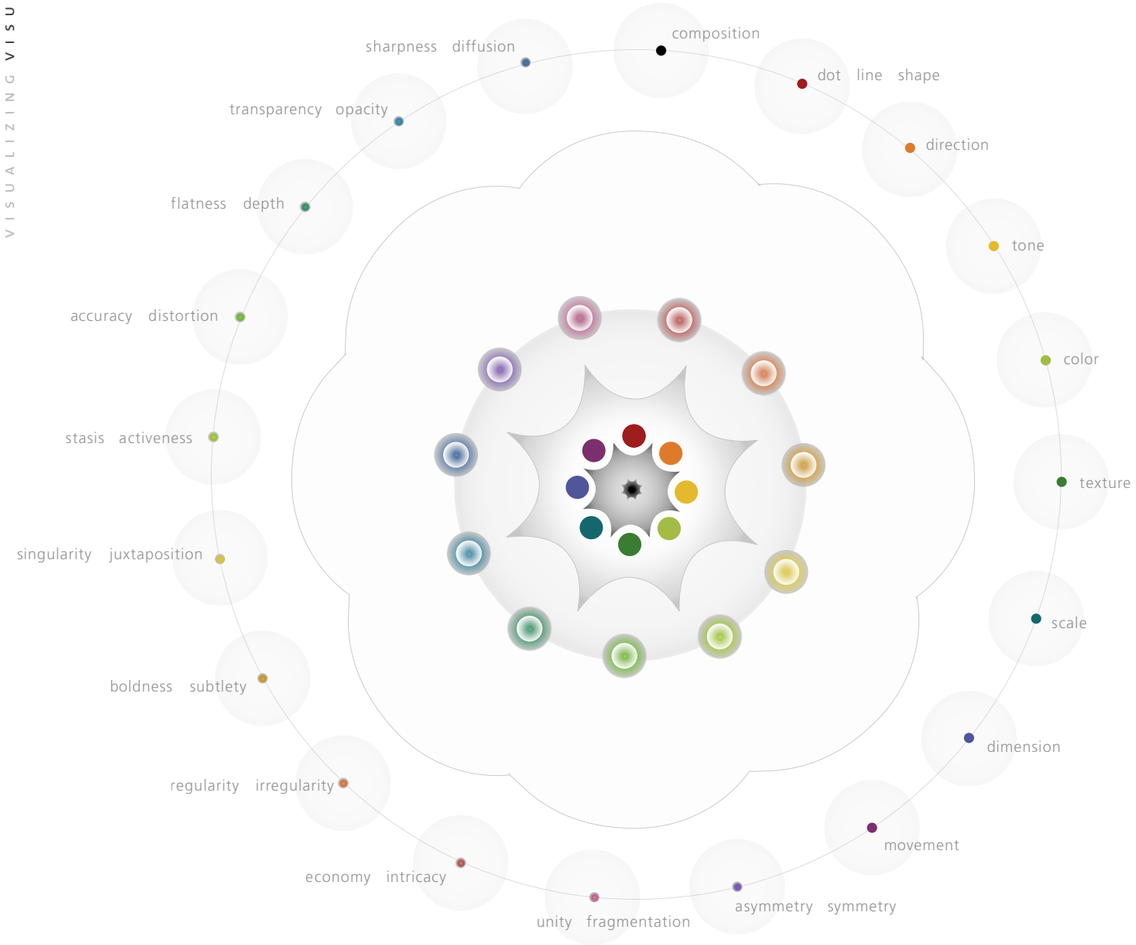
Rand, the consummate design professional, professor, and intellectual, was not only a prolific creator but through his polished writings offered a wealth of pointed, articulate commentary on the terminology I sought to elucidate. Moreover, Rand's writing on design drew upon his exceptional body of work to provide insight by example into his complex design decisions. In examining Rand's work, I developed a diagram that mapped the highlights of career, from his early covers for Direction magazine to his last corporate logos, against series of design concepts, grouped by aesthetic considerations, formal techniques, and typographic selections; this organizational structure was drawn directly from his writings. Using Rand's concepts as a system for analysis, the diagram indicates which formal categories each piece exemplifies.

Mapping Rand, I discovered a pattern of consistency in his use of design concepts throughout his long career. Impressed by the repetition and newly informed about the breadth of Rand's work, I decided to shift my inquiry to a few key pieces – a total of ten logo, poster, and book jacket designs – for my interactive explorations.

With a set database of works, I then began to develop what was to become the first complete interface for the project. A preliminary version was presented at the end of the fall semester. This version incorporated animation to demonstrate several topics of visual literacy yet differed in its approach from the final version in two significant ways. First, users were offered the ability to watch an animation that composed the poster from the basic formal elements of colored squares and circles. Second, users were only able to examine the poster through a series of formal categories, such as space, symbol, movement, form, and typography. Users were offered a list of terms within the categories, and clicking on a word would trigger the poster to animate to illustrate a particular concept. For example, to illustrate "weight" the poster animated so that all of the graphic elements existed in a small pile form at the bottom of the poster rather than harmoniously balanced in the center of the composition. The second and final version incorporated much of the design elements of the first version, including the animated intro and interface elements, but the emphasis of the interactive explorations was revised to enable greater playful exploration with the use of dynamic sliders. Shifting my focus to only cover in-depth one work, the *Tokyo Communication Arts* poster, I restructured the areas of explorations into ten categories and added the short movies and voice over commentary. *RandStudio* was



Images of version one. (Clockwise from top left) Detail of design syntax concept. View of the interface with the larger terms are placed on the outer ring and the more specific terms appear in the center of the circle after interaction. Detail of levels of hierarchy among vocabulary.

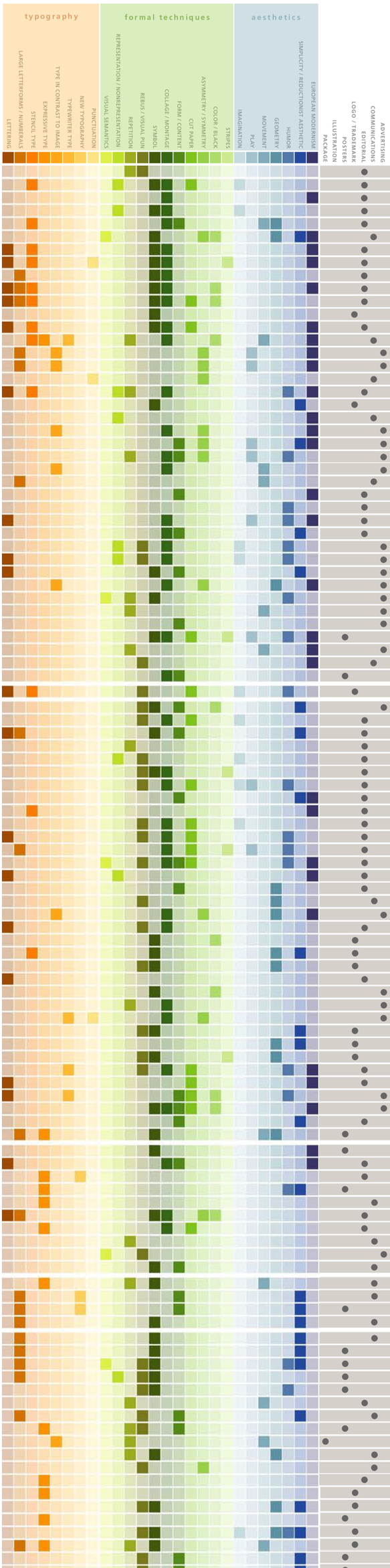


Version two. A simplified, mandala style diagram incorporating kaleidescope and palette concepts for visualizing terminology of visual literacy. Words and colored circles on the outer ring correspond to the graphic forms on the inside of the circle. The arrangment of forms indicate hierarchy of concepts – with the broadest, most all encompassing terminology located closer to the center and more specific vocabulary located further from the center.

presented publicly for the first time at the CAA Regional MFA design exhibit during February 2006.

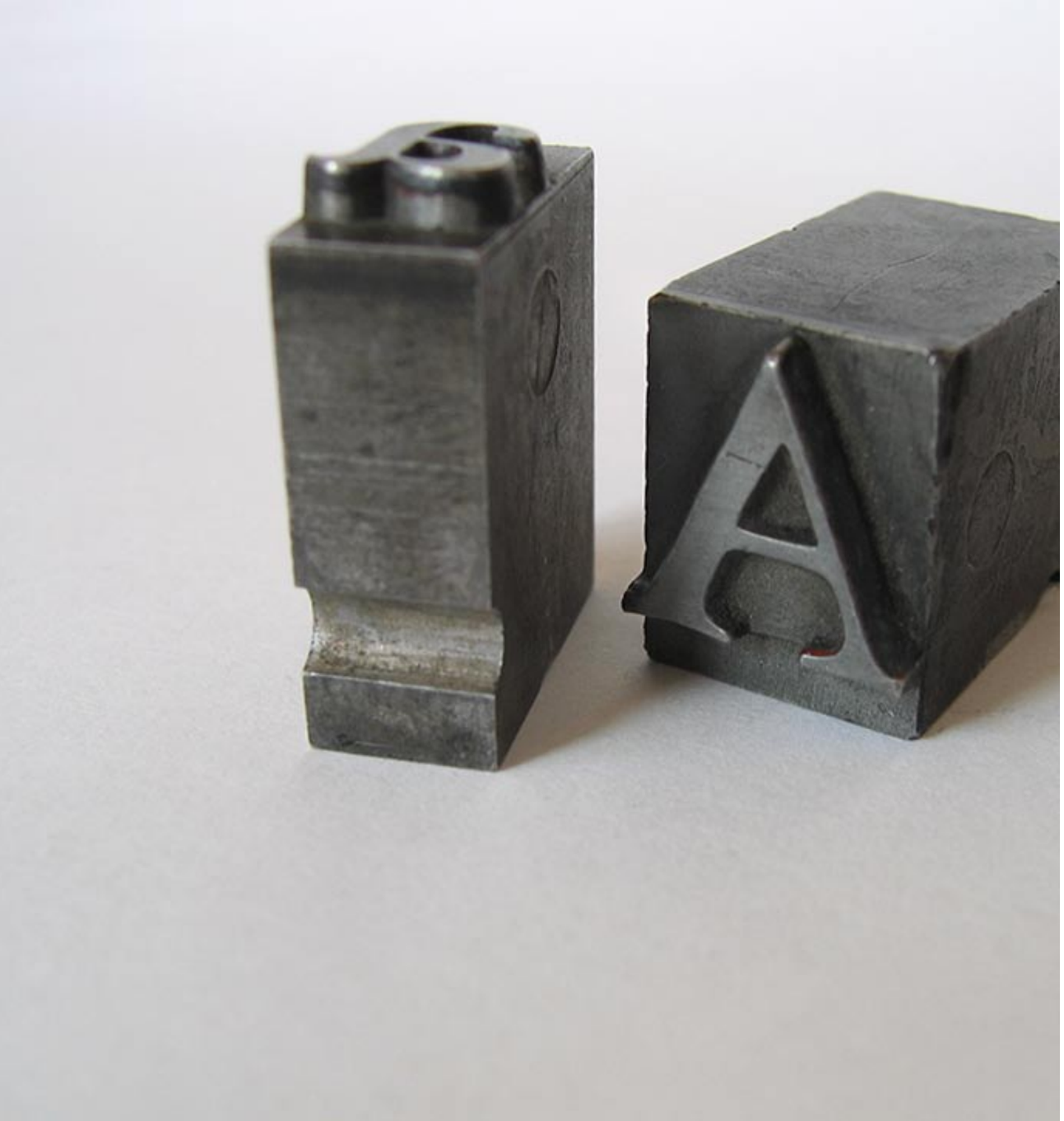
Observing users interact with the project in a gallery setting was an invaluably rewarding experience. Over the course of a week, a number of MassArt faculty and students, as well as participants from the CAA conference came through the space. As a graduate student teaching assistant, I had the opportunity to bring 15 students from my sophomore level Form and Communication class to the gallery and watch them interact with the project. Seeing my students interact with RandStudio was the most personally meaningful experience of the entire week. Having previously only presented the project to my professors and graduate student peers, witnessing my intended audience's reactions was an incredibly helpful experience. Having thus far developed the project without the benefit of repeated testing, witnessing my students use in the gallery confirmed that the interactive explorations were both engaging and robust demonstrations of formal properties. One student "drove" the project as the rest looked on attentively. As she began the first category of formal exploration, "form", slowly dragging the slider and transforming the shapes into biomorphic forms, a collective excited exclamation swept through the group. For my students, it was a perfect demonstration of the elementary formal vocabulary they were just starting to deal with in graphic design. For me, it was the perfect reinforcement that dynamic visualization held tremendous potential for teaching design principles.

Diagram of major works by Paul Rand in chronological order. The dark dots indicate the work's format. Full opacity color squares indicate that a work illustrates a corresponding category of typography, formal technique, or aesthetics. Many subcategories were drawn from topics in Rand's *A Designer's Art*. I created additionals subcategories to reflect other key aspects of Rand's work.



Apparel Arts magazine cover b22 – *men in costume* 1938
Direction magazine cover a10 – *Czech*
PM magazine cover a39 – *Zebra*
Apparel Arts magazine cover a68 – *propeller* 1939
Direction magazine cover b28 – *dancer*
N.Y. Worlds Fair, booklet cover a12
Direction magazine cover a13 – *barb wire* 1940
Direction magazine cover a174 – *punctuation*
A.D. Magazine cover a168 – *cut up a,d* 1941
Direction magazine cover a169 – *big a*
Direction magazine cover a169 – *big v*
Dubonnet man trademark a111-113 1942
Direction magazine cover b29 – *chick hatch*
The Autocar Corporation brochure a149, b70-71
Smith, Kline, & French Laboratories ad a164 – *b, benzedrine* 1943
Smith, Kline, & French Laboratories ad b48 – *b, benzedrine*
Coordinator Inter American Affairs brochure a175 – *punctuation*
Direction magazine cover a96 – *squiggles*
Helbros watch trademark a30 1944
The Cubist Painters, Wittenborn & Company Cover a76 – *abstract painters*
Air-Wick ad a165, b48 – *stinky fish*
Jacqueline Cochran magazine ad a60 – *leg*
Stafford Fabrics ad a161 – *santa asym*
A Bell for Adorno, Alfred A. Knopf ad b105 – *hand + rope* 1945
Smith, Kline & French Laboratories prospectus a166 – *large numerals*
Leave Cancelled, Alfred A. Knopf b102 – *cupid bullet holes*
The Stork Club Bar Book, jacket design, Rinehart and Company a110, b128 1946
Jazzways, jacket design, Jazzways Inc. b90
Origins of Modern Sculpture, Wittenborn, Schultz b95
Ohrbach ad a121 – *candy girl*
Ohrbach ad a75 – *windowshade*
Jacqueline Cochran magazine ad a55 – *eye / leaf*
Disney Hats ad b51 1947
Dunhill ad a89 – *repetition example*
Frank H. Lee Company, Newspaper ad a93 – *flying toast*
Frank H. Lee Company, Newspaper ad a56 – *french*
NY subway poster a15, b210
Kaiser-Frazer Corporation ad a94 – *cars in cirlce* 1948
Modern Art in Your Life, MOMA, cover design a129 – *flying toast* 1949
No Way Out, 24 Sheet poster, Twentieth Century Fox a52 1950
El Producto trademark, GHP Cigar Company, ad a13 1952
RCA ad b83 – *morse code* 1954
The Acquisitive Society, jacket design, Harvest books a124 – *cut paper face* 1955
The Anatomy of a Revolution, book cover b110 – *monumental letterform*
Idea: International Advertising Art magazine cover a99 – *squiggle*
The Revelations of Dr. Modesto, jacket design, Alfred A. Knopf a128, b107
The American Essays of Henry James, jacket design, Vintage a62 1956
I Know a Lot of Things, childrens book, Harcourt Brace a123
Modern Art USA, jacket design, Alfred A. Knopf a69, b100 – *squiggle*
Mine Boy, jacket design, Alfred A. Knopf a80 – *stencil type*
The Second Man, jacket design, Alfred A. Knopf b99 – *2 figures*
Leave Me Alone, jacket design, Alfred A. Knopf b99 – *squiggle* 1957
Sparkle and Spin, childrens book, Harcourt Brace b133
H.L. Mencken, Prejudices: A Selection, jacket design, Vintage books a51 1958
Seamarks, jacket design, Bollingen Series, Pantheon books a58
The Archetypal World of Henry Moore, Bollingen Series, Pantheon books b117 1959
Navy brochure a19
Disney Hats ad a159
Goodbye, Columbus & 5 Short Stories, book cover, Meridian b123
Consolidated Cigar Company trademark a31
Colorforms trademark a32
Westinghouse trademark a28 1960
Traps, book cover, Alfred A. Knopf a122 – circle frame
Westinghouse ad a11 – *traffic light* 1961
Westinghouse animated billboard a26, b175
Westinghouse ad a176 – *heart punctuation*
United Parcel Service trademark a33
American Broadcasting Company trademark a35 1962
IBM logo (striped version) b154
Little 1, childrens book, Harcourt Brace b135
Paracelsus, jacket design, Bollingen Series, Pantheon books a58, b116
Westinghouse magazine ad a58, b81 – *smart men*
Westinghouse magazine ad a67 – *hummingbird* 1963
The Portrait in the Renaissance, jacket design, Bollingen Series, Pantheon a57
New York Art Directors Club poster a167 – desi8n 63
Aspen design conference poster a23 – *egg* 1966
Portrait of Picasso, catalog cover, MOMA a49 1967
DADA book jacket, Wittenborn & Company b94
AIGA poster a103 – *clown* 1968
Genesis broadside, Westvaco Corporation a156
Calligula and 3 Ohter Plays book cover b101
Listen! Listen!, Harcourt Brace & World a150 – *roar spread* 1970
Irwin-Sweeney Miller foundation annual report a92 1971
Westinghouse ad a118, b81 – *Chopin piano keys*
Westinghouse Annual Report b177 – *mark masked images*
Visitors Center Columbus Indiana letter a90 – *floating c's* 1973
Westinghouse Annual Report b177 – *large numerals* 1974
MinuteMan Poster b210 1975
Cummins Engine Company Annual Report b184 1976
Cummins Engine Company Annual Report b184 1979
IBM Corporation Resource Management poster a172, b167 1980
IBM poster (eye, bee, m) a135, b157 1981
IBM Golden Circle poster b169
Aspen design conference poster a21 – *target* 1982
IBM Corporation cover design a98 – *many logos*
Yale University School of Art Prospectus a131 – *apple*
New York Art Directors Club poster b119 – *flowers* 1983
IBM packaging b160 – *confetti motif*
IBM folder a91, b164 – *geometric shapes* 1984
Keepsake, Pastore DePamphilis Rampone, Inc. a152 – *how do i...*
Design Quarterly cover design a158 – *cut up type*
NEXT trademark b196 1986
Irwin Financial trademark b196 1990
UCLA 75 poster b211
English First logo b200 1991
HUB TV logo b202 1993
UCLA Summer Sessions poster b211 1994
Tokyo Communication Arts poster b213 1995

CASE STUDY TWO / LETTERFORM



overview teaching typography as visual form

DYNAMIC VISUALIZATION FOR THE LETTERFORM

Rolling with the momentum of the positive response to *RandStudio*, I turned my attention to developing a second case study. During the process of creating *RandStudio*, I discovered a methodology of using interactive animation and motion to demonstrate the principles of visual vocabulary. Now, with this newly formed knowledge in my grasp, I shifted using dynamic visualization to another indispensable body of formal: typography.

Type, the visual record of spoken language, is a formal language unto itself. For the design student, applying and mastering this abstract "language" is no easy task. The terminology used to describe the anatomy of letterforms, the formal attributes of typefaces, and various historical classifications can seem obtuse and sometimes arbitrary to the beginner. Typography is a visual form, yet it is one with a host of associated concepts and specific vocabulary. Learning to "speak" articulately within typographic form is in part a matter of gaining a keen sensitivity to the rules and inner workings of the letterform and a passionate appreciation of this form.

FOR THE LOVE OF THE LETTERFORM

It is probably safe to say that no one loves typography more than designers. No one. The particular stylistic nuances native to typographic form are a favorite hot button topic among astute designers. Typographic form is design dogma. Do you worship at the house of rational functionalism or expressive delight? Serial typographic monogamists stick to a precious few typefaces, fearful of picking up something distasteful, while the polyamorous throw classical caution aside and need to sample the wares of thousands of foundries.

When I began to develop an interactive educational project based around typography, a wise professor cautioned me that I was embarking into an arena of designer turf war. Every design professor has a particular take on the most insightful way to approach teaching typography. Begin with the single character, move to groups of letterforms that build lines and then paragraphs that create pages. Start with a survey of the tools used to make strokes and explain typographic classification as the

evolution of mark making. Approach typographic form as a series of contrasts; including form, space, direction, color, and texture.

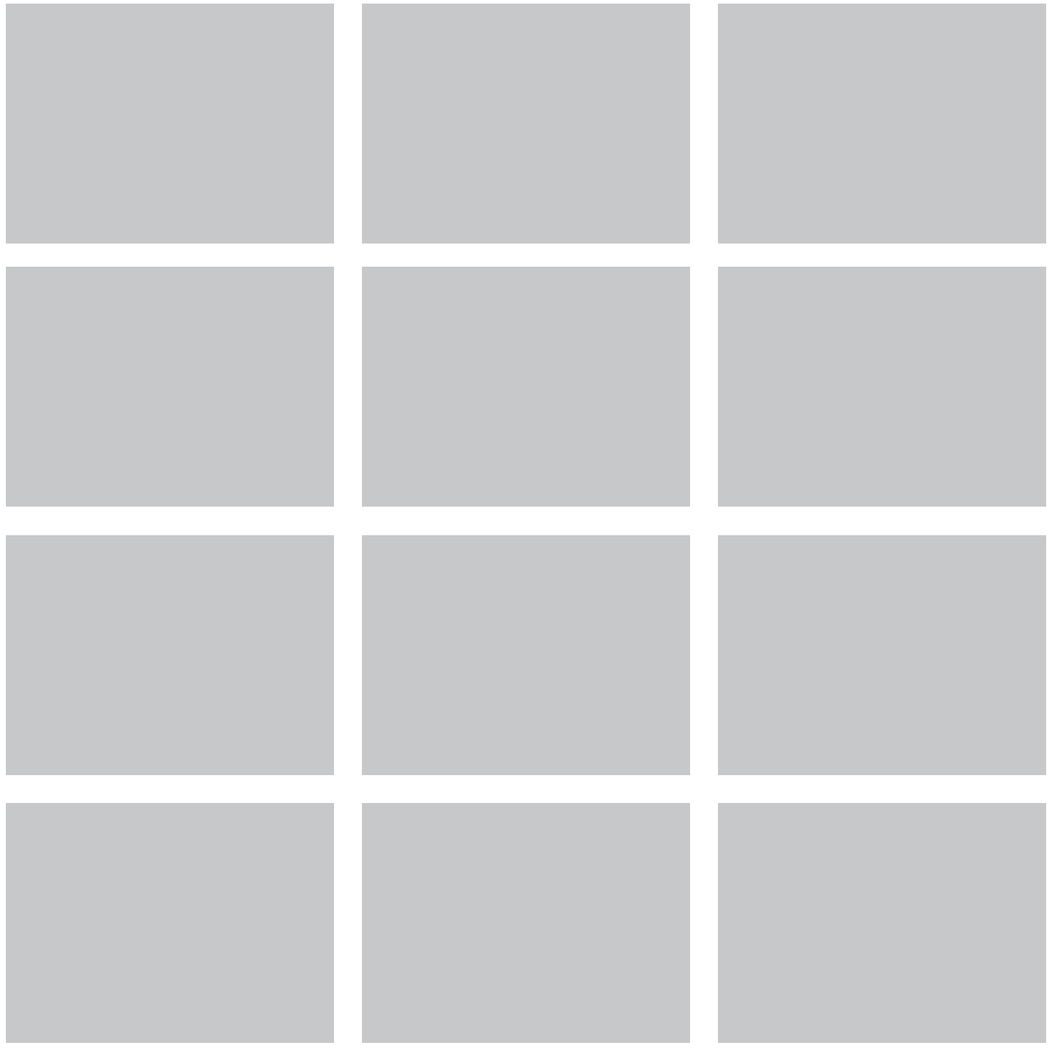
These perspectives and many others have roots within the wellspring of typographic writing past and present. Within design literature, there is a long, established tradition of esteemed writing on typography. It is a genre that continues to evolve with shifting tastes and technological developments, and revise the trusted tomes of the past. Accordingly, most designers can name their single most favorite dog-eared manual of typography, if not two or three.

Given the vast offering of revered writing on type, I chose to create an interactive project on typographic principles not out of the desire to add another work to the genre, but to examine how dynamic visualization can help to communicate in an even more visually and intellectually stimulating manner what has already been set forth in so many books. It is not an investigation based on presenting a novel academic take on the subject, but rather on presenting newer ways to see, interact, and experience existing scholarship on typography with new media. That said, in this enterprise, I have chosen to take on in my breadth of subject matter a very small slice of the "typographic" pie. I am concerned with the formal qualities of the humble, individual letterform: the most basic element of typography.

In this presentation of the absolute atomic unit of typography, I am interested in conveying, on a magnified scale, the formal attributes of the letterform. My intention is to render the abstract language of typography, which seems so foreign to the beginner, comprehensible through a dynamic visual demonstration highlighting subtle formal differences to convey several key concepts.

Letterform: An Interactive Typographic Workshop covers four basic areas of typographic form. The first section, entitled Making A Letter, covers approaches to formal construction. Through 9 different strokes, this interactive exercise, demonstrates ways to create a letter "o" using modular elements, geometric strokes, and calligraphic strokes. Additionally, this exercise allows the user to explore several formal nuances of typographic attributes such as the treatment of curves, line weight, broken or continuous construction, contrast, and axis of contrast.

The second section covers typographic anatomy and a brief survey of the vocabulary used to describe the structure of letterforms. The third section covers typographic classification, presenting an animated timeline of the formal evolution of serif and sans serif typefaces and enables the user to examine each category in-depth through interactive examinations. The fourth and final section investigates the concepts of point size, x-height and proportion. In applying such a strictly formal lens to the subject area, it is



my contention that starting with the most micro-typographic elements, drawing attention to tiny distinguishing formal characteristics, facilitates a macro-typographic formal appreciation.

MAKING LETTERFORM

In creating LetterForm, I once again sought to incorporate the use of animation to both "frame the mind" of the user and to create interactive sequences to demonstrate formal potential. Yet, I wanted to continue to hone in on the most successful visualization elements from *RandStudio* and draw them out further in *LetterForm*. Watching users interact with the Rand project, I noticed that the most intriguing and visually engaging exercise was the first formal exploration. In this exploration, moving the sliders forwards transforms the geometric squares into biomorphic shapes. The dynamic contrast of form, accomplished through shape tweening in Flash, received the most positive attention among users. My suspicion was that the illustrative use of shape morphing was more visually arresting, and perhaps entertaining, than the color transformations or spatial rearrangements of forms. I decided to capitalize on this observation and similarly make use of shape tweening to accomplish the visual demonstrations of typographic form. For example, in the "Making A Letter" section a single character "o" morphs nine times in total, through animation, from modularly constructed typefaces, through geometric approaches to letter construction and finally to calligraphically rooted fonts.

Demonstrating subtle formal differences through animated transformations applies to the topic of typography well because motion accentuates the existence of formal nuance-the most difficult appreciation to gain for novice typographers. Existing contrasts of form, in structure, shape, and weight, are made dramatically visible through the use of motion as forms morph into other forms. For example, in the "Classification" section, the letters "Aa" transform from one example of a classification to another, such as transitional to modern. The keyframes of each animation are individual examples of typographic terms fused together seamlessly through animation. This conversion illustrates not only differences in form but is used to point out specific typographic terminology as well, such as the placement of crossbars or the axis of contrast, in a fluid evolution of shape.

In *LetterForm*, interactive explorations use dynamic visualization to enable students to better "see" typography and gain a greater "feel" of typographic form. Learning to design with type in a fully digital age, where the acquisition of software skills can seem paramount, student designers are sometimes able to initially bypass composing with type directly on the physical page. Developing a physical relationship with the letterform, though setting metal type, copiously drawing or tracing letterforms, or photocopying, cutting and pasting found specimens is an invaluable component of design education.

In the expanded technological toolkit of the contemporary designer, students must be able to transfer this working comfort with the letterform from the physical to the pixel and vice versa. With commercial design software applications, the ease of using drop down presets allows students to not think out the minutae of tracking, kerning, leading, and point size of their typographic intentions as they effortlessly set type. Complex decisions of color, contrast, and legibility can be overlooked with the "presto" design ease of picking numbers and coordinates. It is then imperative that teachers push students to conceive of typography beyond the preset limitations and impart a consciousness of the mutability, plasticity and sensitivity of typographic form as pure form. The ultimate aim of *LetterForm* is to encourage this sense of type as a flexible medium within the realm of the pixel.

CONCLUSION / THINKING ABOUT THE BOOK

3

9 notes

AN EXPERIMENT IN NARRATIVE + INTERFACE

The visual metaphor is a basic principle of effective interface design. Meaning, in a GUI, arises from the representation of a real world concept in a digital world. Familiar objects mimic their real-world analogues, yet often extend their purpose with "unreal" capabilities. This is true of the desktop GUI. Its world of folders, briefcases, address books, trashcans, and other office implements is not quite the same as its real-life version. At the same time, it is so commonplace that we barely notice it. *9 Notes* is an experimental interface that examines and extends the concept of a visual metaphor as interface. Nine cool-hued pictures, attached by thumbtacks, cover a wall while a scattering of objects-matches, a spoon, sugar cubes, orchid blossoms-lines a narrow shelf. Drawing influence from classical still lifes, informal scrapbooks and the "desktop" GUI, the space is unfamiliar and ambiguous, but obviously personal.

The illusion to traditional still life is important. Sticking with the illusory, "window-like" one-point perspective, I sought to create a contemporary digital interpretation of the classical form. Scouring other contemporary revisions of still lives for unique perspectives on the genre, my preliminary design research drew upon the photographs of Wolfgang Tillmans and artist Ann Hamilton's *mantle*. In my revision, I chose to formally and conceptually play with a dialectic of realism and surrealism. Object functionality both mimics the real world and creates unreal experiences. Users can drag and rearrange the note cards by pressing and moving the thumbtacks. Clicking on and dragging an object, meanwhile, creates a translucent facsimile of that object. Dragging and dropping these "copies" onto the pictures will trigger the playback of brief motion-graphics pieces inside the framed image, the static pictures becoming unreal windows onto moving content. Multiple notes can be triggered at once, and the note cards can be spatially rearranged while the videos play. Each object, however, will trigger only one specific picture, and it is up to the user to determine which goes with which. Yet, some notes are not triggered by objects at all but rather by directly clicking upon particular elements within the images themselves. Again, it is up to the user to ferret out these hidden triggers.

As an "unreal" metaphor less familiar to users, however, *9 Notes* has the potential to let the interface itself create meaning. The complex relationship between representation and real-life object in this virtual environment holds potential for multiple layers of narrative. While narrative emerges from user action, 9 Notes is also a collection of mini-narratives that all touch upon themes of intimacy. Using meticulously hand-lettered, filmed typography and evocative imagery, each short video concludes with a brief poetic message. The author, subject, and recipient of these graphic odes and meditations remain hidden, and the user is unimpeded to explore and seek out the messages in each "note."


an open


hand


RESTART
hand
SWEETEN
ME

art archive

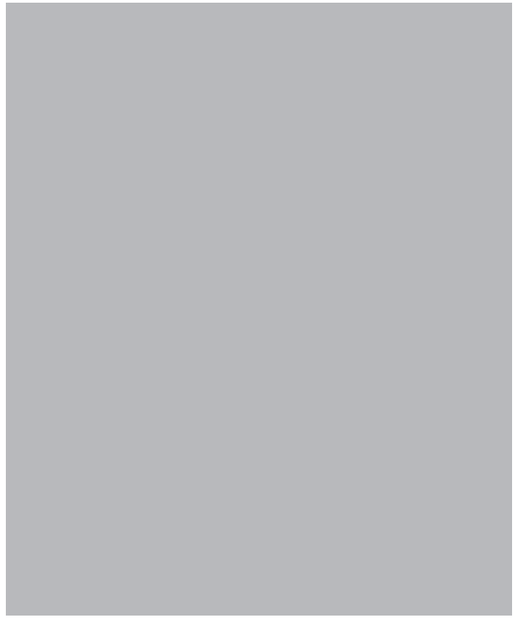
AN INTERACTIVE ART EXHIBIT

The *Art Archive* is an interactive exhibit of European modernist painting from 1910 to 1930, specifically tracing the development of expressionism, abstractionism, realism, and fantasy. It offers information about art historical movements as well as broader cultural and historical trends. The interface and information design were conceived to make viewers aware of the geographic and cultural context which framed and grounded each work exhibited. By visually incorporating multiple levels within a single screen, the project employed layering to compact the information.

After an initial introduction or title screen, the first stage of the interface uses dynamic layering to visualize the four possible paths of the selected art movements-realism, expressionism, abstractionism, and fantasy. Four differently colored translucent squares, each with an opaque thumbnail image of work representing each thread are aligned atop a world map. The thumbnail images are positioned so as not to obscure the map. Rolling over an individual thumbnail cues the reshuffling of the other thumbnails to enable the selected square to double in size which reveals additional text-based information. This action also prompts the dynamic appearance of artwork, in each instance an example of the particular art movement, translucently overlaid on the map. The sum effect of this action is akin to "coloring" the map with a particular art movement and thus highlighting the conceptual path or window of choice. Clicking on a square selects the movement and triggers the map to graphically highlight and zoom on the relevant geographic region, in every case centering on Europe.

Having framed the geographic location and artistic movement, the user is immersed within an interactive, scrolling timeline of work. Atop the focused map, thumbnails of artworks are arrayed across time. Ranging from 1910 to 1930, time is mapped across the x-axis while works of art are arranged on the y-axis. Dragging through time, works of art emerge and grow in size from the map layer and move to align themselves in time. The works organically appear and move out of their specific location of creation. Additionally, the map itself scales up and shifts to reframe itself to accommodate patterns in the growth of work. For instance, as a majority of work originates in particular cities or regions the map shifts and zooms to highlight this growth. In manipulating time, users dynamically and visually experience the growth and decay of art movements. Work accumulates unevenly, creating a staggered, graph-like representation of cultural production. While arranged by year, the thumbnails of works impart a sense of overall color or graphic quality shared across works and time.

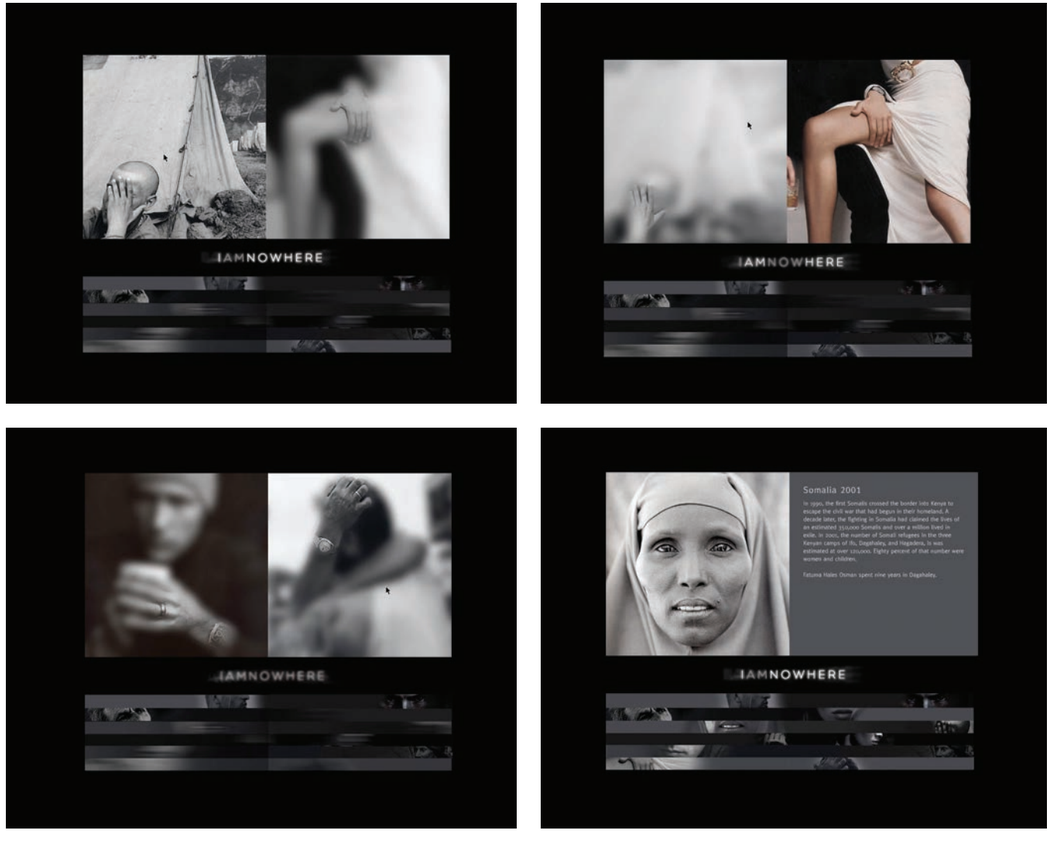
Art Archive allows users to view famous works of early 20th century European art in their geographic, temporal and cultural contexts. As an interface, it begins to investigate the use of motion and interactivity to add depth to information visualization. The narrative quality of the animation conveys greater levels of information simultaneously than solely possible with static visual communication.



cambridge specimens

NARRATIVES FOUND IN THE VERNACULAR

The *Cambridge Specimens* book is a visual essay that weaves a visual narrative out of interpretations of found type – the hand-lettered, imperfect language of grafitti, storefronts, and placards that forms the urban semiotic landscape. Recontexualizing and interpreting such images on the printed page, each book presents a narrative stream of close-readings of widely varied vernacular typographic material: parking signs, gravestones, church signage, and even gas and sewer covers. Each letterform specimen began as a photograph that was then traced, turned into a vector-based outline drawing and then greatly enlarged on a tabloid size page. Through revealing juxtaposition of these typographic speciments and brief, insightful captions, the books offer a unique visual survey or map of the city of Cambridge. Printed on "newspaper" tinted 100% recycled stock and bound accordian-fold style, the humble stock selection echoes the "recycled" and everyday nature of the content.



iamnowhere

AN INTERACTIVE ART EXHIBIT

It was an open-ended prompt. Beginning with a typographic concept that could produce two vastly different readings, "I am nowhere" or "I am now here," the assignment was to create an interactive experience that would play off of this duality. I choose to create an interface for viewing images that I grouped as signifying either meaning: You are now here, or nowhere. My database of images drew upon two corresponding sets of images one drawn from persuasive, opulent luxury advertising and the other from documentary photography of refugee camps. Sorting through piles of images, I began to notice small visual similarities images that were seemingly worlds apart. A man standing among bombed out shells of buildings in Bosnia wore a silver watch, as did a model in an advertisement for David Yurman. Picking out subtle similarities in clothing and hand gesture, I began to map out and pair elements of the two sets. With these starkly contrasting pairs of images, I blurred out all details save for their visual commonalities. As the user rolls over the blurred portions the remainder of the image becomes focused. With this action the type "i am nowhere" placed at the center of the screen and rendered all in gray, animates in color to reveal the corresponding reading. "i am now here," for the advertisements, or "i am nowhere", for refugee photos. Clicking on an image triggers the playback of a brief animation: a broader view of the image is slowly revealed and then decays into black. Upon selection, a small thumbnail representing the image appears in a grid below the pair of images. Then a successive pair of images replaces the prior pair and the process begins anew. At the culmination of six sets of images, the grid of thumbnails fills with images including those that were not selected. At this stage, clicking on an individual thumbnail will load the original image, focused and cropped to show the entire image, as well as text about the content.

While the subtle political-cultural commentary of this piece was accomplished predominantly through the careful use of images, the incorporation of motion, specifically motion triggered by user action, was as important to delivering the overall message. In this manner, motion became a key means of communication. Action enabled the revelation of key visual details but also advanced the stream of images. User-driven motion, slowly delivered the encompassing narrative of the project.

bibliography