

HCI Education – people and stories, diversity and intolerance

aQtive limited and Staffordshire University

people matter

Hi This is my first column as Education Editor for SIGCHI Bulletin. When, many months ago, Andrew Sears first asked me whether I would takeover this job, it seemed a long time until I'd need to do my first column. As always, the time has flown (reminding me of Jean Gasen's handover column to Andrew in 1996) and it is now the moment to pull various circulating ideas down onto paper (or at least pixels). Why so difficult, surely there are plenty of major topics in HCI education? Well, the difficulty I find is in drawing a line between HCI education, HCI research and HCI practice. The more I think of this problem, the more it seems to say something fundamental about the nature of HCI as a discipline. But, in order to keep this issue's column from travelling to far along on that path, let's just not worry too much about this distinction for now.

HCI education across the world - tell us

I'm not sure who was the Bulletin education editor before Jean, but certainly I'll be the first non-American for some years. There are clear differences in HCI education between the US and UK, partly determined by the different education systems and partly by the differing perspectives of the respective HCI communities. One thing I'd like to follow up in subsequent issues is these differences between HCI education in different countries. I've already approached some of you about this, but if anyone has experiences they'd like to share, whether short email comments that I can distill for future columns, or (even better) any offers of articles about HCI education in your part of the world. Of course, there are lots of other current issues. One is the challenge of distance education. For many social and economic reasons this has been mushrooming, and often HCI

educators are called in to help develop effective delivery mechanisms for all sorts of subjects. However, HCI itself is often taught in a very hands-on manner that is hard to transfer to distance education. I'd love to hear from you about this or other topics that interest you.

HCI is a fascinating area to work in, partly because of the varied backgrounds of the people you meet. In the UK, many working in computing departments have come through 'conversion' courses after taking first degrees in many different subjects: physics, history, English literature, education. Because the subject of our study is people, the *people* working in HCI are of prime importance. Although, objective studies and fundamental psychological facts are invaluable in HCI, the discipline is perhaps driven more by the breadth of experience of its people: researchers and practitioners. In introducing the subject to students, these people are of great importance, both the giants who founded the discipline, such as Englebart, and also current workers at all levels. The mini-interviews in Jenny Preece's textbook are a great example of this (I wish we'd thought of that for our book!).

So, now a bit about myself. Not because it is particularly exciting, but because, as I reflect, I can start to tease out some of the ways different experiences have influenced the way I teach and do HCI. Try it for yourself with your own story.

Some of you will know of me through my co-authored textbook on Human-Computer Interaction (www.hci-book.com). The original production and subsequent revision of this has done more than anything to broaden my vision of HCI. Other authors will tell the same story I'm sure, but of course this is really just an extreme case of the experience of anyone try-

ing to teach a HCI course. It is only in *conveying to others* our, often part-understood, grasp of the area, that we ourselves become educated in a deep sense.

doing and telling

My own educational roots are as a mathematician. As all mathematicians will tell you, this is the WAY OF TRUE ENLIGHTENMENT, but my joy in the subject is dampened by my sadness at the parlous state of mathematics education at all levels. Mathematics has problems that are happily absent in HCI, most notably the incremental nature of the subject always requiring previous knowledge to make sense of the new. However, it also shares with HCI (and indeed most disciplines) the fact that education is achieved more by the *doing* than the *telling*. Despite its problems, there are several lessons that mathematics education can bring to HCI education, but again that is probably best left until another time.

stories and story telling

The majority of my working life (about 14 years of it) I've spent as a HCI academic, working in many areas including CSCW, user-interface architectures and applications of formal methods in HCI. However, I've often found in my teaching and research that I draw heavily on my non-academic experiences – several years working in development of agricultural crop-sprayer technology, data-processing in COBOL (yes!), and non-HCI consultancy. Again, I'm sure many of you will do the same. *Stories* and *story telling* are such an important part of

HCI education, whether one's own or stories passed on from others.

counting the costs

My last full-time academic post has been as Associate Dean in the School of Computing at Staffordshire University. As well as learning the virtues of patience during endless days in meetings, the biggest lesson I've learnt from this is the *cost* of education. It is easy in HCI to think of grandiose schemes for teaching – group projects with end-user studies, small-group seminar discussions with tutors, VR projects etc. However, with the exception of a few fortunate institutions, budgets and time are a precious resource. As both developed and economically disadvantaged countries seek to broaden educational opportunities for their citizens, these problems will only grow – the educational budget rarely grows as fast as the educational need. Distance and technologically-mediated education are often seen as solutions, if not panacea, but as we've already discussed, problematic, to say the least, in HCI. So what are the cost-effective ways to teach HCI? Answers on a postcard please.

intolerance - cussed users are pure gold

Finally, let's come to the present. I am still a part-time academic, but spend most of my time working with aQtive, a start-up company developing novel Internet-related products (www.aqtive.com/community/research). With a small team and tight

timescales, many of the traditional techniques of HCI become impractical (time and cost again). In fact, theoretical understanding derived from out academic roots has been crucial, making it possible to deliver in the required time, but some things, like extensive usability testing, are simply not possible. Instead, we have used a very small number of typical users. There is of course plenty of evidence that most usability errors are found with the first few users, so this gives us some confidence. However, our greatest confidence comes through those users who are cussed – complaining at the slightest inconvenience or problem – users from hell! Users who say "that's nice" tell you nothing. Cussed users are pure gold.

So what's the lesson from this for HCI education? For me it strengthened the knowledge I already had that one of the greatest lessons we can teach HCI students is intolerance (see the CHI98 panel). When students evaluate and use software, it's no good them saying "it's OK", they need to be ready to pick up every last tiny feature and not accept that it's "good enough", but question why it isn't right.

What have you learned today?

It's interesting – as I've written, again and again I catch myself writing about the lessons learnt from different things. Note, not the lessons I teach, but the lessons I learn. HCI education is clearly not something we do to our students, but something we do with them. In a recent exam on virtual reality I asked students to consider various

kinds of simulation from desktop flight simulators, through video-arcades to full-blown flight trainers and to consider for each the factors that gave a sense of engagement and immersion. In lectures we had covered a variety of areas: 3D effects, rate of feedback, movement, interactivity, etc. However, in the exam scripts one factor came out in nearly all the scripts far higher than any other – the importance of sub-seat woofers in video games. Negligently I had not even covered the use of sound in my lectures, but even if I had, these students' knowledge of the domain far outstrips my own. What lessons in HCI have you learnt today?

References

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