



## The great leap forward: The birth of the usability profession (1988-1993)

### Joe Dumas

Bentley College  
175 Forest Street  
Waltham, MA 02452 U.S.A.  
T: +1.781.891.2000  
jdumas@bentley.edu

In a recent editorial in this journal, Arnie Lund (2006) talked about “post-modern usability.” He urged us to move into a post-modern era in which we embrace “...both the existential understanding of the user in context as we design experiences that capture every aspect of the user...” (p.4) I agree with Arnie, but I am concerned that as a profession we will put down our early days as the modernists vigorously rejected their predecessors. Modernism is rooted in the idea that the “traditional” forms of art, literature, social organization, and daily life were outdated; therefore, it was essential to sweep them aside (Everdell, 1997)

My concern is that by embracing new ideas, we will limit our view of our early days as being restricted in scope and naïve in conception. Before that happens, or perhaps, to prevent it, I would like to describe my personal version of our beginnings as a profession and argue that we should be celebrating them, not disparaging them even as we see their limitations.

In this editorial, I describe our birth and some personal experiences as I lived through those times. I present these observations, not as a historian, but as a usability professional viewing events of 15 years ago through my personal filter.

---

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Copyright 2006, UPA.

### Before the birth

Before we begin, I want to make a distinction between the subject matter areas of computer-human interaction (HCI) and product usability. While there were some antecedents, interest in HCI began with the Gaithersburg, VA meeting in 1982 titled, "Human Factors in Computing Systems." Over the remaining years of that decade, a dedicated group of mostly psychologists and human factors researchers published studies and analysis papers on human-computer interaction. Several books were published on designing user-based software (Rubinstein & Hersh, 1984; Simpson 1985; Shneiderman, 1987; Brown, 1988; Dumas, 1988), but none of them used the term "usability" in the title. Discussions about evaluation methods focused on the research experiment and guideline and checklist reviews. A typical quote from that era:

"Academic and industrial researchers are discovering that the power of traditional scientific methods can be fruitfully employed in studying interactive systems" (Shneiderman, 1987, p.411)

There were only a few academic graduate programs in HCI, and most of them emphasized the application of behavioral science research methods. HCI was viewed, I believe, as a new area in which to apply traditional methods rather than a one requiring its own unique methods. Usability testing was still seen as a variation of the research experiment and inspections of user interfaces were done by applying long lists of guidelines of good practice. The most well known list was Smith and Moser's 997 guidelines (1984)

### The leap forward

I believe the birth of the usability profession started with the work of John Whiteside at Digital Equipment Corporation and John Bennett at IBM. During the late 1980s, they published a number of chapters and papers on the topic of "usability engineering" (Whiteside, Bennett, & Holtzblatt, 1988)

These publications explicitly and implicitly made the case for a new approach to product design and evaluation. Instead of stressing the research experiment, they stressed a quantitative but practical engineering approach to product design. The approach stressed early goal setting, prototyping, and iterative evaluation – the foundations of our development methods. It stressed the importance of the work context in creating usable and functional products to improve productivity. It also favored integration of usability teams into product design teams and an assessment of the costs and benefits of design decisions.

This approach became the foundation for usability methods over the next decade and made the terms "usable" and "usability engineering" the words of choice to describe well-designed products and the process by which they should be designed.

Over the next few years, 1990 to 1993, there was an explosion of interest in developing new methods and modifying existing ones. Nielsen's work on heuristic evaluation freed expert reviews from the burden of the hundreds of guidelines that characterized earlier inspections (Nielsen & Molich, 1990; Nielsen, 1992) The cognitive walkthrough (Polson & Lewis, 1990) and other group techniques were developed as were

questionnaires tailored to software usability (Kirakowski, & Corbett, 1990; Lewis, 1991)

Not to be dismissed as an influential factor was the Apple Macintosh. Introduced to the public during the 1984 Super Bowl, the Macintosh seemed to make the case that ease of use sells. It was the symbol of a well-designed product. While usability was only one of the factors that made the Macintosh a household word, it was the most often mentioned factor in the growing, but small, market share that the Macintosh captured. In my view, the Mac changed the level of the argument for investing in usability. Before this period, I had to argue with clients that usability itself was important. Afterward, the high-tech world simply assumed that usability was essential. The issue became how much to invest in it.

Not surprisingly, the first studies on the cost/benefit analysis of usability methods were conducted during this period. Those studies fit nicely into an engineering approach to product development. They were part of the effort to promote the integration of usability methods into product development. These quantitative studies presented usability professionals as team players who added value to products rather than being costly barriers to development schedules. Several of these studies were included in Bias and Mayhew's *Cost-Justifying Usability* (1994)

The first comparisons between usability evaluation methods were published (Jeffries, Miller, Wharton, & Uyeda, 1991; Desurvire, , Kondziela, & Atwood, 1992) These studies were conducted by usability professionals working in industry and stressed an awareness of the tradeoffs available among methods, an engineering-based approach.

Many useful tools for user interface prototyping were released, tools essential to an usability engineering approach to development:

- Dan Briklin's Demo Program in 1987
- SuperCard in 1990
- Visual Basic in 1991
- Visio in 1992

Perhaps for the first time, the demand for usability professionals was greater than the supply. Usability labs sprung up like weeds all over North America and Western Europe. All of the large high-tech companies started or expanded their usability groups.

The result of the increased demand was an infusion of people from other disciplines. Technical communicators, trainers, and even programmers migrated to usability. Some people with psychology and human factors backgrounds saw this as a watering down of the skills of the profession. Many of the people who had become interested in human-computer interaction in the 1980s had Ph.D.s, while most of the newcomers did not.

Rather than a watering down of skills, I saw this as a democratization of the profession. Most Ph.D.s, and I include myself in this group, were trained by professors who graduated clones of themselves. The graduates became university professors with an emphasis on basic research and the scientific method. People migrating from other disciplines brought new ideas and values and more openness to working with other disciplines. These traits became important when the Internet chaos struck a few years later and interest in ethnographic methods, as applied to product development, appeared.

New professional organizations focusing on usability began or were added to existing organizational structures. About 1991, the Usability Professionals' Association was formed from a group of people, led by Janice James, who met at Special Interest Groups (SIGs) at the existing Special Interest Group for Computer-Human Interaction (SIGCHI) and Human Factors and Ergonomics Study (HFES) conferences. In that same year, the Usability SIG of the Society for Technical Communication (STC) was created and led by Janice and Ginny Redish.

SIGCHI was the fastest growing special interest group in the Association for Computing Machinery (ACM) at the time, and in 1993, held its annual meeting outside of North America, in Amsterdam, the Netherlands, for the first time.

In 1993, in response to the increases in readership and the interest in practical applications of methods, ACM started *Interactions* magazine and HFES started *Ergonomics in Design*. In addition, local chapters of SIGCHI followed in the footsteps of the first chapters in Boston, in 1987, and San Francisco, in 1989.

The need to train large numbers of new professionals led Ben Shneiderman to create and promote his videotapes and video conferences on *User Interface Strategies*. Many new professionals were given a start by those sessions. And in 1993, Ginny Redish and I published *A Practical Guide to Usability Testing*, followed a year later by Jeff Rubin's *Handbook of Usability Testing* (1994)

I end this section on the birth of the profession with the publication of Nielsen's *Usability Engineering* (1993) In summary, in the five years since 1988, the profession had undergone a revolution not just an evolution. It

grew out of its academic roots in psychology and human factors and embraced the concepts of engineering and usability.

For the first time, usability professionals had their own identity. Most large to medium sized high-tech organizations had usability groups and usability labs. Quicker, cheaper methods, cost/benefit tradeoffs, and integration with other product development professions were the norm. The profession had a growth spurt fueled by people from related professions.

### **The years that followed**

After 1993, the usability profession had to incorporate the Internet and dotcom era, which stimulated additional growth. The term "user-centered" often replaced "usability engineering" and ethnographic methods were added to the toolkit. But the emphasis on user experience, hedonomics, and Agile development were still nearly 10 years in the future.

In my view, usability design and evaluation methods and the emphasis on the work context, productivity, and design tradeoffs changed only marginally until after the turn of the millennium. True, the Web brought prosperity, higher salaries, and more jobs, but those turned out to be only temporary events. If the great leap forward had not occurred, who knows how the profession would have coped with the pressures brought on by the dotcom bust.

I end with an interesting connection. The iPod has become the prototypical user experience success. The business success is viewed as due to branding, marketing, industrial design, and a bit of usability. It's functional, fun, and not a productivity tool. Like the Macintosh, it fits neatly in its time as the metaphor for successful development. It's déjà vu.

So if we must embrace post-modernism, let's also remember the achievements of the past.

### **What should we call it?**

Around 1990, Mike Wiklund and I had started a group within the company we worked for to provide consulting services in what we now would call user experience. Mike is the author of *Usability in Practice: How Companies Develop User-Friendly Products* (1994). As our group grew, we decided to make it an official part of the company, which meant giving it a name. Over several meetings we discussed alternatives. We rejected names that included "research" or "human factors" even though our company had a long tradition in both. We did not want the name to suggest continuity with the past but rather a break with it, a concept that the modernists would appreciate. In the end, we decided on "Usability Engineering Group." That name expressed our interest in usability and the "engineering" suggested that our approach was practical and applied. A short time later, we joked that Jacob Nielsen had followed our lead with the publication of his important book titled, *Usability Engineering*.

### **Writing the book**

Perhaps the most important event in my career was writing *A Practical Guide to Usability Testing* (1993) with Ginny Redish. People are still buying it 14 years later. Ginny and I owe a debt to three people for the shaping of that book. First to Janice James, the founder of the Usability Professionals' Association. Circa 1990, she asked Ginny and me to create a workshop on testing to be given to colleagues at the company where she worked.

The workshop gave us the opportunity to organize the test planning and execution process and to create many of the examples that we later used in the book.

The second person is Ben Shneiderman. Ginny and I gave a talk circa 1991 to the monthly meeting of the Software Psychology Society, which he founded. We spoke about usability testing. During the talk, Ben suggested we write a book on the topic and that he would publish it as part of his series on Human-Computer Interaction for Ablex Publishing. With that encouragement, we wrote a first draft of the manuscript and submitted it for review.

The third person to whom I am grateful is the anonymous reviewer of that draft. He – we think he was a male – liked what we had, but was disappointed that we didn't put testing in the context of the other tools available for usability evaluation. In response, we wrote several more chapters in Part I. Those chapters ended up being one of the few places where readers new to the profession could get a brief introduction to the field. Thanks to all three.

### **References**

- Bias, R. & Mayhew, D. (1984) Cost-justifying usability. Boston, MA: Academic Press.
- Brown, C. (1988) Human-computer interface guidelines. Norwood, NJ: Ablex Publications.
- Desurvire, H., Kondziela, J., & Atwood, M. (1992) What is gained and lost when using evaluation methods other than empirical testing. In A. Monk, D. Diaper, & M. Harrison (Eds.), *People and Computers VII* (pp. 89-102) Cambridge: Cambridge University Press.
- Dumas, J. (1988) *Designing user interfaces for software*. Englewood Cliffs, NJ: Prentice-Hall.

- Dumas, J., & Redish, G. (1993) A practical guide to usability testing (1st ed.) Mahwah, NJ: Ablex Publications.
- Human Factors in Computer Systems (1982) New York: ACM Press.
- Everdell, W. (1997) The first moderns: Profiles in the origins of twentieth-century thought. Chicago, IL: The University of Chicago Press.
- Jeffries, R., Miller, J., Wharton, C., Uyeda, K. (1991) User interface evaluation in the real world: A comparison of four techniques. In Proceedings of CHI 1991, (pp. 119-124) New York: ACM.
- Kirakowski, J, and Corbett, M. (1990), Effective Methodology for the Study of HCI, North-Holland, Amsterdam.
- Lewis, J.R. (1991) Psychometric Evaluation of an After-Scenario Questionnaire for Computer Usability Studies: the ASQ. SIGCHI Bull, 23.1, 78-81.
- Lund, A. (2006) Post-modern usability. Journal of Usability Studies, Vol. 2, Issue 1, pp. 1-6.
- Nielsen, J. (1993) Usability Engineering. New York: Academic Press.
- Nielsen, J. (1992) Finding usability problems through heuristic evaluation. In Proceedings of CHI 1992 (pp. 373-380) New York: ACM Press.
- Nielsen, J., & Molich, R. (1990) Heuristic evaluation of user interface. In Proceedings of CHI 1990 (pp. 241–256) New York: ACM Press.
- Polson, P., & Lewis, C. (1990) Theory-based design for easily learned interfaces. Human-Computer Interaction, 5, 191–220.
- Rubin, J. (1994) Handbook of Usability Testing. New York: John Wiley & Sons, Inc.
- Rubenstein, R. & Hersh, H. (1984) The Human Factor: Designing computer systems for people. Burlington, MA: Digital Press.
- Shneiderman, B. (1987) Designing the user interface: Strategies for effective human computer interaction, (1st ed.) Reading, MA: Addison-Wesley.
- Simpson, H. (1985) Design of user-friendly programs for small computers. New York: McGraw-Hill.
- Smith, S., & Mosier, J. (1984) Design guidelines for user-system interface software (Report ESD-TR84-190) Bedford MA, The MITRE Corporation.
- Whiteside, J., Bennett, J. & Holzblatt, K. (1988) Usability engineering: Our experience and evolution. In M. Helander (Ed.) Handbook of Human-Computer Interaction (pp. 791-817) Amsterdam: North Holland.
- Wilkund, M. (1994) Usability in practice: How companies develop user-friendly products. Boston, MA: Academic Press.

**Joseph Dumas** is a Senior Human Factors Specialist at the Design and Usability Center. Joe has more than 30 years of experience as a human factors and usability professional and is an internationally recognized expert in the design and assessment of the usability of information technology. His book, *A Practical Guide to Usability Testing*, co-authored with Ginny Redish, has become a classic in the field. Professor Dumas teaches graduate courses in the Bentley Human Factors in Information Design Master's degree program.

Joe holds a doctorate in Cognitive Psychology from SUNY at Buffalo, NY. He has published two books, *A Practical Guide to Usability Testing* (Intellect Books, 1999), and *Designing User Interfaces for Software* (Prentice Hall, 1988). His recent publications include "Web-Based Programs and Applications for Business," in *The Handbook of Human Factors in Web Design* (2005) and "User-based Evaluation," in *The Human-Computer Interaction Handbook* (2002).