Document

Human-centered Design: Changing Perspectives on Design Education in the East and West
Richard Buchanan

Introduction

Design education is evolving rapidly in the People's Republic of China. In the era of the "planned economy," from 1949 to the early 1980s, there were few design schools, and those schools that did exist based their programs firmly on the arts-and-crafts tradition of China. As new ideas about the "market economy" emerged in the 1980s, new ideas about modern design also entered the country. This thinking is documented in an article by Zhou Zhi Wang, "Chinese Modern Design: A Retrospective," published in Design Issues *in the late 1980s (Vol. VI, No. 1). One of the founders of China's modern design education movement—and one of the most respected design scholars in China—Wang explains the shift from "arts-and-crafts" toward "form and function," a classic theme of twentieth-century design in the West. The uneasy relationship of traditional and modern approaches to design education in China continues to the present, but from the mid-1990s to 2003 the number of design schools in China increased rapidly to approximately 450. As the manufacturing capability of the People's Republic increases—the Pearl River Delta, adjacent to Hong Kong, is now the largest concentration of manufacturing in the world—the focusing question is whether and how China can be transformed from the maker of products designed elsewhere in the world to an original source of design. The answer to this question will be determined, at least in part, by the form that design education in China takes in the future.*

As the People's Republic of China prepares for full membership in the World Trade Organization, a special two-day conference, "Equipping for the Future: An International Conference on Design Education in China," was held at Shantou Technical University. Shantou University has special status among the institutions of higher learning in the People's Republic. It is the only private—or semi-private—university in the country, and it has been given a mandate to explore new approaches to education in a variety of fields. The purpose of the conference was to review the present state of design education in China, identify problems, and explore ideas about a new design education strategy for China. The document presented here is a keynote address by Richard Buchanan. Other keynote speakers were John Heskett, Andrew Whittle, and Kan Tai-keung. More than 400 individuals—students, faculty members, and program leaders—representing many of the leading design schools of China attended the conference. The public

presentations were followed by a day-long roundtable discussion in which Chinese design educators presented their ideas and responded to suggestions from the keynote speakers.

This is the first national conference on Chinese design education. Many other design conferences have been held in China over the past five or ten years, but this is the first to focus specifically on the nature and practices of design education in China. For this reason alone, the meeting is historically significant. However, it is significant for another reason. The organizers have framed this conference as an international meeting, and they have deliberately oriented our thinking toward the future. We want to discuss what changes must take place in Chinese design education if design itself is to play a significant role in preparing Chinese industry for competition in international markets.

This theme does not deny the many accomplishments of Chinese design throughout history. Nor does it seek to repudiate the historical development of design education in China and its current expression in the schools. We are all mindful—Chinese educators and international guests, alike—of the history of design and design education in China.[1] Indeed, more literature on Chinese art and design and Chinese design education is published in the West than in China itself—either on the mainland or in greater China as a whole. This is testimony to the importance that the international community places on Chinese art and design from the past.

However, the organizers of this meeting have asked us to take on a very difficult task. They have asked us to consider whether past practices and theory in Chinese design are suited to the new circumstances of international economic development. They have asked us to think about the changes in design education that may lead to a new expression of Chinese talent and design thinking. This is why our meeting is both national and international. It is a national conference because all of the design schools in China face a similar challenge of preparing for a new and stronger role in support of industry. It is an international conference because economic development will inevitably connect China to the rest of the world in many new and unexpected ways. It is wise to begin exploring the significance of this as soon as possible. Furthermore, the perspective of Western design education may help to identify some of the key issues for discussion in the community of Chinese design educators. This is not because anyone naively expects Chinese design education to follow or be led by Western models. Rather, Western experience may help China anticipate the problems of the future and find its own solutions. Educators in the East and West share many similar problems, but we do not have to reach the same solutions. Our solutions will be diverse and pluralistic, suited to different social and cultural circumstances as well as personal visions. It is my hope that there will be important lessons for western educators to learn from

1   For example, see Shou Zhi Wang, "Chinese Modern Design: A Retrospective," *Design Issues* 6: 1 (Fall 1989): 49-78. Also, see the special issue of *Design Issues* on "Design in Hong Kong, "19:3 (Summer 2003).

their eastern colleagues, lessons that we can take back and adapt to our own local situations.

What are the new circumstances that we face in common? What is the new environment that forces us to rethink design and design education in the East and West? In the simplest terms, the new environment is international competition in the marketplace. The most immediate signal of this new environment for China comes in 2005, when China becomes a full member of the World Trade Organization, with all of the obligations and opportunities that this represents. Will Chinese industry be ready to operate successfully in the new circumstances? Will China be competitive in the new environment of international trade?

The primary advantage of Chinese industry today is the low cost of labor. Many goods are now manufactured in China for companies based abroad because labor costs are low. In addition, Chinese industry also displays rising technological prowess, evident in a well-skilled and well-educated segment of workers. Chinese industry continues to adopt new technology and, increasingly, contributes to technological development. However, low labor costs and technological competence will not be enough for China to prevail in competitive international markets. They were not enough for Japan or South Korea, and they will not be enough for China over the long term. Labor costs will eventually rise and, to be honest, high technology is already one of the attributes shared by all of the leading industrial powers of the world. What will make the difference for Chinese industry in the future is the quality of design thinking that distinguishes its products and makes them desirable abroad and at home.

This is why we have gathered to discuss Chinese design education. We want to know what changes must take place in Chinese design education—what knowledge and skills will be needed—if graduates are to provide the essential difference that elevates Chinese industry. Indeed, we may also consider what knowledge and skills will help Chinese designers eventually move into positions of leadership in industry, something that is now happening in the West as a result of changes in design education and a recognition in industry of the many talents of well educated designers.

For my own contribution to this meeting, I would like to provide a brief overview of the historical development of design education in the West and compare this with development in China. Then, I would like to identify several fundamental issues that are driving change in Western design education and suggest connections with Chinese design education. It is not my goal to provide a formula for changes in Chinese design education. Rather, my goal is to point toward the fundamental issues and topics that I believe eventually will have to be discussed and resolved for Chinese design education to play a central role in the development of Chinese business

and industry in the new circumstances of international competition. Identifying fundamental issues for further conversation is the key to moving forward. I want to contribute to the dialogue that emerges from this meeting.

There is a fundamental similarity between the history of design education in the East and West. It may be obvious, but it must to be explicitly recognized if one is to understand the subsequent development of contemporary design education. Despite immense differences between the East and West, design education in both cultures began as apprenticeship.[2] By whatever method of selection, young people were apprenticed to masters, who oversaw their development, encouraged the most talented, and were eventually replaced by their students. This model of design education continues to the present as one of the avenues by which the young are introduced and cultivated in the ways of design thinking and making. Indeed, one of the keynote speakers of this conference, the highly distinguished designer Kan Tai-keung, entered the profession through apprenticeship and reached the highest levels of accomplishment and respect in the East and the West. By genius and natural talent he has grasped the principles of design more thoroughly than most others have. This is evident in his professional work as well as his writings.

Another important and obvious similarity between the East and West is the early and close association of design with the so-called fine arts. In one sense, I believe this association is an accident in both of our cultures. Design thinking could have arisen in association with other areas of learning such as philosophy, religion, politics or science. Indeed, as serious reflection on design develops in the future, I believe scholars will discover the rise of design in many other fields of learning and practice, broadening our understanding of the richness of design throughout culture. For now, however, we are most conscious of the rise of design through the fine arts, and this is not entirely mistaken. There is one good reason that we celebrate the association of design and fine art: both activities are concerned with "making." Designers and artists are concerned with "making" new works. In the West this is called "poeisis," from the Greek word that means "to make." Poeisis is the origin of the word "poetry" in the West, though in the earliest times of antiquity, "poeisis" meant all of the arts of making.[3] Comparing the East and West, it is important to recognize that the division of the arts of making has been important in Western culture, but in the East the arts of making have remained closely associated. In fact, they are so closely connected that the Western division of the arts appears strangely artificial to many people from the East. The interconnection of the arts in the East is a direct result of the dominance of dialectical thought throughout history. Dialectical thinking is certainly a significant thread in Western culture, but it is seldom the dominant mode of thinking.

2   R. Buchanan, "The Problem of Character in Design Education: Liberal Arts and Professional Specialization," *The International Journal of Technology and Design Education,* 11: 1 (2001).

3   R. Buchanan, "Rhetoric, Humanism, and Design," in *Discovering Design: Explorations in Design Studies,* edited by R. Buchanan and V. Margolin, (Chicago: University of Chicago Press, 1995).

The association of design and the fine arts led naturally to the next step in design education, also similar in the East and West. Design education became part of art education in general. Art schools and art academies were first established in the West in the sixteenth century. They were established independent of universities because university education at the time did not recognize the intellectual significance or cultural importance of design thinking. Design was not regarded as a domain of significant learning. In China, too, design education was incorporated within the institutional structure of art schools and academies. In the East and West, design was a stepchild of the fine arts, but it did have a home. The gradual rise of design in the twentieth century was strongly influenced by the ethos or character of art school education, and much of the development of design in the West in this period has been a struggle to discover the distinguishing qualities of design that make it an independent discipline or art. Obsession with style and self-expression is part of the legacy of design education in the art schools.

This is where design education in the West and in China diverges. Until quite recently, design education in China remained firmly within the domain of art school education. Although the ultimate goal was creativity, the emphasis was on imitation of masters, cultivation of style, and preservation of academic tradition. In contrast, there has been a remarkable broadening of design education in the West. The art schools remain as one of the threads of professional development, but design programs are now located in a variety of other disciplinary settings. Some are located within engineering departments and technological institutes, others are located within—or are dominated by a vision derived from—one or another of the social sciences, including management. Perhaps most important, a growing number of design programs in the West are best understood as "university" design programs, emphasizing the essential humanism of the design enterprise. The latter deserve special attention. They have formed around a "human-centered" approach to design.

We should take some care in understanding what "human-centered" means in this context. There is a reasonable sense in which all design throughout history has been, and is today, human centered. Design is an art of making products that serve people. Whether the knowledge and vision of the designer comes from the fine arts or from any other branch of learning, human beings are the center of attention. But the humanism of university design programs, as they are emerging in the West, gives a more specific meaning to human-centered design. This form of design education seeks a balance or harmony among the different kinds of knowledge needed to make effective and valuable products. It seeks to balance and integrate aspects of the fine arts, engineering, and the social sciences in the activity of design thinking. It seeks the center of balance among these factors rather than emphasizing one or another as primary.

For example, self-expression is not an end in itself for this form of human-centered design. Self-expression is only a means toward the deeper goal of serving other people. We serve other people by strengthening their individual dignity and supporting collective social values, all within the pluralism of human experience.[4]

The movement of design education into the university environment is the most important and least remarked development in our field in the latter part of the twentieth century and the beginning of the twenty-first century. It is well advanced in the West, and it is advancing in China. The implications of this relocation of design are still unfolding, but they will change design thinking in many ways in the future.

The fundamental issue driving change in Western design education is the search for knowledge. What knowledge is needed by designers if they are to work effectively in the new circumstances of world culture in the twenty-first century? Those circumstances involve great technological complexity and even greater human complexity. How do we bring new knowledge into design thinking? How do we give our students deeper knowledge of technology and human nature? It is no accident that design is moving into universities. Nor is it an accident that many art schools of design in the West are seeking closer ties with universities or with the different disciplines that make up university culture. Design is no longer a self-contained discipline that can exist in isolation. Designers must understand and work closely with colleagues in other disciplines. We may disagree about which are the most important disciplines for designers to understand—cognitive psychology, engineering, computer science, anthropology, drama, rhetoric, marketing, and so forth—but there is no dispute in the West that knowledge from other disciplines must now inform design thinking. This is part of the transformation of design from a trade activity to a significant discipline and cultural art.

The issue of creativity is equally important as a driving factor of change in design education in the West. This is a complex subject, and I will not attempt to summarize the diverse theories and practices that our schools explore. However, there are two observations on the West that may be directly relevant for Chinese design educators. The first observation is a widely held belief among Western design educators. While we believe that some individuals are born with genius and natural creative talent, we also believe that creativity in most students can be nurtured and taught. We seek to cultivate creativity among our students not through the imitation of the work of design masters but through the acquisition of design skills and, most important, through encounter with the problems faced by people in their daily lives. Hard work in acquiring fundamental design skills will come as no surprise to Chinese educators. Creativity without the discipline of design skills is almost meaningless for the design professions. But exercises of monotonous

4   R. Buchanan, "Human Dignity and Human Rights: Thoughts on the Principles of Human-Centered Design," *Design Issues,* 17: 3 (Summer, 2001): 35–39.

repetition in developing design skills seem to dull the creative edge of most people. Instead of sheer repetition, Western educators have found that the creative energy of students is enhanced by encountering real problems and real difficulties among the people that we seek to serve. We call this "creative problem solving," and we attempt to encourage every effort that gives the student confidence in seeking and expressing a solution. Over time, with widening experience and ongoing discussion with teachers, many students gradually focus their own efforts in creative ways.

The second observation on creativity in design is that it is not focused solely on form giving. Early in the twentieth century many believed that the creativity of the designer found expression only in giving visible form to communication and artifacts. Today, we recognize that form giving is only one of the manifestations of design talent. There are many areas of design in which a student may develop special creativity. This reflects a broadening of our understanding of design, based on the recognition of new skills and new methods in the design process. Indeed, the success of products is often based on the ability of a team of designers to work together in developing a new idea. This observation may have particular relevance to Chinese design education, where form giving—based on the skill of drawing—appears to be the focus of most school programs. Without question, drawing is an important skill for designers. But it is not the only skill, and it is not the skill that best reveals whether a student will become a fine designer. Many superb draftsmen in the West lack the creativity that distinguishes a fine designer. Drawing is a representation, but the most important question is what shall be represented? Having an idea to communicate is, in the end, a more important sign of creativity than the mere ability to represent what already exists.

The next issue driving change in Western design education is the curriculum. The studio remains the fundamental element of design education in the West, because it is the place where students integrate their diverse skills and knowledge in the act of making a new communication or a new product. However, other elements are now regarded as essential. These elements reflect wider and deeper understanding of the different kinds of knowledge that are needed by the designer in the new circumstances of our time. One element is sometimes called "concepts and methods of design practice." As the name suggests, this includes instruction in the many new methods and techniques that are now part of contemporary design practice. Human factors, cultural factors, and user research are some of the subjects taught in this element. The concepts and methods are taught individually, with an understanding that they will be integrated in the design studio as the student develops. Another element is called "design studies." It includes design history, theory, and criticism, as well as the aspects of business and economics that bear on design today. Our field is mature enough that education can include serious

reflection on where we have been and where we are going. The final element is best called "general education," in the tradition of Western liberal education. In the best design schools in the West, fully one-third of all instruction is taken in areas of study outside design. The subjects may include literature, the natural sciences, and the social sciences, as well as mathematics or technical subjects in engineering and computer science. The point is that students must have a breadth of learning if they are to work effectively in contemporary culture. How does Chinese design education address these curricular issues today and what will happen in the future?

Along with the issue of curriculum comes the issue of interdisciplinary study. In the past, Western education emphasized specialized study. The division among the disciplines was strong, and students were seldom encouraged to cross over into other areas of study. Today, design educators recognize the value of courses that combine one or more disciplines along with design. These are typically studio courses, and they are sometimes taught by several faculty members, each representing a different discipline. The reason is simple. In the work environment that our students will face, the ability to work with individuals from many disciplines is necessary. Are such courses available to Chinese design students?

The next issue driving change in Western design education is the nature of a product. What is a product of design thinking? In the past, the word "product" meant the outcome of industrial design—a tangible artifact. Today, "product" means any outcome of design work, whether a result of graphic design, information design, industrial design, or any other kind of design. This is important because in the West we are beginning to develop a new theory of products that applies to all areas of design. We may call this the "iceberg" theory, because it is based on the idea that a product is much more than its appearance. Style and form are the most evident features of a product, but what goes on beneath the surface is most important—and falls well within the domain of design thinking. A product must be desirable in form and style, but it must also be useful and usable to be successful in the marketplace. What is useful in a product is usually technical and often technological, based on careful study of people as they perform tasks and on the application of engineering to make a product that works. What makes a product usable is its fit to the hand and mind of the human user, and this is based on knowledge of human beings in general and on research into the way individuals work. Design schools that prepare students for stylistic and formal expression address only a small part of the discipline of design. The more important schools strive to integrate stylistic and formal expression with the ability to conduct user research, task analysis, and a variety of other technical activities suited to different branches of design. Once again, creativity is stimulated when the substance of a product—whether communication or industrial—is part of the environment of design thinking. How are

Chinese students being prepared for such work? Is design education in China formed around a rich concept of the nature of a product? The assumptions we make about products and human beings may be relevant only within an isolated population. Meeting the needs of the international marketplace depends on broadening our assumptions and exploring diverse realities.

The issues I have identified are fundamental in Western design education. They find immediate expression in undergraduate education. However, another major change in Western design education is the development of graduate programs and programs of design research.[5] If undergraduate programs have the goal of preparing students to enter the professions of design, graduate programs have the goal of bringing student preparation to the level of mastery of their discipline. Mastery comes in two forms. One is the mastery of professional practice, accomplished through "master's" programs that teach students the most advanced methods and techniques of design work in specific areas of design. The other is mastery of the discipline itself for teaching and research. This is the goal of the new doctoral programs in design that are emerging around the world. We are at a very early stage in developing doctoral programs in design, but each year we see the growing force of such programs in shaping design practice and design education. The development of design research will, in the long term, have a profound effect on the practice of design and on design education.[6] It is not too early for Chinese design educators to participate in shaping doctoral study and research.

Finally, the last issue I would like to identify as driving change in Western design education is the development of new areas of design practice. Foremost among these is "interaction design." Because this area of practice first reached consciousness in the West through the development of computers, it is often associated with digital culture in general. This is a misunderstanding. Interaction design is a new approach to design that has application in many areas of practice. It is prominent in designing the interaction between human beings and computers, but it is also prominent in new approaches to traditional media and traditional design problems. It is important for information design, service design, transaction design, many forms of print communication, new product development, corporate identity, industrial design, organizational design, and systems design. Interaction design is about the relationships among people, particularly as human relationships are mediated by all forms of products. Interaction design has brought the professions of design from a "posters and toasters" culture to a new culture of human-centered design. Western design educators do not always use the term "interaction design" to describe their new ventures in design thinking, but the concepts and methods of interaction design are a new foundation for a wide variety of work. What efforts are underway to develop new areas of design practice in China?

5   R. Buchanan, "Design Research and the New Learning," *Design Issues,* 17: 4 (Fall, 2001): 3-23.

6   The Design Research Society is the international learned society of the design research community, with extensive multi-disciplinary membership. Founded in 1967 in the United Kingdom, with an Executive Council and offices based in the UK, the society facilitates a research network in 35 countries. Faculty members and students who are interested in the development of design research will find the DRS web site very useful. The internet address is: http://www.dmu.ac.uk/ln/4dd/drs.html

Graphic design and industrial design appear to be the focus of most programs, but are there new ideas about information design and interaction design that are suited to Chinese culture? What place will new design practice have in the China of the future?

I would like to conclude with a deeper question about Chinese design education. What are the philosophical and theoretical roots of Chinese design and design education that will continue to influence the development of design in China? Can those roots lead to new forms of practice and education that are suited to the emerging environment of international competition in the marketplace? How will those roots help Chinese designers make an original contribution to design thinking that is more than an imitation of the West? Admittedly, these are difficult and challenging questions for which no quick answer can be given. However, I believe they are the beginning and the end of the road on which Chinese design is now moving. We all look forward to the continued discussion that will shape Chinese design in the future.