
Notes on a Personal **Bias**

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Simplicity vs. Complexity,
Singularity vs. Plurality

When a teacher is given the opportunity to assess the work of students, who are spending time and energy defining their own philosophical positions, I consider it only fair, that he is asked to provide a statement so that they can recognize in his presentations and critiques his framework of personal bias through which the classroom activities are conducted.

Thus I am providing this statement so that you may reject or embrace my comments according to your assessment of my working philosophy. To me, it is not important that I am right. What is important is that in the process of communication our personal positions are sharpened.

DRW

For centuries all science and much of art and design has been based on reductionism. Artists and scientists felt anything could be understood if they broke it into parts. The smaller the part, meaning the more essential or basic, the better the understanding. But in the past thirty years the science of chaos – of complexity – has been evolving. This is the science that looks at entire systems and tries to understand them as complex wholes. It is in these insights that designers should entertain new ideas which move from the simple to the complex.

Where did it all start? For designers, the process started innocently with non-objective painting, the languages of the Russians, which were translated by Kandinsky, Mondrian, Nagy, Klee, the Bauhaus, de Stijl, and the movements of Futurism, Constructivism and Suprematism, and the other “isms” for which we hold intuitive fondness. These movements imbued form with a character of its own, equal to that of a human personality. They wiped away the hold of nationalistic, aristocratic, and ecclesiastic institutions over their image and object making languages, hoping to establish a new international mode of expression and communication. They consolidated the principles of line, surface, and volume, and expanded our image-making language. This gave us clout, and our profession, our life. After all, designers made order out of chaotic things. They simplified the complex. They still do, don't they? But is this still their mission, clearing away debris, shaping essence through reduction? Or do we need a new recognition of complexity?

One of my favorite quotations is found in a book edited by Geory Kepes:

Who then...
discriminates between the atoms,
their gathering or scattering...?

They needed an intelligent craftsman
to put them together.

St. Dionysius, Alexandria, 240 AD.

The language of the Russian Revolution was presented in a child's fashion to an illiterate peasantry. That made sense at the time. In its time so did Paul Rand's iconic rebus of “I B M”. He reduced, according to his interpretation, a complex business entity to the icons of visual observation, a honey-gathering insect, and a slab-serifed letter “M”. Is this still sufficient? How much information is transferred and how much more is needed in today's “Information Circus” or “Knowledge War Room”? What can a fleeting glimpse offer, even if amusing, in a time when individuals, indeed our entire culture is in need of more and better information?

My personal minimalist and structuralist interests brought me to the US, where they were strengthened by Ellesworth Kelly's work, and softened by Rothco's. I rather like the work of both painters. But the profound change in my minimalist attitudes happened at MIT, not as part of my design experience but as I assimilated information and ideas generated in the various science departments. At MIT researchers and faculty were experiencing phenomena in their work that had far-reaching consequences, and influenced everything in the surrounding knowledge environments, including design.

During the sixties at MIT, G. Kepes was building the Center for Advanced Visual Studies, committed to linking Art with Technology. In the Architecture Department there were faculty who had come the Chicago Bauhaus route, who were important in strengthening the European myths dominating the design practice. Kepes declared that the symbolic image would supersede in efficiency all verbal and descriptive language in the communications process. The status-seeking design profession appropriated this axiom, only to have to admit today that the axiom holds little water. Even more embarrassingly, the discussion on which method of communication is superior, verbal or visual, is irrelevant in the communication process, since circumstances of content and context – behavioral, social, and cultural – will declare which method, mode, or procedure, should be selected for effective communication. There is no single correct mode.

The very bright MIT research scientists, Robert Mann in bioengineering, and Rose in nuclear physics, introduced the concept of complexity as a natural phenomenon. Mann, who designed the Boston Arm, a physical prosthesis that was triggered through brain, nerve, and muscle stimuli, made me aware of the complexity of his tasks. He had to consider the obvious technology – electrical, mechanical, medical – as well as understand the entirety of patients' behaviors, their relationship to their own bodies and self-esteem. He also had to understand their relationship to their physicians and health maintenance staff, as well as the pharmaceutical and psychological support needed to make the addition of a prosthesis useful and lasting. In other research areas, particle science and quantum physics, for example, traditional viewpoints were challenged. All Newtonian knowledge could not be applied. Concepts of order were turned on their ear. Mathematics found structures that could not be explained through traditional means.

It is my belief that during that time, things revealed themselves to investigators of all kinds of phenomena that are now impacting the citizen, facing new and complex worlds. Indeed, the major cultural interruptions of two world-wars, and the distraction of Korea and Vietnam, lets us only now, during a time of relative political calmness, connect citizen with concepts that in some cases were born at the turn of the century. The importance of shaping a cultured citizen has become desperately obvious, a citizen who can make decisions on complex matters and ideologies, not by instinct, but through cognition.

If citizens are to be encouraged to take advantage of the promises of an ultimate democracy (freedom of thought and speech, and the pursuit of personal fulfillment), then artists/designers must be able to cope with the vastness of intellectual possibilities. Even the traditional concepts of chaos are now offset by new concepts of organization, that do not follow the tribal, hierarchical structures of linear ordering. This forms the basis for the complex and multi-level information environments such as hyper-media. What was perceived as chaotic is maybe only confusing, and with new way-finding tools, anarchy and chaos can be negotiated.

Science suggests that in chaos, the structure which relates an entity to an organism is not obvious. The observer is either too close or too far, too aloof or detached, or even too lazy, to see new structures. Such a new structure may be an inclined surface rather than a flat topology, or a multi-dimensional model that can not be understood unless the traditional language and perception is expanded. Mental frames, formed by old beliefs, obscure or delete the information that might otherwise make chaos comprehensible.

While scientists present their interpretation of the universe, artists, and especially designers, must also learn to live in a multi-dimensional world with a variety of simultaneous activities and convergences. The mental somersaults of Duchamp, which haunt the traditional materialist, Wayne Andersen's concept of "Indeterminacy" about that which lies beyond what we see, Nelson Goodman's "World Making," the French movement of the Tachiste, and action painters like Pollock, opened up the question of extended vision and structuring. Time elements of past, present, and future are intermingled in the writings of the European author Uwe Jonson, and Mondrian helped us to consider the life of an object beyond the restrictions of the frame. Schwitters and Eisenstein revealed dynamic new metaphors through the language of collage and montage.

Simplicity
vs.
Complexity

Order/Control
vs.
Chaos/Understanding of Organisms

The recognition of "Gestalt" in the thirties, according to composer Arnold Schönberg, required forced interrelationships between all parts to make up the form of the whole. These dynamics, in their vitality, had to correspond to, or be made to correspond to, the complexity of each part's unique characteristics. Achievement meant that micro- and macro-form were well controlled: small units were clustered into groups, in direct alignment to a supervising architecture. The form's Gestalt consisted of the most characteristic elements which functioned on the basis of a perceived need for reduction or simplification, but not as a reflection of the total complexity of living organisms. Meter, tempo, and rhythm were typical tools used for extracting the essence, or revising the organism.

Painters, composers, designers, like militarists and aristocrats, fearing the democratization of the public, were nervously protecting their hierarchical consciousness. They maintained that without organization the object or image would be an amorphous mess, without focus, without punctuation, without connection, and therefore deemed out of control. They assumed that a comprehensible form required linear logic and coherence to a plan. The idea had to be simple, immediately comprehensible, logical, and obvious. Since the object or image were to be simple the supporting contents and context were also simplified, often condemned to uselessness. Therefore, sub-components, although differentiated according to

importance and function, had to fit into narrow, unnatural, and often superficial constraints.

Comprehension related not to conceptual understanding of information environments but to verification of linear information events – numerical, quantitative – that a person could keep in mind. Now we know that human limitations to comprehension are dynamic; that some of these conceptual limitations are preventing the grasp of anything too extended, or where the Gestalt is too obscure, defused, or opaque. We also know that the brain does not store information in simplistic, linear systems. The new analysis of neural networks suggests that the brain stores the concept “cup”, in each and all experienced conditions, making it possible for the user of a concept to respond to the need of a specific context by choosing from the total aggregate of experienced conditions.

Marvin Minsky speaks grossly about the brain as a computer made out of meat. But at the same time, he muses sensitively about the “Society of Mind”, a concept of linkage. This concept underlies the application of hyper-information, hyper-text – the new worlds of restructuring information, releasing information from the yoke of category and structure, letting it search for its own taxonomic form. In their ways Minsky and Duchamp are kin, and both are kin with Nelson Goodman, allowing each searcher to become author and audience. We have a lot to learn from the Surrealists, the Theater of the Absurd, “ambiguity”, and the founders of democracy, who must have been aware that ultimate freedom and democracy means a rich environment of ideological collisions, where author and audience are equal, where charlatan and expert share the same status, and where complex orders border anarchy.

This new openness allows us to define creativity as the ability to dare to place two or more incongruent entities into juxtaposition so they instruct about the subject matters in new ways. Ambiguity, the dissolution of clarity, is extremely agitating, and although sometimes enjoyable, mostly frustrating. Generally, the more ambiguous the form (not physical size) the greater the number of dynamic or stabile units and clusters of messages have to be tracked, requiring greater concentration and attention. Ambiguity is a constantly shifting energy, and its temporal complexity does not allude organization. It organizes itself. Its understanding discourages dogma or transferal of truisms from one occurrence to another.

In today’s process of communication, the developer of the Gestalt must be an information ecologist, keeping the entire field of components and interactions in view.

The larger the information environment, the larger the number the layers of complexity. Therefore, the process will require greater diligence and care for understanding. The smallest structural units consist of independent events, possessing a certain completeness in themselves. They should not automatically be pressed into relationships with other similar units, just as we should not be controlled by the traditional belief to dominate nature. In the new context of an ultimate democracy and hyper-connections between all concepts, for the first time for me, the design system includes congruency, as well as all the irritations that make up the human condition: disjuncture, disagreement, conflict, the beautiful and the ugly. These are not interferences to be purged, but contextual realities. Since this new world thrives on random access to its information wealth, it is not clear which of the traditional composing or structuring methodologies and ordering techniques are still relevant.

It is hard to shift away from a power platform that took decades to establish. In my own work, unfortunately, I am still looking to reconcile and provide mutual accommodations for content and form, even though I know very well, that my concept of harmony, instead of contributing to fluency, distorts the form (Gestalt). The new design paradigm requires from me to make efforts to reduce my interference and predispositions to subject matters and issues to allow for content and problem environment to provide their own contextual hierarchies. In return, they will provide the requirements for harmonic flow and clarity, or sometimes, and more increasingly, the opposite.

There are no intrinsic reasons for restricting or encouraging regularity or irregularity, beauty or ugliness. The only measure of rightness is the sharp relationship between solution, contents, and context. Each context produces its own conditions for which many experiences can stand in as conceptual or visual form. They in return can metamorphose into concepts that are stronger and more communicative than can be triggered by an encyclopedia’s single concept. (Encyclopedias are classic examples of knowledge organized in alphabetical sequences. Because there are no connections between individual entries they can not provide essential meaningful contexts.) The context, explicit or implicit in nature, and the inherent contents, consciously or unconsciously absorbed, together become powerful, producing the support for an individual’s narrow or wide perception and interpretations. Unforgivably, in our traditional approach we have reduced the energy of the audience to passivity. For most of the time the credit for creativity has gone to artists and designers. The users, the consumers, the public, have always been the necessary evil. Meanwhile, it has become quite clear that it takes greater imagination, guts, intelligence to learn a new language, for which there is no precedent, no previous experiences.

How does one deal with something that does not look familiar, for which there is no cultural reference? Victor Shklovsky in investigating "Defamiliarization" talks about habituation, perceptions that become habitual, automatic, and energy stunting. Artists/designers hope to stimulate, bringing to attention, providing some new experiential contexts for object and image, but in using a very limited vocabulary, they frequently destroy the contextual communication needs. Defamiliarization, that wonderful opposite to the familiar, creates worlds of instant stimulus and agitation. Instinctive nervousness sets into motion a person's total sensing system. Defamiliarization mobilizes all parts of the sense mechanism – alertness, readiness to face the assault of a new concept, a new idea. The intruding philosophy, world view, object, image, environment, activates a keen sense of adventure. Faith in the future, faith in the ability to survive, the ability to read-just the value system on a minute to minute basis, nearly exhausting. A sense of loss must be quickly translated into a sense of gain. Creativity, neutral, capable of construction and destruction, rushes to the investigation of the unfamiliar. Defamiliarization allows all matters of interpretation, therefore it is creativity at its highest. Individuals, without external guidance, must decide on the nature of the concept, its symbolic, or cultural value, on their own. Reaction can be flight, to get as far as possible away from the irritation, the negative stimulus, or aggressive attack. Reaction can be fight, using all means, including demeaning language to discredit, or the law to restrict, or even physical force. In adoption of the unfamiliar, a process of making sense of what is not known and not previously experienced, the borders of the original idea are extended, and oddly enough (mostly through misinterpretation) embroidered, distorted, and amended. In all revolutions of thought energy is spent in trying to corral the newness, and to neatly collate the new items, with the old. But as soon as the revolutionary concept is grasped, with or without distortion, it infiltrates and unsettles what is known.

The question about visual presentations of complex philosophical issues within a democratic social system, especially a multi-faceted, multi-lingual, multi-ethnic culture like the US, is becoming more agitated and dynamic. Artists/designers will have to become responsible for presentations of convergence, as well as divergence, synthesis, as well as decomposition of the various philosophical, technological, geopolitical aspects, while forging new forms of expression to communicate new ideologies, new world views.

I see the new role of artists/designers as a most dramatic shift from passive information management to the active negotiation as communication-diplomats between expertise and information domains, that, caught up in their coping with the information explosion, have little time to interface with their counter-parts. The artist/designer is becoming a true generalist and synthesizer, as well as the intellectual mediator between knowledge domains and the public.

By taking the best of Ed Tufte to task, charging him with addressing only statistical information which make up only a small portion of the communication spectrum while eluding the poetic, lyrical, emotional, and the conceptually abstract, artists/designers will have to overcome their weakness and gain the skills of substantially concentrate on research in psychology and sociology required to understand the process of reading and interpreting texts and images. (Tufte's concepts, although reduced to essentials by me, include among others requiring visualizers to accept responsibilities for information integrity; expulsion of the confusing and the misleading; embracing the audience with respect and sympathy; reduction and elimination of data boredom; presentation of the essential and not obvious; and collaboration between the conceptualist, the information researcher and the visualizer.) The recent concentration on visual representation of numerical and statistical information is getting us off on to the right track. However, maps, graphs, charts are not overly complex. When the nomenclature and presentation format become convention, their efficiency becomes predictable.

Aesthetics, Design, Cooperation

For most artists/designers, the subject is provided externally, by the client, writer, marketer. The designer provides style. But social, behavioral, and psychological issues are not style but contents. Style in itself says nothing. Only in very rare cases is style a matter of subject; Dada for example. Nelson Goodman asks: "Does style enter where fact stops and the emotions start? Is style then the matter of the affective and expressive?" Style is not logical. It is neither art nor design. At the most style is mask, lipstick, make up.

Art/Design means different things to different people: The conceptual framing of a problem (plan, schema, idea, concept). The search for understanding of the context (the social, cultural hinterland). The responsibility for the aesthetic articulation and visual manifestation of image or object. But, for example, the designer's business is in a major stage of flux and redefinition.

Seventy-five percent of corporate executive officers of the Fortune 500 companies with generalist backgrounds and abilities to understand and integrate concepts of various disciplines, respond to the immediate needs of the economy, business, and commerce. For the reasons of interfacing with them on their level, our profession must embrace the concept of general education and its concern for behavioral, social, and cultural factors. It is appropriate for this time. It is appropriate for art/design education at a university. The artist/designer as thinker is not any more a utopian ideal but an immediate and necessary requirement.

The fundamental differences in expectations arise from the different value systems through which designers survive in the profession. Product engineer and design methodologist Bruce Archer's position suggests that there is room for visual aesthetics as well as intuitive behavior. Both are part of the criteria for weighing the solution. How much or how little is necessary to make the product effective, is laid out by the project criteria. He warns, that aesthetic criteria are in the realm of authority and power, and conform to manifestos espoused on traditional philosophical grounds. Aesthetic criteria are constantly metamorphosing and artists/designers, because of their isolation, are rarely in touch with the public's personal culture (Hip-Hop, Rap have emerged outside of the traditional systems of artistic control). Power concepts of a design aesthetic have to be learned. They cannot be depended on in the communication with the lay-public, who lack the breadth in the cultural vocabulary for the new (Picasso's *Les Femmes d'Alger*, Duchamp's *Fountain*; Gertrude Stein's statement about Picasso's work as "a raw diamond"; the Whitney's cloaking good taste/bad taste in "High and Low Art" issue). However humans learn quickly to associate with power-concepts that improve their opportunity to increase status in their social or professional hierarchy. The only recently learned aesthetic-political concepts form at the beginning the "avant garde" and shortly afterwards harden into tradition. Rather than beating dead horses, designers should question the ethics behind their power statements. What does it mean for something to be in good taste? Or, to have taste? Or, to be culturally important? Does universally accepted taste equal bad taste? In a free society, what are the limits to choice, expression, movement? Can order be forced on democracy or the developing ultimate democracy, which promises the opposite, namely delirious chaos? Maybe designers should learn from Bertrand Russell who maintained that any device is useful that sheds light on the otherwise unknown. In preparing for hyper-media (linking as many information

resources as possible; text, sound, image into a useful information network) these questions have to be addressed first: Which group of interdisciplinary experts will share in the development and management of the contents or will specify the context (computer and information scientists, behaviorists, sociologists, cultural analysts, writers, managers, and designers)? What will be the role of designers: to develop the data, the conceptual framing of issues, or will the designer be satisfied to continue to be the hands for others? Christopher Alexander, architect, anticipated that today's functional problems are less simple. Each small problem is a part of the complex total organism. Accepting the concept of complexity, designers must want to deal with all sub-components. Each problem resolution must trace its efficiency to the larger organism, not just to the conflict resolution on a tertiary level. In this new concept of design it is necessary to negotiate the language barriers between the traditional order and the vision beyond the present, recognizing at the outset that only simple problems (micro problems) can be met by a single person's intuition or insight. There are many more designers whose ability is based on hunch and intuition than on cognition. One can expect new styles to emerge from them, some insights, but not the leadership which must address the looming issues of the coming decades.

Macro problems, that not only deserve, but require caution in their analysis, include: Increase in population-related malfunctioning of society. Physically: the erosion of cohesiveness in the family and communal structures, the change from blue to white-collar work force; crime, social services, health and hygiene (AIDS), decrease in resources, in space, in open lands, erosion of soil, lack of water, mountains of waste; and philosophically: the increase and expansion of individual philosophical, religious, and ideological territories through free speech, self-expression, and movement. Example: Birth control technology contributed to the changes in cohabitation and property laws; to the divorce rate; to the increased numbers of women on the career path; to the challenge of the glass ceilings in business and politics; to change in male behavior, and to the mundane, changing life styles, from TV dinners, to micro wave meals, to credit cards, among a barely exhausted list of other things. Each of these problems is linked to the other. Each, by itself, is gigantic. The pattern of interactions or failed or possible interactions is vast and complicated. Examples of complexity in "ultimate democracy": The Civil Liberties Union, protects the Klu-Klux-Klan simultaneously with the Jewish community of Skokie, Illinois. (Counter-example of a slowly emerging democracy: the present German government's banning of any expression of neo-nazi and communist sentiment.)

The quantity of relevant information components is beyond the reach of a single specialist, traditionally an obstructionist protecting territory, status, and position in the social hierarchy of the profession. Only a group process helps to break the large problem into minute components, filtering them through social and cultural patterns, responding to the need to integrate them into a constantly shifting problem environment.

After nearly a full century of argumentation, the field of practice has lost its innocence. Artist/designers are being asked to outgrow the limitations of personal and artistic self-indulgence and to expand their greatest gift, namely their ability to organize form (Gestalt) and to make decisions on the selection of context and contents, and the determination of results. (The traditional painter has always been a sound decision maker. The first decision of placing the first brush mark is followed by others, until the envisaged image is complete.) Designers trained in the methodologies of art, however, require one more skill, namely the ability to grasp concepts synthetically (concept environments and contexts). Contexts place strategic demands on the intellectual and physical form (what could, what should, what must be accomplished). Alexander speaks of a frictionless coexistence between the Gestalt of concept, context and form. In the need for interdisciplinary synthesis, departments of English, psychology, computer and information sciences, among others, are preparing new competitors to traditional artists/designers. They use the same equipment. They use the same software packages for 2-D, 3-D, 4-D, sound, word-processing, and planning projects. They work on projects that were in the domain of design, but are now usurped because most designers are not ready to face the more complex communication issues outside of image and text manipulation.

Historically, writing increased acquisition and preservation of knowledge. It prepared for the advent of cities and cultures, and the abstract life outside of manual labor. Centuries of maintenance and acceleration in Gutenberg's repeatable commodity lead to the assembly line, mass production, mass communication, and now these conventions must be reconsidered if the new media is to succeed. The reading process has brought isolation from others, status in terms of information ownership, specialization, expert territories, as well as the establishment of elitist power structures like the German and French Academies to maintain power by aristocrats over the citizenry, and control over rhetorical methods of academic argument and legal language. The latter have been abstracted into contemporary academic life and social strata of the intelligentsia. The book has reduced the skill of personal observation and, in addition, has made the reader reliant on verification, not conducted personally, but provided by subject experts. Ironically, today, each citizen is pressed to total responsibility for cultural survival, having unfortunately

lost what was learned from the Existentialists, who required not just self actualization, but the reconstitution of world views and beliefs, after personal analysis and personal verification. Being freed from centralized control of intellectual discourse, the citizenry is unprepared for the "death of the author" which requires their own initiative to authoring, or facing the loss of expert authority and the frailty of taxonomic truth. Artists/designers must begin to provide the support for the citizens' need to perform the personal task of interpreting the world without guidance. This task becomes handicapped by the fact that designers rarely generate or even collect original data. They also stand usually outside of the decision process. An article in Britain's "Design" magazine claims that most designers do not care for information and behave delinquently; only 50% receive good information and only 20% know how to request the right and pertinent information. And in the US, most studios are the result of entrepreneurial efforts of individuals, whose education does not go beyond the BFA, or whose terminal MFA degree concentrated on studio skills or whose program did not foster an expansion into the intellectual arena. Designers are not involved in original research. They do not own information or knowledge that is unique to their discipline. There is a vast group of semi-professionals out there posturing about their profession, which usually does not go beyond business street smartness and prowess.

There is a difference between trends and fads. The distinction lies in the facts that fads are temporary aberrations, that take off like fire, but because of their shallowness are short-lived. There are usually few consequences when one fad slips into the other. Fads are shared by many and usually nobody can be identified as leader. Trends, however, depend on understanding of a whole ecology, on observations of phenomena outside narrow, traditional or institutional frameworks. Trends have deep historical roots, and reach far into the future. Trends indicate the need for early cybernetic organization of goals, strategies, and tactics, and response to the emerging and anticipated patterns.

For whatever reasons the lay-public's continues to think that the phenomenon of metamorphosis from industrial society to information society, driven not by manufacturing of products, but by development of information, is a recent concept. Clark, McLuhan, Toeffler, MacHale, Koestler and many others, conceptually foresaw a world altered by satellites, lasers, and computer technology, increasing personal freedoms and choice. Many of the aspects of the world predicted thirty or fifty years ago are already impacting everybody's life-style and society as a whole. MIT's V. Bush in the mid-forties, advised the US president of the world we are now living in. When the bright and thoughtful define a new world and the federal, corporate and private sectors fund a university's scientific vision there is a good chance that the vision will materialize. The public perception that research moneys

are wasted is unfortunate, parochial, and wrong. Our future is written now, in scientific fragments, in reports by those responsible for public awareness (the New York Times, Scientific American, etc.). The traditional art and design institutions' unwillingness to become agents to promote change, have retreated from the challenges and the demands that have come along. In the past designers and artists provided leadership. Today, the domain of art and design is still in the hands of a power-group, that saw its own success in the fifties and sixties. It is questionable if this group can overcome its ties to tradition and respond to the shifts and changes in the cultural web, intelligently and with foresight.

This society is not facing the beginning of a major metamorphosis, but a phenomenon in full force, and at a rate of extreme acceleration. It is expected, that after the initial industrial tasks will have been redressed, through the introduction of new knowledge and new technology, that the next stage will be even more dynamic. (Example: Czechoslovakia, at the moment of liberation, established a telephone communication system that is vastly superior and cheaper than those of most Western nations.) More than 75 percent of all Americans already work in the information culture, from personnel in the secretarial pool to officers in information management. This will require that designers respond with intelligence, entrepreneurship, and newly acquired skills, to develop new corporate attitudes, processes, and procedures, growing out of a different and more perceptive cultural literacy.

The introduction of the micro information processor is neither automatically beneficial nor a detriment. Historically, certain clues can be found in the introduction of photography during the latter quarter of the past century. At that time, it is estimated that there were forty-thousand portrait painters in Germany alone. This group was emaciated in a twenty-five years to just between five and ten thousand, at the most. The transition from painting of portraits to the new technology and medium of photography took place very fast, but the institutional arts hierarchy, controlled by the "Fine Arts Salon" enslaved photography for at least half a century. The Museum of Modern Art started to curate photography relatively late and the absurd debate about photography as a legitimate art form reaches deep into the sixties. It is one proof, that institutions are greatly restricted by their homeostatic, monolithic, and inflexible positions. Only when pushed and seriously threatened will the endangered institution begin to prepare for change. The change, however will not be welcome, and because it is not initiated internally, the institution will start to adapt components from other successful disciplines, thereby assuring its survival, but at the cost of losing identity and leadership. Adapting is the least creative and inventive way to go about making a future.

This epoch is driven by information and its dissemination for entertainment, learning, teaching, informing. R. Wurman, information designer, would agree that people are drowning in information, drowning in designed images, paintings and photographs loaded with aesthetics, while they are starving for guidance in securing useful and timely knowledge, its comprehension, retention, and most importantly, its application. Individuals are assaulted by between 800 and 1200 advertising images per day. A conservative estimate is that artists produce twenty million objects and images (one object or image for every 12.5 US citizens) for annual national consumption.

The past geared itself to a materialistic view of the universe, spawned by the industrial revolution. The proof of success lay in the proprietary rights over objects, with the few controlling the politics of aesthetics of architecture, the publishing world, the gallery circuit, the professional design media. This tradition of exclusive, special entitlement has created status for object and image makers, as well as the owners of their work, creating a certain infinite cultural value for the collectors' posterity. The information society has challenged the outer appearance of object and image and has declared its contents and the context in which they are used as of primary importance. The value of its contents lies in the synthesis of multiple sources and disciplines. The ephemeral elusiveness and incompleteness of contemporary works of visual expression have been elevated as a symbol of this time. Sound and performance art is growing. Film survives in a healthy state. Poetry readings are doing well in most larger American cities. Criticism of criticism has become its own art form. Example: Art criticism is no longer about how an object/image is constructed, physically and aesthetically, or about its author. It is one stage removed. The object/image has become the catalyst for an intellectual and ideological discourse. This abstraction of criticism, in which the object and image are reduced in their traditional importance, suggests that the information society already has had a deep impact on the educational methodology and philosophy of art institutions. Another case in point: Art History will present Cristo's work, which is rarely experienced in its original physical form, as a synthetic and Ersatz experience. Without the physical presence of the object the discussion can only relate to the concept and its diagrams and scores, its photographs, reviews, plans, anecdotes, etc.) European museums, design and art schools already provide very integrated viewpoints, through which traditional distinctions of media and purpose (or audience) are not assigned, but where the contextual, social and psychological aspects of the whole communications environment are being explored.

They do not express the narrowness, vocationalism and cultural and social isolationism of American schools and museums, which are still the play-pens of the affluent and socially powerful, and out of step with the temporal

philosophical movements. When sociologists destroy the distinctions between "high and low" culture, or "sophisticated and primitive" artifacts, then there is an automatic undercurrent which challenges old art and design mega-institutions.

Peter Drucker, corporate methodologist, instructs the corporate executive, that the information age measures its productivity in relationship to the development of new knowledge. He thinks that knowledge is this epoch's primary industry, supplying the economy with essential resources for production.

The same shift that is visible in business is taking place in the design. Designers are working themselves out of the manufacturing business and into the thinking business. The era of the manual-skill specialist is coming to a screeching halt. The expert in his linearity is rendered obsolescent by the generalist's ability to synthesize and negotiate between various disciplines and intellectual territories. The information-related environment with its intentions to provide tailor-made solutions offers designers opportunities to respond in more precise ways, addressing social, cultural, and behavioral concerns. Designers must now, in addition to imaging, understand the machine/human interface, the climatic and information environmental conditions which favor the use of a certain technology or a specific form of presentation or expression; or which information must be encapsuled in specific media.

Logically, observers claim that the change from the industrial culture to the information culture will be as profound as the previous change from agricultural to industrial society. In the agricultural phase of the cultural development the goals were cyclical, seasonal, survival oriented, hoarding and storing, and staving off disastrous famine. In industrial culture the fight between man and nature gave way to man's dealing with artificial replication of nature, creating greater availability and dependability on materials, processes, and products. Storing became warehousing, all the practical skills like weaving, blacksmithing, pottery, and wood-working were taken over by industrialization and militaristic standardization; the hand crafts becoming new art forms, dismissed as providers of mass produced products. When in the latter part of the last century industrial textiles and production pottery removed the itinerate weaver's and the local potter's direct supply functions, new art forms and traditions were formed. The same dilemma is faced by traditional designers for paper and print, with the "artist book" emerging.

The information culture's values are positioned quite differently. The immediate and constant interactions between people is stressed, open and acces-

sible information to all (no secrets, no surprises), relinquishing ownership and proprietary rights (streaming information webs), increase of the individuals' opportunity to actualize their potentials, directly and indirectly. The new values encourage networking, group problem-solving, larger issue orientation. They deal not with just immediate possibilities but long-term possibilities, and those possibilities which anticipate specific futures.

A report based on the findings of both the US Department of Education and the National Science Foundation points to the American movement toward virtual scientific and technological illiteracy, an intellectual third world status (and maybe in the near future, an economical tertiary position). Designers also have sunk to a role of observers, remote from the center of activities, receiving second hand information, too little, and too late. It is one of the major reasons that art and design come late to deal with the electronic age. More importantly, members of a culture incapable of understanding the scientific concepts that shape both technology and life styles, have a tough time competing with those cultures whose members are literate. A serious example: Of forty million junior high school students, who declare science as a major interest:

4 000 000	will graduate from high school with science as a goal
400 000	will complete the Bachelor of Science degree
40 000	will complete the Masters of Science degree
4 000	will complete their PhD

The industry will absorb nearly all of them and will still be short in their personnel needs.

Four hundred will enter the field as teachers. High schools compete with colleges to hire them.

Is it not the responsibility of designers to build culture first, before they indulge in the design of waste products for which there is no room in municipal dumps, or in image pollution and communication overload for which there is no time or energy. Design can not follow its traditional directions and restrict itself to image and text processing. Design must choose a clear position. Taking no second seat to the traditional arts and crafts, design must assert its new role which celebrates the sociology of culture, rather than just the art history of culture.

The difference is in the close relationship and response to all aspects of everyday life with the general public as users in mind. In this regard, the arts traditions are much more narrow. Their sophisticated philosophical positions of art are not easily accessible to the public. They are not absorbed symbiotically into the culture. Their language and values must be learned. Since higher art

education, in general, is still the realm of the privileged, only few are admitted to the world of gallery and museum in which "Art" takes place. Therefore art, or visually aesthetic life, cannot be perceived anywhere, but in the traditional arts mega-institution, where, because of its expert language, it restrains the public from self-development and interaction. At the same time this impedes the culture's growth. Only 14% of 15-20 year olds go to museums (this number is most likely inflated as it includes all visitors: those who voluntarily choose to visit galleries and museums, and those who are required to visit as part of their high school experience) but 75% go to rock concerts. In a world, where individuals are unfamiliar with crafting their own objects and images, the critical skills necessary to assess the quality of the visual and technical attributes of work by others, atrophies, making all future works of art indecipherable.

Art/design have a vital but completely opposite role to play, in bringing ideas, concepts, philosophical statements to designated audiences (users without design awareness, but with communication needs). Therefore, art/design must be seen as a process of negotiation between segments of the populous and the specific needs to communicate, inform, and educate, by individuals, by institutions and corporations of the private and public, the profit, non-profit, and federal sectors. Art/design is participating in accelerating the new cultural shift from the creation of physical products to the manufacturing of thought.

A tough analysis reveals that artists/designers are not yet prepared for their new tasks. Even well established designers continue to be the hands of managers, corporate executives, copy writers, and conceptualists. Artists are driven by the market, not declared by them, but the gallery and museum. Rarely do both groups participate in the development of the ideological or conceptual frame-works for any major projects for which they shape the visual expression. The Harvard Business School, and other prominent management and business schools continue to shape most of the architecture, the products, the corporate iconography – not artists/designers. The field is stagnated by visualizers who have no stake in the development of information contents and contexts, the major activity needed for design to emerge as a profession. This must also be the major marching order to art/design education programs for forming a new anti-theoretical curriculum.

Linking fine and applied arts. The traditional reason against this lies simply in the different functions of design and the arts. According to Goodman, artists see their world through the eyes of the single genius, who through gift, uniqueness, as does a shaman, as the one selected to see, instructs society. Artists prefer to deal with the elusive mythology of art, while designers as sociolo-

gists, prefer to understand the many cultural and social realities and functions, and act upon them. The designer/sociologist is expected to strive for a utopian objectivity, reducing personal bias to achieve better understanding. This encapsulated essence is the difference of art as focusing on personality, expressions of genius, the sacred, while design puts everything into a wider context by breaking institutional codes and canons, and expressed in the interests in everything that touches the communications process externally and internally. Design cannot be measured by gallery exposure, but in conjunction with its inherent relationship to context. It seems to me that while the arts want to preserve a place in the traditional hierarchy, the new taxonomy makes design neither superior but definitely not inferior. Still, design is blamed for not being art. Well, it is not, nor does it perform the functions of art. Society needs both, side by side, context related, context appropriate.

Disciplines like rhetorical theory, critical and logical thinking, cognitive science, and sociology are open to very much the same diverse influences as art/design. They are also a valuable resource for understanding the power shifts from traditional, monolithic, and dominating structures to open ended, open minded structures for re-evaluation of the practicality and functionality of traditional principles. Sociology is reevaluating and rewriting itself – so is psychology. Howard Gardner includes the intuitive in cognitive science, the artistic, but only as an equal participant, as suggested, not inferior, nor superior. Most artists, however, rebuff the cognitive. (The blame, in many ways, can be placed on Victorian literature, which portrayed artists as intuition-driven Bohemians, a far cry from the serious pursuit of understanding and insights Van Gogh's diaries will provide. The mystique of the intuition driven poet was challenged by Edgar Allan Poe, but he had a hard time to convince the romantics of his time of the cognitive side of his work.)

The principles of the visual and plastic arts are not dependable in contemporary contexts; they might not have been effective in the past. The same might be true in rhetorical theory. At least rhetoricians begin to see their field change toward the user rather than to ideological indoctrination. In this new arena of open analysis and search, design finds itself more kin to the new rhetorician than the traditional art ideologist. Rhetorical theory has been seen in differing perspectives through history; it has variously comprised arguments, persuasion, values, knowledge, and the study of language itself. The theoretical division between classical and modern rhetoric is usually seen as a shift in emphasis from the writer to the reader (equivalent to the shift from the artist/designer to the user/audience); concurrently, the focus has shifted from the written product to the structuring process of material for communications and user needs. Today's rhetorical theorists demonstrate their particular perspectives by detailing strategies for effective

use of the writer's material. Rhetoric concerns writing as a creative process in which acts of discovery include discovering information, forming concepts, seeing relationships, analyzing and solving problems. Discovery continues as the writer investigates the reader's knowledge and values; a two sided process of discovery, a freeing of the reader to invent and respond, with the writer's initiative as catalyst.

If one compares then the principles of modern rhetoric of language with that of modern art/design then the major change in attitude refers to the interactions of artist/designer and user/audience which can be a result in the accomplishment of the artist/designer's goal of informing the users, strengthening their convictions, or changing their mind. Modern art/design asks that in the process of discovering knowledge it must be yoked to the process of communication, and that knowledge discovery or acquisition demands greater attention. The point is that the psychological change in the audience, rather than beautiful object/image, is the immediate and proper goal of the artist/designer.

A time period reflects the thoughts and concepts which in their energy help to shape the values, ambitions, ideals of a future, and simultaneously the methods and technology to achieve what was envisioned. The dissolution of the USSR and her new interests in democratic governance; the unusual non-territorial response by the Allied troops to Iraq's aggressiveness in the Mid-East; the lack of difference between the life styles and ownership of physical things by members of the super-rich, rich, and middle classes; the empowerment of minority groups and women, the elimination of cultural barriers, the collapse of the art market as well as interests in museums, the growth of conceptual or objectless art, the rewriting of art and cultural histories to be all inclusive, the challenge to all theories developed in the past, the inability of one political viewpoint to control a majority for even a minute; all this suggests that the basic conditions for the success of hyper-world are set: lack of dogma and hierarchical control, required verification of quality of traditional paradigms, and advance in democratization beyond lip-service.

Sooner or later,
hopefully sooner,
artists and designers, teachers and practitioners
must step forward from hiding behind dated models
of the nineteen-hundreds
or fifties or sixties
to get their house in order.
If they won't,
young entrepreneurs
must take up
the challenge themselves
to refurbish a nearly empty
intellectual reservoir.

DRW.