

With volume 14, North Americans Aaron Marcus and Karen Schriver join the *Information Design Journal* as editors. To give readers insights into their design philosophies, the interview sections of the next two issues of the journal focus on them. In this issue Aaron Marcus is interviewed; the interview with Karen Schriver is in the following issue. Also with this issue, Saul Carliner assumes responsibility for the interviews section of the journal. With Saul we hope to continue the fine tradition of his predecessor Lawrie Hunter. Lawrie has interviewed trend-setting designers and design thinkers for DD and later for IDJ for more than seven years. This section is a popular one, due to Lawrie's approach. We have every confidence in Saul as his successor.

Jan Renkema
General Editor IDJ

Saul Carliner

About designing, trends, culture differences and myths

An interview with **Aaron Marcus**



Aaron Marcus is president and principal designer and analyst of Aaron Marcus and Associates, Inc. (AM+A) in Berkeley, California. He studied at Yale and Princeton, and has been in the field for 38 years, starting as a graphic designer and computer graphics programmer and designer in 1968. He was the first professional graphic designer in the world to use computers. His primary specialties are user-interface design and information-visualization design.

sc: What are the three most significant lessons you learned about design in your formal education?

AM: Paul Rand, one of my most demanding graphic design teachers at Yale University, taught me to think systematically, to question assumptions, and to be interested in a wide range of subject matter. Interestingly, he thought my work with computers seemed like useless ‘puttering,’ even when I met him again 30 years into my career, shortly before he died which leads me to my second lesson: pay attention to your teachers, but don’t believe everything they tell you. I learned that I had been ‘brainwashed’ in graduate school toward a particular direction of corporate graphic design. I didn’t mind, mind you, I liked very much some of the aesthetics, processes, and techniques, but I was alarmed to learn there were huge areas of design about which I had learned little and in which I was very interested to learn

more, such as semiotics, information design and information visualization.

In graduate school for graphic design, I learned to apply some of the lessons I had learned from physics, mathematics, and philosophy, which included looking for structure and process patterns and formulating theories explaining what one observed. In this way, I could take assignments and reduce them to their fundamentals and, from this basis, move forward to invent new directions for discovery and synthesis.

sc: What are the three most significant lessons you have learned about design on the job?

AM: One of the most important lessons learned in teaching and in running a commercial design/analysis business from 1968–2006 is the importance of maintaining good social-political relations with the people involved in a project – such as clients, prospects, peers, and staff members. As a younger person, I concentrated more on the work itself, the problems of understanding relations of form, of parts to the whole, and so on. Eventually, I came to recognize that all of this activity takes place in a social, cultural, and political context. Ignoring the stakeholders of the development process removes some valuable sources of insight and places unnecessary impediments to progress in the way of securing funding, approvals, and agreements.

In 1978, I was fortunate to be selected to become a

Research Fellow at the East-West Center in Honolulu, Hawaii. I was able to select four other design/visual communication professionals from China, India, Japan, and Iran to assist me with an innovative project: to visualize global energy interdependencies by designing a pictographic-ideographic storytelling through signs, charts, maps, and diagrams, which would be used in audio-visual narratives. This project helped convince me to apply my graphic design and computer graphics experience to significant challenges in helping people to understand complex information and to help them make effective decisions based on that understanding.

In 1993, I first began to consider user-interfaces for diverse user groups, at the suggestion of my wife. I began to ask myself what would women *vs.* men make of the user interfaces of then-current software applications. It seemed likely that they would have different perspectives about what was usable, useful, and appealing, just as product and service developers in other realms had discovered. From that point, I began a multi-decade study of cross-cultural differences and similarities in user experiences, specifically focusing on user-interfaces of computer-based interaction and communication.

sc: According to your biography, you were the first person to work full-time in computer graphics. What was it like back then, in the days before even monitors were widely available, and how has the field changed in the past 40 years? How did the work performed in that job contribute to your work today?

AM: In the 1960s, programming computers was not particularly an interactive experience. One prepared decks of punched paper cards, then submitted 'jobs' and waited hours or days for the results. Visual output might be accomplished through primitive line printers with a single crude fixed-width font or vector displays recorded on microfilm. In the late 1960s, raster-scan displays first became connected to computers at Bell Labs where I worked, and in 1967 and certainly by 1969, I had an early

and still rare opportunity to program displays as black-and-white 'television screens' connected to computers. Even then, I was trying to figure out what should be displayed to help people know what to select and how to navigate among the displays. We did not have the term 'user interface' yet.

By 1979, when I began working for Lawrence Berkeley Laboratory (LBL) in California as a Staff Scientist (because they could not figure out what else to call me and 'designers' were not typically hired for research positions), I was already writing a 'user-interface guideline' for a large database-management system being developed by LBL staff for the US Department of Energy and the US Department of Labor. My job was to improve the ease of learning and ease of understanding of the complex codes and commands needed to get displays generated and to determine the default characteristics of the appearance of pages, tables, charts, maps, and diagrams on multiple display devices.

By then I realized that information-oriented graphic designers had much to contribute to the work of programmers in order, together, to accomplish more than either group could by itself. All of those experiences at LBL built up in me the realization of what the essential challenges were, and I was confident that the education I had had in graphic design, including trying to understand the needs and wants of the audience for communication, would be invaluable in solving the challenges of new computer-based telecommunications technology. Otherwise, engineers would create toys, not tools, and not solve the fundamental human needs for communication and interaction.

In the 1980s, I spent most of my time trying to educate the industry, the markets, and the technology developers about graphic design, typography, color, layout, etc. Most people were woefully ignorant of the designer's terminology, process, objectives, principles, and perspective. Gradually these concepts spread throughout professionals of all kinds and came to the

attention of the general public. Eventually, even the person on the street knew the word ‘font.’

sc: In light of the exceptional technological changes that have occurred over the course of your career, what have you done to keep your skills current?

AM: In the course of giving tutorials and lectures around the world, I constantly must update my lecture files and handouts, which causes me to review hundreds of publications. In addition, I attend conferences of many different kinds: academic, professional, and consumer-oriented, from the health, technology, education, and financial markets. At these conferences, I make it a point to review all of the exhibits and posters, as well as to attend some of the paper-presentation sessions. Other than that, I scan through four newspapers per day and about 40 publications per month looking for new trends, technology, and design philosophies among other things. The specific software applications in which I am especially skilled have remained somewhat mundane and constant (word processing, presentation editing, spreadsheet editing, graphics editing, and searching), but my associates must adapt to new, constantly changing tools sets for analysis and design.

sc: In one corner of the information design community, technology plays a supporting role. In the corner of those who produce product documentation, publishing technology is almost more important than basic communication skills. What do you see as the proper role of technology for an information designer? For example, what technology skills should managers seek when hiring? What skills should professionals keep current?

AM: Information designers have a broad set of responsibilities, tools, and techniques, like most other industry professionals. I remember emerging from graduate school in graphic design and being amazed at the breadth of professional practice of which I was not aware due to graduate school blinders imposed by the

faculty that tended to hide and disparage certain forms of practice. Information designers (including visualizers and sonifiers) should be skilled in analyzing content, appropriate media, audience needs and wants, and also capable of forming and designing solutions to those conditions. Some professionals may be better at analysis; others may be better at synthesis. Managers who are hiring should be clear about what kind of designers they seek. At our own firm, we seek Associates who can think, write, speak, and draw, and who are responsible team players. Not all candidates have equal strengths in all areas. To keep current, one should consider the many conference tutorials, university extension programs, and other private offerings of skill training (and in some few cases educational development). Topics that I feel are of particular value are (in alphabetical order) graphic design basics (typography, color, layout, etc.), information visualization, mobile media trends, semiotics-oriented media studies, usability analysis techniques, user-centered design processes, and user-interface design. Specific tool-training courses depend on one’s immediate work environment.

sc: Some graphic designers seem to design websites that are filled with annoying or impractical details, such as splash screens on business websites (whose users are, by nature, impatient), and 9 point type on informational sites. Why does there seem to be such disregard for users in some parts of the graphic design community?

AM: Like many professional groups, the graphic design community has a range of practitioners. Some sheepishly follow a few strong leaders who have struck out in particular stylistic directions. In addition, some few schools have repeatedly produced many strong leaders who define a style. These trends come and go in waves. Now, the 1950s have come back to haunt us as fashionable. Remember, also, the lovely, but otherwise illegible, unreadable 1960s rock music posters? There is always a clash between followers of Apollo and those of Dionysus,

or their equivalents in other ages and cultures.

It is true that many illegible, unreadable, and essentially useless Websites have been constructed over the past decade. However, gradually, the community learns from the success of good practice, and good business. I was amazed to hear, about four years ago, two young Flash professionals (McAlester and Cabraro, who authored *Skip Intro: Flash Interface Design and Usability*) who actually spoke of their discovery of what information designers and visualizers have known for many decades: the value of simplicity, consistency, and clarity. They were promoting this viewpoint to fellow ‘flashers’ who eschewed the simple life of ‘less=more’ for the overly complicated. Their attempt to re-orient the profession was admirable. I think we have seen the practice mature, just as we have seen in most of the technology-driven media. We saw this over the past twenty years in videotex, desktop publishing, multimedia CD-ROMs, chart design, and Web design. It simply takes 5 to 7 years while we wait for progress and then a new medium emerges to take hold, and the process starts over again.

sc: In a 2004 interview, in response to a question about the perceived centrality of interface design to businesses, you commented that:

Perhaps the best thing we could do is to practice what we preach and do some kind of study to see how the business community views our collective practices and terms, then design some kind of approach (terminology, case studies, outreach) that best meets our needs to explain and convince them of our value. We might end up using some kind of terminology that we don’t even consider right now.

As of now, no such study has been done. Why should information design professionals be concerned with larger business issues and why do you feel that we typically do little than talk about that?

AM: There is a corporate trend emerging to try to change corporate culture to adopt more user-centered design

practices in approaching the user or customer experience. Major corporations in the USA, at least, as far as I know, are moving in this direction. Some key designers are trying to get design to be more central to the product and service development process, including incorporating design into software engineering.

All of these changes require that designers of all kinds, especially information-design professionals, understand some key business issues, learn the terminology and concepts that are important to business leaders, and learn how to present our case to the right executives. Not much will change otherwise. I admit, most information design professionals are more concerned with their own practice and the challenges at hand. Only a few people will be concerned about cross-disciplinary or cross-cultural story telling and more importantly, story selling! The profession is dependent on these people showing the cost-benefit analysis and return-on-investment arguments to convince those who control the processes and purse strings, especially the purse strings, of the value of the investment in design.

I have been listening to designers whine for three decades that business people ‘won’t take us seriously’. Until there are Chief Design Officers in corporations, as well as CEOs, CFOs, CIOs, CTOs, and other equally powerful champions for their own concerns, we can’t expect a tsunami of change. Some programs, like the Berkeley Institute of Design, or the Institute of Design at Illinois Institute of Technology in Chicago, or programs at other universities, are seeking to change the paradigm of design education, but the process requires time, perhaps decades.

sc: In the same interview, you commented that: ‘I find “experience design” or “user-experience design” (some call it “user-experience engineering”) either vague or grandiose. After all, architects and urban designers also are involved in such tasks.’ Given a few additional years, do you feel the same way about the terms experience design and user-experience design? Also, how does the

role of the user interface designer differ from that of the information designer? What is the proper role of each in the design and development of content?

AM: These are complex and challenging questions. As editor-in-chief of *User Experience* and an editor of *Information Design and Document Design Journal*, I am sensitive to and always looking for changes in industry/professional practice and understanding of these, and other concepts.

Even if the definitions of experience design, user-experience design, customer-experience design, and user-experience engineering, have not entirely settled down, it is clear that more and more business cards, publications, and conference themes use these terms. One recent design management institute session had 'experience' in the title of a session and in every presentation of that session, although the presentations seemed to have very different interpretations of the concept. In general, the cluster of concepts focuses on topics beyond functionality, traditional human factors and ergonomics, and usability. Issues of appeal, brand, community, culture, ethnography, identity, multiple touch points, political and social *milieu*, are all fair game for analysis and design in these fields.

In regard to the distinction between user-interface designer versus information designer: For many professionals, information design refers to content while user-interface design refers to the tool or medium. However, I think this perspective is based on the concept of designing a book. The book medium or form is stable, having been well established for about 500 years. The information designer might be concerned about the structure of the table of contents or the use of traditional information visualization techniques, such as tables, forms, charts, maps, and diagrams within the pages of the book.

In the world of newer electronic media, many of the concepts of the medium are newly minted and not agreed upon as conventions. In the early 1980s, there were debates about scrolling windows: should the

contents go up or down when the scroll-bar handle was moved down or up? Today, twenty-years later, there are similar debates about which kind of scrolling menus should accompany scrolling page contents of Websites (since not all browsers on all Win-tel PCs and Mac platforms can display them.) In the world of the Internet, controls are sometimes embedded in content; sometimes content is embedded within the controls. It is not quite as simple a situation as the book, poster, or other printed media of past centuries.

Some professionals consider information architecture as a specialized concept and professional practice. Others consider interaction design as the key term (usually influenced by product designers or software engineers). I am more inclusive in my definition of user-interface design: the term includes not only the controls, but also the content. To be sure, the design of the DVD-viewing and editing device controls may be different than the design of the movie being viewed. However, from the user-experience point of view, they may be somewhat seamlessly interwoven. Note that mobile video viewers may flit back and forth among watching a portion of a video, buying an item seen in the video, emailing/messaging/phoning a friend about the video being viewed, or checking a calendar for where they are to be in the next few minutes.

From my own earlier experience as an information-oriented graphic designer concerned about content as well as form and interaction in a total communication experience, I tend to be more inclusive: user-interface developers of information-oriented experiences are responsible, within cross-disciplinary teams, for all phases of planning, research, analysis, design, implementation, evaluation, documentation, and training. And just what are they developing? Metaphors, mental models, navigation, interaction, and appearance (including visual, verbal, sonic, tactile, even olfactory perceptual characteristics). In a nutshell, that is the scope of the challenge.

sc: What are the three most incorrect notions about design that you have learned through experience?

AM: The way that this question is phrased tends to generate a very pessimistic view of the world, but I shall attempt to follow what I understand to be your intention.

1. Most professional designers are interested in education. My experience has shown that most professionals are interested in training, not education. Aside from academics and a few academically-oriented individuals like myself, most people are too much in a hurry to want to spend very much time in debates about issues of philosophy, history and terminology. I tend to gather in my firm Associates who do enjoy debates about principles, and higher-level issues, not just technical issues and how-to's. However, I have had, for the most part, to alter my university courses to tutorials and lectures more concerned with practical solutions to shorter-term commercial challenges.
2. Design is very important to business. Most business concerns, from start-ups to major corporations, give short attention and relatively little money to design issues. Much more is given to marketing and sales, and then to engineering. Alas, the design profession has had only modest success in changing the culture of business objectives to longer-term experience issues. Most corporations have virtually no corporate memory for design processes, design achievements, design case studies, and design archives. The activities of the World Usability Day 2006 (see for example, <http://www.worldusabilityday.org/>), for which organization I now serve on the Core Committee of planners, is trying to change business and public perceptions about products and services and increase awareness of values close to IDJ's interests.
3. If it works in Berkeley, it will work in Bangalore and Beijing. Many products and services are still designed as if one size fits all. However, we've studied the influence of culture on global corporate Website standards and find

that even these 'universal' standards are strongly influenced by cultural norms in different countries. More and more corporations and organizations are becoming aware of the importance of ethnographic and cultural studies and involved with exploring cross-cultural communication and interaction differences/similarities among existing and future customers. Gradually, more sophisticated variations will emerge that are better designed for the cultures of the users.

sc: Over the next year or two, what should readers expect to see from you? In other words, what's your plan for the next few years?

AM: I plan to continue my exploration of culture's influence on telecommunication media, of new forms of knowledge visualization of structures and processes in many disciplines, and how to solve information design/visualization on small screens of mobile devices. I plan to explore these issues in both my writing and design work. Fortunately, I have the assistance of AM+A associates and design/analysis interns with whom I work, who assist me, and from whom I learn much that is invaluable.

ABOUT THE AUTHOR

Saul Carliner is an assistant professor of educational technology at Concordia University in Montreal, Canada. His research interests include emerging genres of online communication, management of communication and training groups, and information design theory. His books include *Advanced web-based training*, with Margaret Driscoll, *An overview of online learning*, *designing e-learning* and, with Carol Barnum, *Techniques for technical communicators*. He has also published over 60 articles, including two that have received the 'Best of Show' in the Frank R. Smith outstanding article competition. He is a research fellow of the American Society for Training and Development, fellow and past international president of the Society for Technical Communication.

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Appendix I

Current and recent projects of AM+A in alphabetical order

AM+A: researched the influence of culture on corporate Website designs for approximately 12 business-to-business and business-to-consumer companies and published a 64-page analysis in *Visible Language*.

Anoto: Consulted on the design of a user-interface for an innovative pen-based computing system (<http://www.anoto.com>), that builds upon the commercial success of the Fly pen-top system developed by LeapFrog, a well-known children's educational toy and game manufacturer.

Currently un-nameable client: improving the design of security-oriented screens for devices used in homeland security.

HP: Designed early user-interface concepts for the HP Halo system, a high-speed, high definition, broadband-video-based executive meeting room environment (<http://www.hp.com/halo>), which provides a powerful virtually live experience for participants. Lately, we have been conducting usability tests on the first and next-generation versions of the system to improve its user experience.

HP Labs: Wrote [and] designed executive story-selling presentations to explain new technology concepts to key HP and business partner executives, and to convince them to move forward with new initiatives.

Interactions (the membership publication of the Association for Computing Machinery (ACM) Special Interest Group on Computer-Human Interaction (SIGCHI), the world's leading user-interface design organization): For the past three years, I have been writing a regular column called 'Fast Forward'.

Microsoft: Wrote user profiles and short use-scenarios, including screen designs, for four new channels of content for Microsoft's Smart Watch™ technology, which is able to bring internet connectivity and device-to-nearby-device awareness to wrist-top computing and telecommunication devices.

Nokia: Wrote use-scenarios and user-interface design principles for a design unit of Nokia responsible for envisioning the future of all Nokia user interfaces.

Siemens: Designed the user-interface for the controls of an innovative automotive media-display technology and, separately, consulted with Siemens USA's corporate user-interface design team to improve their organization, process, and documentation.

User-Experience (membership publication of the Usability Professionals Association (<http://www.upassoc.org>), the world's leading organization on usability). For the past two years, Aaron has been the Editor-in-Chief and has helped to shape organization and orientation of the publication.