

es la parte más importante. Como tampoco lo es el diseño de nuevas formas, como quisieran hacernos creer los promotores de la semántica de la producción.¹¹ En este momento lo más importante para desarrollar una práctica más madura del diseño y una forma de enseñanza del diseño que aborde los temas principales es una nueva forma de conceptualizar el diseño en sí, así como el desarrollo de una disciplina académica de estudios de diseño que pueda infundir a la pedagogía del diseño con una dimensión reflexiva que ahora le falta.

DESIGN STUDIES AND THE EDUCATION OF DESIGNERS

The dream of Walter Gropius when he published the founding manifesto of the Bauhaus in April 1919 was to unite the arts and crafts in a design curriculum that would produce a unity of architecture and the decorative arts. To do this, Gropius felt it was simply a matter of establishing workshops where students could learn a set of manual skills from teams of artists and craftsmen. His model of design education was based on a utopian ideal of community where life was simple and marvelous results would come from an intuitive understanding of what was to be done.

As a result of his faith in intuition, Gropius did not emphasize historical or theoretical studies as an essential part of the students's education at the Bauhaus. The foundation courses were established by artists who had arrived at their methods systematically but did not build on a body of disciplinary knowledge. While Gropius headed the school, the model of a designer was based on the craftsman rather than the intellectual.

However inspiring the rhetoric of a unified design curriculum might have been in the early days of the Weimar Republic, we see in retrospect that neither Gropius nor his successors at the Bauhaus, Hannes Meyer and Mies van der Rohe, arrived at a model of comprehensive design training that could serve as a prototype for an integrated curriculum today. Meyer, however, has not received enough credit for attempting to introduce theory into the Bauhaus curriculum by bringing in experts from different disciplines to speak to the students. But, due to his leftist politics, his tenure was too short to have made a major difference in the school.

Along with the Vkhutemas in Moscow, the Bauhaus belongs to the first period of art/design schools that strove to mirror in their curricula the forces of modernism that shaped their era. But in both instances, the attempt to develop a curriculum for designers was built on the basis of craft ideologies and thus neither school was able to formulate a concept of design education that would have successfully addressed the function of technology, management, and social policy in the design process. The Bauhaus lasted for fourteen years, the Vkhutemas for only ten. In neither case was there enough time to examine the potential role of a designer in the modern world. Given the multitudinous changes that each school underwent in its short life, we might have seen entirely different models of design education emerge had they survived for a longer time.

In 1937 Laszlo Moholy-Nagy, who had taught at the Bauhaus in Weimar and Dessau, reintroduced some of the Bauhaus education principles in a different form in the New Bauhaus which he headed in Chicago and which eventually became the Institute of Design at the Illinois Institute of Technology. While Moholy-Nagy continued to privilege an intuitive approach to design, he nonetheless invited phil-

osophers and scientists to lecture at the school. This was a significant attempt to develop a body of theoretical knowledge that could be useful to the designer. The Institute of Design, which the New Bauhaus eventually evolved into, changed a good deal after the death of Moholy-Nagy. It was one of the first design schools to make the computer a central focus of the design process. It also brought a body of engineering knowledge into the design curriculum and presented students with a model of design practice that depended more on theory and a understanding of technology than most, if not all, design schools had previously done.

In Europe, the Hochschule für Gestaltung in Ulm also moved away from the arts and crafts model of design education. The Ulm professors, including Tomás Maldonado, Gui Bonsiepe, and Otl Eicher, who followed the initial directorship of Max Bill, rejected Bill's bid to return to a Bauhaus art-craft curriculum. Instead they sought to model their program on science and technology rather than art. Theory and history were injected into the Ulm curriculum in a way that they had not been done during the first period of modernist design education. The sociologist Abraham Moles from France taught information theory at Ulm, for example. And there were also courses in design history, in sociology, and in other humanities and social science subjects. The effort to integrate design knowledge and studio practice might have borne more fruit had not the school closed in 1968 during the year of intense political struggle between students and authorities in Europe and the United States. Ironically its life of fourteen years was the same as that of the Bauhaus, the educational model it refused.

Since Ulm, many design schools have rejected parts of the intuitive arts and crafts models of the first period of modernist design education, but no school of design has made an equally ambitious and prominent attempt to introduce design knowledge into its curriculum in a way that could make that curriculum more responsive to contemporary problems than most now are. And yet we are at a point in history when the demand for new models of design education is growing fast. Why? Because we face problems that outstrip our ability to solve them. The tasks that confront designers are more complex, broader, and require more training than most schools of design are willing to admit.¹ We thus find numerous efforts to address these problems by going beyond the limitations of school education. That is certainly the case in design where innovation comes quite often from individuals who simply recognize that their training was too limited for the problems they want to address.

For design educators, the first challenge is to broaden their understanding of what design is and how it functions in society, not just in high-tech society but in developing countries as well. A number of theorists are beginning to argue for a broader definition of design than we have previously considered in the organization of design curricula. Richard Buchanan considers design to be an architectonic art

that can unify other more narrowly conceived arts and crafts. He writes:

Design is what all forms of production for use have in common. It provides the intelligence, the thought or idea —of course, one of the meanings of the term *design* is a thought or plan— that organizes all levels of production, whether in graphic design, engineering and industrial design, architecture, or the largest integrated systems found in urban planning.²

Buchanan's broad view of design echoes the pioneering work of Herbert Simon, a leading in the fields of computer science, organizational development, and artificial intelligence. In a seminal lecture of 1968, Simon offered a definition of design that has been widely quoted since:

Everyone designs who devises courses of action aimed at changing existing situations into preferred ones. The intellectual activity that produces material artifacts is no different fundamentally from the one that prescribes remedies for a sick patient or the one that devises a new sales plan for a company or a social welfare policy for a state. Design, so construed, is the core of all professional training: it is the principal mark that distinguishes the professions from the sciences.³

Simon was optimistic about the emergence of a «science of design» which he called an artificial science to distinguish it from the natural ones. His definition of design provides a framework for a different perception of design problems and a reorganization of design practice according to new paradigms. It addresses the proliferation of unprecedented situations that demand integrative design approaches for which no professional preparation exists.

But we still do not know how to translate broad definitions of design into pragmatic terms, something which is essential if we are to generate realistic proposals for reorganizing design education and practice. We are confronted with design curricula that are divided into discrete forms such as industrial design, graphic design, stage design, interior design, or fashion design. We also separate more artistically oriented ways of designing from more technical ones such as engineering or computer science. In addition, we segregate the design of objects from the design of immaterial products like techniques and services which are the province of fields such as industrial psychology and urban planning.

There are, of course, good reasons why these practices were separated in the first place but such decisions were also made at a time when the need for integrative thinking was not as great as it is now. Still, the issue is not to meld all forms of design into a new comprehensive profession that is at once everything and nothing. Rather it is to define new

1. Frascara, Jorge, makes the argument for a focus on social responsibility rather than aesthetics in graphic design education. «In a safety symbols project [...], he writes, «the design problem is not the production of symbols but the development of an effective communication strategy for the prevention of accidents.» See Frascara, «Graphic Design: Fine Art or Social Science», *Design Issues*, vol. 5, n°. 1 (Fall 1988), pp. 18-29.

2. Buchanan, Richard, «Declaration by Design: Rhetoric, Argument and Demonstration in Design Practice», in Margolin, Victor (ed.), *Design Discourse: History, Theory, Criticism*, University of Chicago Press, Chicago, 1989, p. 108.

3. Simon, Herbert, «The Science of Design: Creating the Artificial», in *The Sciences of the Artificial*, MIT Press, Cambridge, MA, 1969, pp. 55-56. The essay was reprinted in *Design Issues*, vol. 4, n°. 1-2, as part of a debate with Norbert Wiener on the interrelations between design, technology, and society.

points of contiguity between different practices and to facilitate an educational process that can make possible a greater collaboration between different types of designers as well as stimulate individual designers to address a wider range of problems than most now do.

One reason why design schools have not moved faster to regroup in the face of new challenges is that design itself has never been considered a fully-developed profession by most of its practitioners. Compared to professionals in law, medicine, and the natural sciences, designers of all kinds have given very little thought to their own self-definition. Buckminster Fuller confronted designers with the prospect of a «comprehensive design science» but, despite the fact that he was personally able to transcend conventional boundaries between engineering, industrial design, and architecture, he had no strategy for moving the design professions in this direction and often baffled his audiences with long-winded abstruse talks that could last as long as four or five hours.

While there has been much written about design in recent years, this writing has been fragmented, and not integrated within the context of a coherent understanding of what designing is. While we may consider it a task of designers to think about their own practice, there is also a need within the design enterprise for scholars and critics whose primary project is reflection. And yet, the design professions have not yet learned how to welcome such people into their midst.

Although we can easily imagine what a legal scholar might contribute to the profession of law, as is evident in the recent development of critical legal theory, or what a scholar of medicine might offer to his or her profession, we still have little understanding of how a design scholar could bring theory, criticism, or history to bear on issues of the design professions, whether these issues relate to practice, education, or even public perception of design and designers. There is clearly a need for a new discipline of design studies to train such scholars. It is they who should also play a significant role in the rethinking of design education and practice.

While we demand a doctoral degree for someone who teaches art history, we don't yet consider the study of design to be an equally scholarly enterprise and therefore neither foster the training of scholars nor make space for design studies within the professional curriculum. And yet design scholars could help to rethink the present problems of design education and propose new models.

Design training is presently extremely fragmented. Industrial design, graphics, interiors, crafts, and fashions are most often located in art schools or university art departments. Architecture is a hybrid of art and technology, residing between the art school on the one hand and the engineering school on the other. Engineering is defined as a technology-based form of design which has nothing to do with the arts. It is also often separated from computer science, a more conceptual form of technology-based design. And the design of processes or services is confined to schools of urban planning, social work, or business. Because of these divisions, the aspects of design that various professionals have in common are not emphasized and numerous people whom we might call designers are isolated from each other in their professional preparation.

Such separation is then extended into professional practice where teams of different professionals who should work together often have to overcome misconceptions or ignorance of each other's work. Aside from the fact that educational divisions foster modes of thought that separate different types of designing, they also produce fragmented definitions of what design is and thus inhibit bold formulations that assert a more comprehensive presence for it in society.

Besides the divisions between different forms of design, there is at the same time inadequate recognition that the study of design rather than designing is also a valuable practice both for future scholars *and* designers. The history, theory, and criticism of design are still insufficiently promoted for design students and as subjects of study in their own right. There is scarcely a separate university program in design studies anywhere in the world, nor do we find many professional programs—whether for graphic design, product design, or even engineering or computer science, that have theoretical or research components. For design to be taken seriously by educators, researchers, policy makers, and the public, a body of serious and useful research must be developed which can make the benefits of studying design's history, theory, and criticism more evident. We also have to begin to demonstrate through innovative design curricula—and specially through the creation of new studio problems and the formation of student teams to work on them—that new methods of organizing design skills can have fruitful results.

Because design's broad role in society has hitherto not been well conceptualized, design still seems a marginal subject to most people and it often occupies only a modest space in the curricula of universities and art schools. If by studying design in a narrow sense we were only looking at an isolated set of objects and techniques that did not make a great deal of difference in the way social life was conducted, this would indeed be justified. But, instead, if we recognize design as a more significant practice with broader influence, then knowledge of it has a greater value to us.

Herbert Simon called for a rigorous «science of design» but we need not assume that design has to be a science in order to be a significant subject. Design is too broad to be reduced to a system of techniques and theories. That was the mistake of the Ulm theorists who thought that design could be confined within the paradigms of rigid theoretical models. While design has its systematic aspects, it still partakes as much of art as it does of technology or science.

We might more usefully speak, as the critic Maurizio Vitta does, of a «culture of design» that includes not only the production of useful objects (and here we should add processes, services, and techniques as well) but also their distribution and consumption. The «culture of design», according to Vitta, embraces

the totality of disciplines, phenomena, knowledge, analytical instruments, and philosophies that the design of useful objects must take into account, inasmuch as those objects are produced, distributed, and used in the context of economic and social models that are ever more complicated and elusive.⁴

4. Vitta, Maurizio, «The Meaning of Design», in Margolin, Victor (ed.), *Design Discourse*, p. 31.

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The concept of a «culture of design» reinforces the point that design is an activity which is defined to some degree by the social milieu in which it operates. Therefore we cannot conceive of any design curriculum that is independent of a theory of society.⁵ Many scholars would argue that theory itself is ideologically grounded and cannot produce «natural» models of either designing or society. Creating design theory then becomes a matter of argument which is part of a broader debate about social theory in general. Theories of design and society are important because they help us to become more knowledgeable about why and how we do things. Since we don't agree on a single theory of society, it is equally impossible to postulate only one theory of designing.

As a result of design being undertheorized, the social implications of particular strategies of design education are mostly left unspoken in design schools where designers are implicitly prepared to serve the system rather than act upon it with their own projects. One function of design studies within design education is to recognize design's wider role in society, so that we can begin to make a place for design discourse within the larger debates about social theory, notably those that center on the transition from an industrial to a postindustrial society and from a modern to a postmodern culture. In recent years debates about the future role of the service sector, the value of information versus hard goods as an economic commodity, the relation of technical knowledge to social policy formation, and many other topics have been widespread. What little writing there is about design in «postindustrial» society has been uneven and has not tended to address the complexities of the debate on post-industrialization. But it is precisely the questions that address the kinds of changes that societies around the globe are undergoing which must underpin new thinking about design and need to be a part of design education. Designers have to think through the possible implications of what they are doing in the light of these changes, considering whether to cooperate with them, try to redirect them, or resist them.

Because designers, design educators, and scholars have only spoken with a soft voice, design as a subject has not been sufficiently integrated into the debates about modernism and postmodernism in a way that fully expresses the deepest issues of cultural transformation that form the core of these debates.⁶ Neither Jürgens Habermas, Jean-François Lyotard,

Gianni Vattimo or other leading philosophers involved in the debates on modernism and postmodernism have recognized design as a central representation of cultural values.

The low profile of design in the industrial/postindustrial and modernism/postmodernism debates means that those who are active in these debates do not yet see design as a contribution to the modeling of new theoretical paradigms. This, of course, seriously affects attempts to construct new curricular models that are theoretically sophisticated enough to project design into current the cultural debates. It clear that the heroic models of design education which characterized the first and second periods of modernist design training are inadequate to address our current problems. It is not that these schools didn't attempt to represent design as a significant practice but each had its limitations. The Bauhaus model, until the time of Hannes Meyer, relied too heavily on art and a form-centered approach. The Vkhutemas made considerable strides in architectural theory but other areas of design suffered from the underdevelopment of industry and the dependence on craft models as points of origin. The Ulm directors based their curriculum on a scientific model that at times seemed more a metaphor than a social response.

The rupture that we recognize between the design education of the first two modernist periods and the current demand for a more powerful design curriculum is less a reflection of design's inherent marginality than of its weak conceptualization. As an encouragement to develop the study of design into a mature scholarly practice, we should bear in mind that many areas of study that are now serious academic disciplines each went through a phase that preceded the development of theories and clearly articulated issues and debates. Art and architectural history, literature, sociology, anthropology, history, and political science are good examples. Within these disciplines, changes have come from scholars who posed new questions and introduced new methods of research, often looking to other scientific or humanistic disciplines for examples of theory and methodology which they could apply.

We can take literature and art history as examples of how this process has worked. The study of literature has in past years attracted researchers from disciplines as diverse as sociology and psychoanalysis. Now it is a center of critical debate that serves as a model for a number of other fields, of which architecture and ethnography are examples. Art history, likewise, is experiencing a convergence of history, theory, and criticism that is shaking the foundations of the profession and opening up new links to numerous other disciplines and theories such as literary studies, psychoanalysis, political theory, feminism, and the broader field of his-

5. Most attempts to develop theories of design have focused on the refinement of methodology rather than the analysis of how design operates in society. Theorists have tended to look at design ahistorically, likening it to a science, whether natural or artificial, rather than a social practice that is defined in part by its historical results. See, for example, Maser, Siegfried, «A few Comments on the Problem of a Design Theory», *Design Papers* 2, Nova Scotia College of Art and Design, Halifax, 1979.

6. The integration of design into the modernism/postmodernism debates is gradually beginning to happen. Tomás Maldonado, former director of the Hochschule für Gestaltung in Ulm, gives design an important place in his defense of modernity. See *Il futuro della modernità* (Feltrinelli, Milan, 1987) and his earlier work, *La speranza progettuale: Ambiente e società* (Einaudi, Turin, 1970), particular the last chapter, «Verso una prassiologia della progettazione». English ed.: *Design, Nature, and Revolution: Toward a Critical Ecology*, Translated by Mario Domandi (Harper & Row, New York, 1972). As for postmodernism, the Centre de Création Industrielle at the Centre Pompidou in

Paris has, under its director François Burkhardt, begun to develop some of its exhibits and publications around the postmodernism debate. The most noteworthy of these was «Les Immatériaux», curated by the philosopher Jean-François Lyotard. See also the special issue *Cahiers du CCI* 2 (1986) on «Design: Actualités fin de siècle». English translations of several of the articles were included, along with a number of other contributions, in Thacker, John (ed.), *Design After Modernism: Beyond the Object*. «Designing the Immaterial Society» was the subject of a special double issue of *Design Issues*, guest edited by Marco Diani. Here one finds articles by philosophers, sociologists, historians, artists, and designers that address the issue of immateriality, a theme of importance to many postmodernists. See *Design Issues*, vol. 4, n^o. 1-2.

tory.⁷ And in a number of art schools, this new art history is contributing to the formation of more literate, critical, and self-aware artists. The same can be said for the impact of architectural history, theory, and criticism on young architects.

Design holds the same promise for critical reflection as art and literature, but is yet to attract widespread attention as a subject because practitioners and scholars have not produced a persuasive argument for its centrality to social life. A program in design studies could benefit greatly from the current strains on traditional disciplinary barriers and the multitude of new theories in the humanities and social sciences that have emerged in recent years. Structuralism, post-structuralism, representation, feminism, reception theory, semiotics, deconstruction, and reader-response theory are just a few of the recent nodes around which intellectual inquiry is being organized. These new approaches have helped to break down traditional boundaries of subject matter and provided methods for addressing the many new questions that scholars are asking of their subjects.

This proliferation of new nodes of inquiry can also be brought to bear on the study of design as it has been on architecture, literature, art, film, anthropology, and sociology. It can also infuse design education with a much-needed critical component. We can see in reception theory and reader-response theory, for example, ways of better understanding the role of the design user. Reception theory makes clear the importance of the wider context in which a literary work functions.⁸ It shows that meaning results from a negotiation between the producer of a literary work and his or her audience and, thereby, exposes the inadequacy of a communications theory model which posits and objective message whose meaning remains intact in the process of transmission between sender and receiver. Reception theory recognizes the complexity of communication and allows the receiver some autonomy in encountering the literary work.

In design, the de-emphasis of the designer's intentions is particularly relevant to flexible designs such as computer software where the user interacts with a set of possibilities to meet his or her needs. As Tom Mitchell states,

in place of the concept of design as simply a means of producing objects, develops an understanding of designing as a continuous and non-instrumental thought process, a creative act in which everyone, designers and non-designers alike, may participate equally.⁹

7. Changes that art history in the United States has been undergoing were discussed in a special issue of the *Art Journal*, edited by Henri Zerner. See «The Crisis in the Discipline», *Art Journal*, vol. 42, n°. 4 (Winter 1982). New developments in Britain are discussed in Rees, A. L., and Borzello, F. (eds.), *The New Art History* (Humanities Press International, Atlantic Highlands, N.J., 1988), while recent French theories are presented in Bryson, Norman (ed.), *Calligram: Essays in New Art History from France* (Cambridge University Press, Cambridge, 1988). The latter book is part of a developing series on new art history and criticism whose general editor is Bryson.

8. See Jauss, Robert, «Literary History as a Challenge to Literary Theory» in Cohen, Ralph (ed.), *New Directions in Literary History*, Johns Hopkins University Press, Baltimore, 1974, pp. 11-42.

9. Mitchell, Tom, «The Product as Illusion», in Thackera, John (ed.), *Design after Modernism: Beyond the Object*, Thames and Hudson, London and New York, 1988, p. 214.

Reader-response theory can play an important role in understanding the way consumers or users of design establish a relation to objects in ways other than the ones marketing studies reveal. A pioneering work in the study of user response is Mihaly Csikszentmihalyi's and Eugene Rochberg-Halton's *The Meaning of Things: Domestic Symbols and the Self*. The authors, who interviewed more than 300 people, describe the motivation for their study as follows:

We wanted to examine the role of objects in people's definition of who they are, of who they have been, and who they wish to become. For despite the importance of objects, little is known about the reasons for attachment to them, about the ways they become incorporated in the goals and actual experience of persons.¹⁰

Csikszentmihalyi and Rochberg-Halton have made a contribution to design understanding by bringing their training in social psychology and sociology to bear on the question of how people use objects. It is the kind of reflection on the use of objects which they generate that should be an integral part of a designer's training. Other books such as Mary Douglas's and Baron Isherwood's *The World of Goods*, Jean Baudrillard's *Le Système des Objets*, Judith Williamson's *Decoding Advertisements*, William Leiss's *The Limits to Satisfaction*, Wolfgang-Fritz Haug's *Critique of Commodity Aesthetics*, and Daniel Miller's *Material Culture and Mass Consumption* have also made clear how methods and theories from different disciplines can bring into the field of design new topics which can benefit design students.

By learning to look insightfully at the array of designed objects, services, and techniques in society, the design student can begin to recognize in them the manifestations of social values and policies. In design we can see the representation of arguments about how life ought to be lived. Design is the result of choices. Who makes those choices and why? What views of the world underlie them and in what ways do designers expect to make a world view manifest in their work?

Design studies can address these questions and it can relate them to design education with the aim of producing designers who have a greater consciousness of what their work can mean in a cultural sense. The next period of design education with its new schools that strive to embrace the world's problems in the way that the Bauhaus, Vkhutemas, and Hochschule für Gestaltung once did, will need to have a much stronger theoretical, historical, and critical dimension than they now have. At the same time, we must think more about how to break down the distinct skills and tasks that are now locked within specific vocational boundaries so that we can jettison those that are no longer useful and bring together those that can broaden the designer's capacity to confront new projects and problems.

We are overwhelmed with new technology as well as methods for creating more of it. Although the application of new technology is an issue of design education, it is not the central one. Neither is the design of new forms as the pro-

10. Mihaly Csikszentmihalyi and Eugene Rochberg-Halton, *The Meaning of Things: Domestic Symbols and the Self*, Cambridge University Press, Cambridge, 1981.

motors of product semantics would have us believe.¹¹ What is now central to developing a more mature practice of design and a form of design education to address the issues at hand is a new way of conceptualizing design itself along with the development of an academic discipline of design studies that can infuse design education with a reflective dimension that it now lacks.

11. See «Product Semantics», *Design Issues*, vol. 5, n°. 2 (Spring 1989). This was a special issue edited by Reinhart Butter and Klaus Krippendorf.