# Interfaces

59 • Summer 2004

British HCI Group
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**Text input in PDAs**
**The role of art in HCI**
**Professor Evil's guide to HCI**

**plus...** ***reports and reviews***

**HCI Educators 2004 • Human Centred Technologies 2003**
**UITV 2004 • HEAT 2004 • UTOPIA 2004**

Published by the British HCI Group • ISSN 1351-119X
**Human–Computer Interaction**

# View from the Chair

## Now is the time for your tears

Time keeps on slipping. This View from the Chair is late, which is a sure sign that I should have found someone else to take on role of Communications Chair by now. In fact several of the committee have also been feeling too long in-the-saddle and this September we hope to see a bunch of new faces tearing into service for the community. Please volunteer.

In fact everyone I meet seems to be time-poor these days and awash with redundant technology. We get seduced by the packaging only to realise after a few weeks all the things it didn't say. All the freedoms that the technology brings us seem to come at a price and that price is the hours spent configuring, installing, maintaining, converting data.

Part of the problem is that design paradigm of infinite processor speed, memory and bandwidth. We have forgotten the most finite commodity of all. 'You just kinda wasted my precious time but don't think twice it's alright' is our acerbic cry, not to feckless lovers but to a design community that for the sake of creativity, ignores reality.

Time is all we have and it's loaded with opportunity cost. Now is the moment to realise that the most important aspect of the interface is the user's time. HCI is a real-time discipline and if we really want to design for life then we need to borrow as little from the user as possible.

Less is more. I've said enough.

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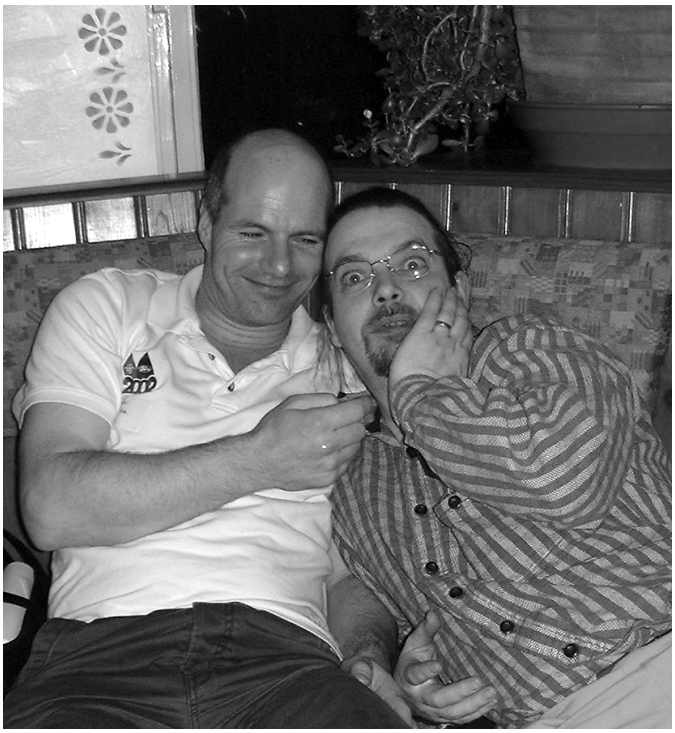

**The Esteemed Educators: Drs Beale and McEwan**

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# Editorial

**Laura Cowen**

I know everyone intensely dislikes automated telephone answering systems ("If you are human, press 1; if you want to speak to a human, press 2; if you are not sure, please hold…"), and I'm no exception. A certain postal service, which I'll call PackagePressure, has one such system.

PackagePressure tried to deliver a parcel yesterday but, unsurprisingly, I'm at work during the day. So I phone their customer service line. Without listening to all the options on their answering system, it's not clear which one I should choose. When I select the 'arrange to get off your backside and collect your own parcel at an inconvenient time so you have to drive at breakneck speed across town at rushhour' option, I'm treated to a rundown of PackagePressure's compensation policy. Why? I don't know.

Eventually, someone answers and, after listening to me explain that I want to collect my parcel from my local post office, informs me that, actually, I don't want to *collect* the parcel; I want to *redeliver* it. Helpfully, he doesn't transfer me to the correct department and, instead, bounces me back to the main menu with instructions to press 4 then 2. Actually it's 2 then 4 then 2 but I manage all the same.

In the 'redelivery' option, it's all so different. I find myself in a dialogue with a very helpful voice recognition system. A cheerful voice (without the usual supercilious BBC-style inflections) asks a series of questions to which I, mostly, have to respond 'Yes' or 'No'. Occasionally, answers get more complicated, such as 'my local post office' and my postcode. Nonetheless, the system isn't fazed and confirms each of my responses with an upbeat 'Okay'. This impresses me as *human* customer service representatives usually have trouble understanding my oop-North accent. The only failure is when the system asks me to give the date on which PackagePressure had originally tried delivering the parcel. It doesn't indicate what format I should use so, after a couple of attempts, the system apologises for not understanding and asks me to use my phone keypad to enter the four digits required. Even so, the system was so *nice* about it that I was happy to oblige. So it *is* possible to configure helpful automated telephone answering systems after all.

In this issue of *Interfaces*, Maria da Graca Pimentel and colleagues describe a text input system for PDAs which, like PackagePressure's redelivery phone system, improves the naturalism of human–computer interaction. Frode Hegland discusses the possibility of approaching human–computer interaction from an artistic, rather than scientific, perspective, and Gilbert Cockton considers the many varied disciplines that contribute to the field of HCI.

As you can see from the opposite page, this issue contains more than its usual clutch of conference and workshop reports. The idea is to share experiences between regular attendees and, also, to give occasional or non-attendees, including students, a feel for what these events are like.

Nadia Pervez, the Chair of Student Representatives on the British HCI Group Executive, has been working hard to encourage HCI students to contribute to *Interfaces*. So, in this issue, Jackie Brodie reviews an HCI text book from a student (i.e. user) perspective, and Nadia describes her experiences as a Student Volunteer at HCI 2003.

Speaking of which, HCI 2004 is just around the corner. All the submissions are in and you'll have received a copy of the Advance Programme with *Interfaces*. So, volunteer if you're a student; register if not, then get along to Leeds this September.

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## Right to Reply

Make *Interfaces* interactive! We invite you to have your say in response to issues raised in *Interfaces* or to comment on any aspect of HCI that interests you. Submissions should be short and concise (500 words or less) and, where appropriate, should clearly indicate the article being responded to. Please send all contributions to the Editor.

**To receive your own copy** of *Interfaces*, join the British HCI Group by filling in the form on page 27 and sending it to the address given.

## Next Issue

*Interfaces* welcomes submissions on any HCI-related topic, including articles, opinion pieces, book reviews and conference reports. The next deadline is **15 July**, but don't wait till then – we look forward to hearing from you.

with thanks to commissioning editors:
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My PhD: Martha Hause, m.l.hause@open.ac.uk
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Photo credits: pages 2, 11: Sandra Cairncross; page 6: Maria Pimentel; pages 8, 9: Julia Brant; page 10: Joy Goodman.
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Deadline for issue 60 is **15 July 2004**. Deadline for issue 61 is **15 October 2004**. Electronic versions are preferred: RTF, plain text or MS Word, via electronic mail or FTP (mail fiona@hiraeth.com for FTP address) or on Mac, PC disks; but copy will be accepted on paper or fax.

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**and** copy email submissions **to Fiona Dix, *Interfaces* production editor; email: fiona@hiraeth.com**

PDFs of *Interfaces* issues 35–58 can be found on the B-HCI-G web site, www.bcs-hci.org.uk/interfaces.html

# Deflections

## Accessibility *is* usability

**Gilbert Cockton**

Over the last millennium, new technologies have been invested with magical powers, from spectacles in the Renaissance, through the steam engine in the Industrial Revolution, to the motor car in the Twentieth Century. As people become familiar with technologies, they understand the interactions – both good and bad – between artefacts and their usage contexts. Thus few would argue that a chair's features conjure up inherent strength. We expect chairs to be strong enough to sit (and stand?) on, but we expect few to survive tank tracks. Strength rather expresses expectations of behaviour in relevant contexts.

We are still in the magic phase with computers. Accessibility and usability are now seen as separate feature-determined properties in some current e-government guidelines. Once again, technology becomes magic through feature power.

Weaning people off feature magic will take time. We are up against another foe in the *separation* of usability and accessibility. Key figures such as Jakob Nielsen and Greg Vanderheiden have noted (respectively) that accessibility without usability is of little value, and that accessibility tends to bring improved usability. So, usability and accessibility are connected, but different. For Nielsen (the usability guru), you can have accessibility without usability. For Vanderheiden (the accessibility expert), you get usability from accessibility.

These can't both be true all of the time. We get different views from different camps. For decades, accessibility was the preserve of small groups of disconnected specialists in occupational therapy, rehabilitation engineering and a range of medical specialisms, plus a few HCI people. My work with Eamon Doherty and colleagues on brain–body interfaces brought us into contact with all four communities. As an HCI group, we made rapid progress against the 'old schools' in working with brain–body interfaces.

Rehabilitation engineering tends to focus on the artefact and not usage. We encounter wildly impractical systems architectures that are never tested on users (pre-processed 'test' data tends to be used). Medical researchers tend to operate in a similar gadget-centric mode, only some get to drill holes in people's heads as well. One-off (partial) task successes are enough for publication. The idea of usability in real usage contexts is extremely rare in both research traditions.

For many accessibility researchers, usability is not only different, but something that they need not bother with. Jakob Nielsen can thus easily find examples of assistive technologies with very poor usability (and yet as I argued in my previous Deflections in *Interfaces* 58, this does not mean that they are without *value*). So where is Vanderheiden's knock-on from accessibility to usability?

Alan Newell in Dundee regularly reminds us of inventions that began as assistive technologies but are now ubiquitous aids for all: the tape cassette, remote central locking, the remote control (and when my children were toddlers, I would add disabled toilets, which keep a young girl and boy, plus buggy and shopping, in one socially acceptable place – unlike the Gents). So, knock-ons exist, but they are not automatic (there are some dreadful remote controls with no value).

A more certain link between accessibility and usability makes them one and the same. Disability only arises in contexts where a functional impairment prevents someone from achieving something. It is the context that disables, not the functional impairment. Accessibility is thus about the creation of usage contexts that do not disable, even in the face of a wide range of functional impairments.

So, accessibility is simply a question of designing interactive devices that make no demands that disable any user. Which is pretty much what usability is about, except for the addition of 'a wide range of functional impairments'. However, when designing for *most* user populations in HCI, we can and should expect a range of functional impairments (e.g., colour blindness gets considered in display design). If accessibility is only distinguished from usability by consideration of a wide range of functional impairments, then there is something badly wrong with usability.

Most interaction design – in both research and everyday systems – proceeds with no proper consideration of human ability, impaired or otherwise. When designing accessible technologies, we must design for what people can do. Unfortunately, most functional impairments are researched from a medical perspective that does not tell us, for example, what arthritic people can grasp. Designers of accessible technologies have almost no data to inform universal design. Without data on how physical, perceptual and cognitive impairments relate to demands placed on users by interactive systems, we cannot properly ground accessible design. However, we also lack data on 'normal' capabilities.

There is no sharp line between the able-bodied and the 'disabled'. We instead need data on the capabilities of *all* individuals. Measurements will range from the impressive, through typical, to the most impaired. Subranges may (not) correspond to medical conditions. However, the ability to associate 'groups' of functionally impaired people with ranges of capability measures is key to being able to recruit an appropriate range of test users.

Given that the abilities of individuals with the same condition (e.g., especially cerebral palsy) are so diverse, a user panel of one blind, two deafs, three lames and five geriatrics cannot be considered as balanced unless we know their actual capabilities. So, not only do we have little basis for analytical accessibility, we also have little for empirical accessibility.

After almost three decades of HCI we do not have comprehensive basic data on human capabilities, either at the keystroke level of device interaction, or at the dialogue level of complete task interactions. We lack data for the able and the impaired. Without data, we cannot really design or test for usability *or* accessibility. With it, we can design and test for both.

To assemble this data, HCI researchers need to work with the 'old school' of accessibility, especially key medical specialists and occupational therapists (who rely on standard tests of capability for service delivery). The distinction between usability and accessibility will disappear. A usable system must be usable across its intended audience. To call

one usable but inaccessible is nonsense. It is simply unusable for a specific (and perhaps substantial) part of its intended user base. Similarly, a system cannot be accessible but unusable.

Usable must be accessible and vice versa. Designing for functional impairment shows just how poor our current data is when designing for humans. Fashion designers use extensive measurement data. While this does allow design for only sizes 8 to 16, it need not. That is a commercial choice with measurable consequences. While we may not like this, HCI will have advanced immensely if we can reach the same position of being able to knowingly design well for only 80% of an intended user base and understand the risks associated with the other 20%.

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# Internet ubiquity or social inequality?

**Russell Beale**

The internet is everywhere, so it is claimed. It is certainly available within 30 minutes of most people's locations. Whether it is in the home, or at work, or in the library, or in public kiosks, or internet cafes, most people can access the web if they really want to. But the digital divide gets in the way, this invisible yet substantial barrier, between the haves and the have nots, the 'ones' and the 'zeros'. Some people have the internet and others don't. Surely these concepts are incompatible? How can the internet be everywhere and yet accessible only to some? Why is it that parts of our communities are cut off from the resources and opportunities opened up by the internet?

Part of it is education: many people simply do not realise what a great resource it is. And if you're new to the internet now, it is indeed hard to see what all the fuss is about – everywhere you go is either commercial, adverts, or pornography – it is hard to get beyond that to the actual interesting stuff, if you're not expert in where to look and what scams to avoid.

Part of it is financial: many people cannot afford the luxury of a computer at home, and work in jobs that have no need for computers or internet access. And the cost of going to the public library is prohibitive for it to become a regular, integrated part of their lives.

Part of it is accessibility: if you're disabled, then many sites are not available to you and you cannot read or interact with them effectively. Recent changes in the law have improved things to a limited extent, and should stop the UK situation deteriorating further. To get an idea of how bad many sites are, open them in Lynx, the text-only browser; this mimics what a screen-reader program can see and hence what a partially sighted person may hear if the site is read to them. Far too many sites are unusable.

However, we need to review this list: education, financial, disability. All these are discriminatory factors within our wider society already. It is less that there is a digital divide, more that we already live in an inequitable system, in which training, money and full abilities are inordinately valued. The digital divide is primarily an instantiation of a wider social problem. This is important, as there are arguments that technology is bad because it is widening the gap, and yet if this gap is an effect, not a cause, of social problems, then that argument is misplaced. It is the gap that is the problem, not the technology.

One can argue that the internet can improve education, can increase people's mobility, flexibility and personal incomes, that it can transcend disability and make all equal in the eyes of the web. This may be true – it should be one of the goals of responsible scientists to make this the case. Others can also argue that the social problems are too large to be tackled effectively, and things that reinforce the difference between one sector of the community and the other are inherently not good – and they would have a valid point too.

The digital divide is not a causal phenomenon – it is an effect of the social system we are in. Its one advantage over many other forms of progress is that it does have the ability to transform the societies in which we live. We must therefore concentrate our efforts on providing systems that are available, accessible, understandable, and integrative. Society would agree with us; it should be the role of those who have to support those who have not.

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# Automatic scroll supporting input in PDAs

**Maria G.C. Pimentel, Dorival L. Pinto Jr, Carlos F.P. Rocha**

The use of small devices such as Personal Digital Assistants (PDAs) brings many advantages for the mobile user. Their use has been reported in hospitals [4], classrooms [8] and in heritage-oriented educational games [1], to name a few.

As far as output is concerned, recent investigations have evaluated users while accessing information on small screens in tasks such as web search [3], search in large tables [9] and reading using rapid serial visual representation (RSVP) [6].

As the usability of PDAs increases, they become more attractive to the general user. However, the size of the screen is one of the most critical limitations of such devices, in particular when users have to access and interact with large amounts of information.

As a result, scrolling becomes a need in many cases, even though it may be disruptive and is usually not recommended for desktop applications (in particular in the Web [5]). In most PDAs, the scrolling may be operated by means of physical buttons or virtual scroll bars in the touch sensitive area that also presents the information. Although vertical scroll is more common, horizontal scroll may also be necessary. For instance, it is common to scroll a map or a photo bigger than the viewing area of the PDA.

Yee [10] has proposed Peephole as an alternative to traditional scrolling by taking into consideration the movement of the device itself in 3D-space, the tracking being achieved by means of specialized hardware.

The idea is that the non-dominant hand controls navigation so that the dominant hand is free for pursuing interaction. His studies for both input and information presentation have been successful in terms of the interactions needed, but also highlighted the current limitations in tracking the movements of the PDA.

While building a system to allow students to make notes in PDAs and have those notes integrated with material automatically captured from the instructor's interaction with an electronic whiteboard [7], we designed a tool with which students can make their annotations in a virtual area bigger than the original PDA writing surface (see Figure 1). Towards being able to write in the larger area, we have implemented both the traditional grab-and-drag scroll (such as the one in Adobe Acrobat Reader) and a novel automatic scrolling, the latter being available when the user is in the writing mode.

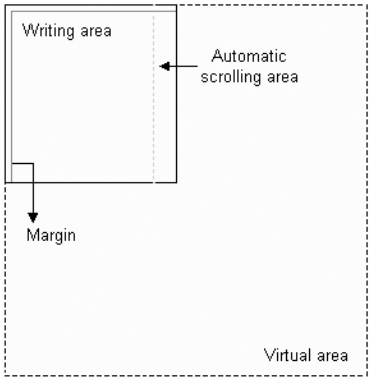



**Figure 1** Visible writing area inside the larger virtual area; the automatic scrolling is activated when the virtual vertical line is reached.

The novelty of automatic scrolling is in the availability, in PDAs, of both horizontal and vertical scrolling in the writing mode. As the user reaches the end of the visible area of a line, the next writing area is positioned automatically. The new writing area can demand either only horizontal scrolling, as is the case when the beginning of the 'hidden' area is shown, or both horizontal and vertical scrolling when the far right side of the virtual writing area has been reached and the leftmost corner of a lower portion is to be shown.

It is relevant to observe that two features have been implemented to orient the user in identifying the area where the automatic scrolling is active. First, in Figure 2, the horizontal lines that delimit the writing area have a point of discontinuation at their right hand-side. This discontinuation, visible only in the writing mode, indicates when the automatic scroll is active.

Second, on the top-left corner of each window in Figure 2 (to the left of the work Task), the outermost square indicates the whole of the virtual area, the dashed lines indicate its four quadrants, and the innermost square indicates which portion of the virtual area is shown in the visible area at the moment. This information is updated on the fly while the user is writing.

The automatic scroll can be turned on and off and the size of the writing area is configurable, as is the amount of scrolling that occurs at each scrolling step. This can be seen as a more general approach of that adopted in today's iPaqs, such as the H5500, which implement an automatic scroll in their Notes application so that a new page is activated when the user reaches the last visible line [2].

We report on a study carried out with our implementation running on a Palm M130. The results indicate that the use of automatic scroll allowed users to perform the input tasks in less time and with more accuracy. The prototype has been written to run on SuperWaba (a Java Virtual Machine for PDAs), and has been successfully installed on a HP iPaq H5500.

## Experiment design

Towards investigating the impact of the scrolling, we elaborated four activities to conduct the experiment:

- writing on top of a straight guide line (Figure 2a)
- writing on top of a long sine-shaped guide line (Figure 2b)
- writing on top of three sine-shape guide lines (Figure 3a)
- free writing of 'Feliz Natal e Prospero Ano Novo', the Portuguese for 'Merry Christmas and Prosperous New Year' (Figure 3b)

The first task (drawing on top of the straight line) was carried out as a training task, so that the users would understand how each of the two different scrolling operations would work.

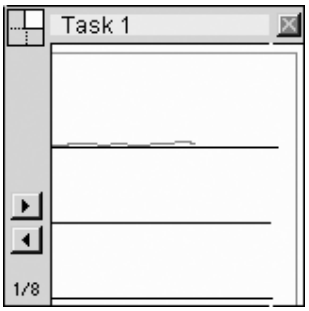



**Figure 2a** Writing on top of a guide line.

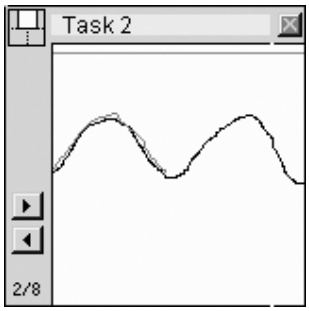



**Figure 2b** Writing on top of a long curve.

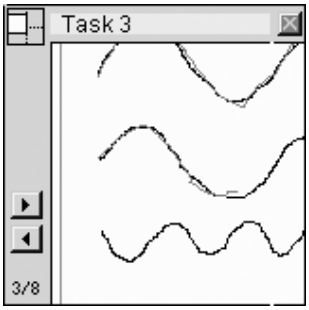



**Figure 3a** Writing on top of three curves.

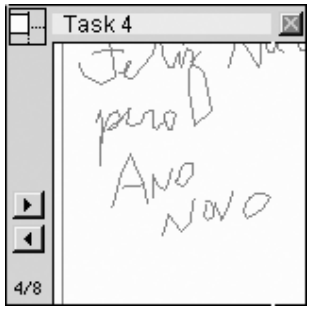



**Figure 3b** Free writing task.

We compared the performance of the users while using the automatic scrolling and using the grab-and-drag scrolling to execute the four tasks above. Therefore each user executed the four tasks twice. To keep the experiment balanced, half executed the tasks with automatic scrolling first, half the grab-and-drag scrolling first.

We had 14 subjects, students from several undergraduate and graduate courses. We also wanted to check whether experienced PDA users would perform differently from new-to-PDA users, and we had half of the users in each category.

Our objective was to verify the influence of the automatic scrolling on user performance. So, we defined four factors:

- User (novice or expert)
- Activity (line, one sine-shaped guide line, three sine-shaped guide lines, free writing)
- Automatic scrolling or grab-and-drag scrolling (AS, for automatic scroll)
- Order (whether the users started the tasks with automatic scrolling or not)

The result variables we have defined are:

(a) Average distance along guide lines and the pixels drawn by the users

(b) Average time to complete the task

## Results

We obtained a Pearson correlation between Average Distance and Average Time of –0.104 (p-value = 0.274). Given that the p-value is bigger than 0.05, we rejected the hypothesis that the variables were correlated, which allowed us to carry out an individual analysis of each variable.

We used ANOVA to analyse the influence of the individual and combined factors in the Average Time for executing the tasks. The results (as indicated in Figure 4) indicate that three variables have influence on the Average Time:

Order (F=8.19 and p=0.005)

AS (F=20.11 and p<0.001)

Activity (F=38.32 and p<0.001)

The impact of Activity was most expected, since the four tasks are quite different. The influence of Order suggests that users had more difficulty using the grab-and-drag operation to scroll after using the automatic scroll than vice versa. In other words, we can say that, after using the automatic scroll, the use of the more traditional scrolling was more difficult (no matter what the previous experience of the user was).

Finally, the use of the automatic scrolling (AS) itself implied a significative impact on Average Time. This is a very important result with respect to offering (or not) this type of operation on PDAs.

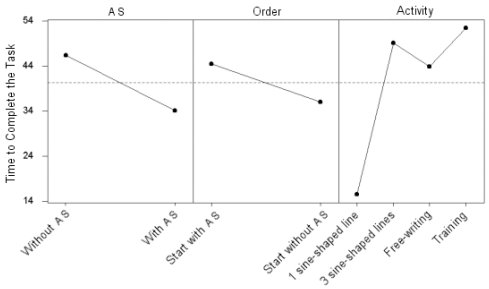


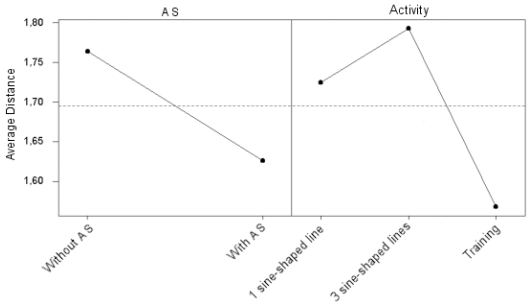

**Figure 4** Automatic Scroll (AS), Order and Activity had influence on the Average Time to complete the tasks.

In our study of the Average Distance, we defined distance as being the distance, in pixels, of the line the user had drawn relative to the corresponding guide line. Therefore this does not apply to the free writing task.

We used ANOVA to analyse the influence of the individual and combined factors in the Average Distance for executing the task. The results indicate that two variables have influence on the Average Distance:

AS (F=3.88 and p=0.050)

Activity (F=3.61 and p=0.032).




**Figures 5a and 5b** Automatic Scroll (AS) and Activity had influence on the Average Distance from the guide lines.

Figure 5a shows the difference in Average Distance under the influence of AS. This means that, independently of the order or the experience of the users, when the tasks were carried out with automatic scroll the user was more likely to make a more precise drawing over the guide lines.

Figure 5b shows the difference in Average Distance under the influence of the three tasks. The training task was the easiest and allowed the users to keep very close to the guide line. When the users had to draw over the curved lines, their precision was not as good.

## Final remarks

Considering all tasks, the use of automatic scroll allowed users to perform input tasks in less time and with more accuracy.

It is also interesting to observe that, when performing the free writing task, only one of the users did not choose to write on the virtual area. This is a very important result with respect to offering the virtual area in both dimensions, regardless of the use of automatic scrolling or not.

We plan to implement our system so as to allow users to create private notes that integrate with public material presented by instructors in traditional classrooms. We also want to evaluate the use of the automatic scrolling in particular, and the virtual area in general, in other common tasks.

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Carlos Rocha and Maria Pimentel acknowledge grants from CNPq. The work is part of an international cooperation project sponsored by CNPq and FAPESP in Brazil and by NSF in the U.S.

# Home and Electronic Assistive Technology Workshop, reviewed

## King's Manor, University of York, March 16–17, 2004

**Gordon Baxter**

The United Nations recently forecast that by 2050 there will be more people in the world over sixty than there will be under the age of fifteen. The corollary of this is that there will be more elderly people requiring care, even though care provisions are already stretched by current loads. Electronic Assistive Technology systems are increasingly regarded as part of the solution to this problem, and are now regularly deployed in people's homes as a way of enabling them to live independently whilst maintaining their quality of life.

For the end users, EAT systems have a critical nature in that if they fail they can leave the user without the ability to carry out everyday tasks or, at worst, without access to essential (emergency) services. The net effect is that EAT systems need to be dependable. The HEAT workshop was set up to discuss some of these dependability issues, drawing together people from all the different areas involved in developing, deploying and using EAT: end users (people with disabilities and the elderly); carers; social services staff; occupational therapists; health trust workers; systems developers (including designers and installers); and academic researchers.

The first HEAT workshop was held in the Huntingdon Room of the historic King's Manor buildings at the University of York in March 2004. The workshop attracted around 50 people from several countries (including America, Sweden, and Pakistan). About half the participants were academics; the remainder were practitioners.

The first day opened after lunch with Michael Harrison (University of York) giving an overview of the DIRC project (Interdisciplinary Research Collaboration on the Dependability of computer-based systems) and highlighting the link between dependability and the use of technology in the home. Roger Orpwood (Bath Institute of Medical Engineering) then gave the first keynote talk, describing how dependability issues affect the design of smart houses. Roger is probably best known for his work on the Gloucester Smart House, which was designed to support people with dementia and their carers. His talk drew on those experiences and subsequent work in designing EAT, highlighting the importance of giving proper consideration to the complexity and variability of the end users.

The formal part of the day concluded with a panel discussion, chaired by Andrew Monk (Centre for Usable Home Technology, CUHTec) on the factors that make an electronics assistive technology system 'good'. The panellists provided a good cross-section of the different areas affected by HEAT-type issues. In addition to the keynote speakers, the other panellists were Jenny Jarred (Age Concern, York), Kevin Doughty (CUHTec) and Guy Dewsbury (University of Lancaster). After each of the panellists had their five minutes, discussions were opened out and there were several contributions from the floor. These discussions continued over the informal dinner (with 'A Taste Of Yorkshire' menu), which was held in the King's Manor refectory.

The second day opened with the second keynote speaker, Liz Sergeant (Aberdeen City Social Work Department). Liz provided a different perspective on dependability issues arising in the design of smart homes, from the ground up, for people with learning disabilities and autism spectrum disorders. The presentation was based on experiences of developing three sheltered housing services in Aberdeen over the last four years.

The rest of the day was given over to a mixture of long and short paper presentations. The diverse nature of the topics covered is largely a reflection of the subject of the workshop: EAT issues in the home also have an impact on agencies and services outside the home. The practical problems of making a service that the client perceives as dependable were addressed by Bob Martin (Central Remedial Clinic, Dublin), whilst Phil Palmer (ACT, West Midlands Rehabilitation Centre) talked about the broader issue of making the delivery of EAT services dependable.

In the pre-lunch session, Peter Bagnall (Lancaster University) talked about exploiting existing tools in developing an

EAT communication for use in a multi-occupancy dwelling. The system is being designed co-operatively with the residents. This need to involve the critical users was also addressed by Julia Cassim (Helen Hamlyn Research Centre, RCA) before Phil Palmer (ACT) talked about using the Psychosocial Impact of Assistive Devices Scale (PIADS) as a means for evaluating (and eventually predicting) the outcome of using environmental control systems.

The papers in the afternoon mostly addressed more futuristic issues. Mark Rouncefield (Lancaster University) talked about the development of a community based SMS system, whilst Kevin Doughty (CUHTec) and Dennis Maciuszek (Linköping University) offered visions on the future of telecare, and how dependable virtual companions can be developed.

In the concluding session Andrew Monk (CUHTec) talked about how EAT services and systems can be used in the home without necessarily resorting to mechanical robots. The other presentation, by Shaun Lawson (Napier University), was particularly intriguing. He reported on a project that is looking at what can be learned from dogs that are trained to reliably predict in advance when their owners are about to have an epileptic fit. The hope is that they will eventually be able to develop an artificial system that can reliably reproduce the dog's predictive behaviour.

In the wrap-up session, participants expressed an interest in having another workshop in the future, although no dates and venues were arranged. There was general agreement that the workshop had been a useful exercise and many people were pleased that the workshop programme had allowed plenty of time for discussions between participants. There was a consensus that an active forum for discussing HEAT-type issues should be established, and it has subsequently been agreed with the list owners that the Assistech Jiscmail list is an appropriate forum for this purpose.

www.jiscmail.ac.uk/lists/assistech.html
A discussion list for Assistive Technology professionals

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*Co-chairs HEAT 2004*

CFP: Web and Aging: Challenges and Opportunities

Special Issue for Universal Access in the *Information Society Journal*
http://www.springeronline.com/east/journal/10209/

**Deadline for submission of papers: 1 July 2004**

*Guest editors*
Panayiotis Zaphiris, zaphiri@soi.city.ac.uk
Sri Kurniawan, s.kurniawan@umist.ac.uk
R. Darin Ellis, rdellis@wayne.edu

**http://www.soi.city.ac.uk/~zaphiri/UAIS-Aging/**

# In search of UTOPIA

## Usable Technology for Older People, Inclusive and Appropriate

**Joy Goodman**

'Will you still need IT when you're 64?' ran one of the proposed taglines for this event and, while a bit of a joke, this did express a serious point. Despite the rapid ageing of the population, many believe that older people just do not need or use computers. Yet, with the over-60s due to comprise 27% of the UK population by 2025 and with increasing numbers of technologically literate older people, this is a viewpoint that no longer holds water. We need to consider how the needs and desires of this important group can be met in technology design.

This workshop addressed these issues, discussing motivations, methods and user characteristics to consider when designing for this age group. Over 100 people attended the all-day workshop, which provided a rotating programme of concurrent sessions to allow delegates to 'pick and mix' activities. It included a variety of formats, from talks and panel sessions to a video room and interactive workshops.

There isn't room here to describe all of the talks, but a description of a few may give you a taster. Speakers included Dave Sloan and Lorna Gibson (Digital Media Access Group), talking about legislation and web accessibility. Particularly informative were their examples of website accessibility problems and their illustrations of how these sites would appear to someone with colour blindness or when viewed with a screen reader. Michael Smith (Fujitsu Consulting) talked about handling application complexity and Alex Carmichael (University of Dundee) discussed whether there is such a thing as an 'average' user, tackling the issue of the variety in the older population.

Keynote talks looked at older people and ICT from the perspective of Scottish Power and the Scottish Executive's 21st Century Government unit, as well as from the perspective of an older person herself (more about this later).

Interactive workshops provided an opportunity to gain some experience of what it might be like to have failing sight, hearing, and dexterity, and to learn from this about how to communicate better with older people about unfamiliar technology. We learnt that apparently very clear visual aids can still be indecipherable and that the addition of clear verbal descriptions is very important. We also found that we often wrongly assume technical knowledge on the part of users – even the innocuous phrase 'mobile phone' can cause difficulties for some.

Another workshop allowed participants the chance to design a product that considered older people's needs. Delegates were divided into small groups and given a brief to design a device to help families coordinate their activities and pass information around. A great range of ideas was produced, addressing issues such as security, aesthetics and entertainment. The needs of older people tended to be considered as part of an inclusive design, rather than a focus on their own.

Throughout the day, a series of videos was run, illustrating some of the difficulties that many older people have with technology. By displaying scenarios based on real experiences, these helped to make some of the issues come alive.

These sessions generated interest in a variety of issues

A still from one of the videos shown at the workshop.

discussed in the panel sessions. There was a consensus that we need to focus on users, tasks and incentives rather than on the technology, and that designing for the older population is much more than just ticking a set of technical check-boxes. Delegates also discussed whether older people need special attention or whether we should simply be sensitive to special needs that older people may share. While conclusive answers were not always reached, interesting ideas and issues were raised.

The workshop finished with a fascinating talk from a representative of the older population, Mamie Bruce-Gardyne. She spoke about how she set up and runs a computer group in a rural Scottish area, and challenged those who teach older people to consider the pace at which they go, the jargon that they use and, importantly, the attitude that they display towards these older learners.

Mamie Bruce-Gardyne

All in all, the workshop proved to be a very productive day, challenging preconceptions about the older population and encouraging the participants to consider older people in design.

***Joy Goodman***
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The workshop took place on 20th April 2004 in Edinburgh. The workshop was organised by the UTOPIA project, funded by SHEFC. It was supported by BCS HCI.

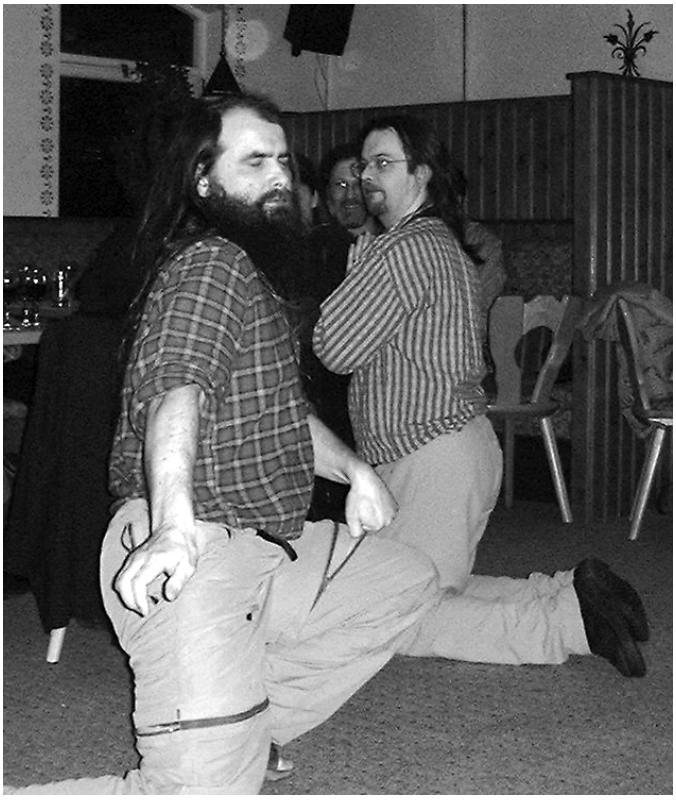
# 7th HCI Educators Workshop, reviewed

**Russell Beale**

Held on 1st and 2nd April at the University of Central Lancashire, the HCIE's theme was Effective Teaching and Training in HCI, but it is probably better characterised by the notion of 'Try Something Different'. And for those that were there, the sight of a couple of long-haired rednecks doing American deep south chicken impressions whilst belting out Peggy Sue at top volume to each other and overwhelming the bad pub singer will be their abiding memory of an entertaining couple of days. Alan and Tom, step up to the mike and take a bow. It was the matching checked shirts and trousers that did it for me – that, and the hair-tossing and ham acting.

At the conference itself, held in a decent seminar room enhanced by some bright sparks bringing the tea and coffee down from the upstairs refreshment area, relatively informal and entertaining presentations characterised the friendly nature of the conference. A theme soon emerged, of using the web in a number of different ways; Shailey Minocha presented early-stage work on developing pedagogies and evaluations for web-based environments to try and identify learner–teacher mismatches. Gavin Sim and Matthew Horton discussed the good and bad points of online assessment interfaces, concluding that WebCT wasn't the fantastic tool that central University administrators tell us it is – now we have some data to fight them off with.

Jonathan Crellin and John Rosbottom presented their experiences of using a web-based approach to manage, monitor and provide feedback on students' practical work, making their teaching more efficient. Peter Lonsdale and I talked about pushing students towards independent learning by using the web as a portal resource and using lectures only to outline material and motivate them, whilst Janet Read showed us in her reviews of student behaviour that many students don't work that hard outside of lectures and so we were doomed to fail. (Exam results are not in yet, so watch this space.) Sandra Cairncross and Tom McEwan presented work on developing a framework for designing and evaluating learning objects, placing them into the wider context of the curriculum and the context of use.



These experiences showed us a number of revealing things: that, as computing academics, we are struggling with large classes and many unmotivated students, that we are trying new ways of using technologies to assist both the learning experiences and the management of classes, that we are engaged in deep reflective practice ourselves, and that teaching HCI is fundamentally hard. This was exposed further by both Paul Englefield of IBM and Stephen Boyd Davis who presented their experiences of introducing usability and HCI into courses; generally good experiences of both teaching and learning were reported, with envy-inducing class sizes of single or low double figures.

Complementing the presentations were the keynotes: Barry Day discussed how pressed he was as the sole HCI/Usability evangelist within the NPSA (National Patient Safety Agency), and how difficult it was to judge the quality of potential HCI professionals for want of a clear qualifications framework, whilst Jonathan Earthy discussed currently unfulfilling efforts to move towards accreditation of HCI professionals. Scepticism of the real need for this by some academics was balanced by the clarity of industry's demands – where this goes next is hard to see, but it's not for want of effort. Alan Dix provided his usual entertainment, reinforcing the notion that HCI is hard and that we need some more theories to underpin practice. His views of theories are not the scary mathematical models of some but simple, usable generalizations.

Hosted by Barbara McManus and Janet Read, the HCIE was its usual friendly exchange of ideas and approaches. Copious tea and coffee and cakes, and a broad buffet spread for lunch on both days, enhanced the exchange of ideas and allowed people to mix well. Internet access was provided for the email junkies, either in a lab just down the hall, or from one particular seat at the back of the seminar room where the wireless network from the building across the road was reflected and concentrated onto just one hotspot …

A problem shared is a problem laughed at by many, but those newer to the field reported finding the new concepts presented helpful and motivating. Talks were of a high standard: interesting, often unusual and entertaining, and enlightening. It was a fun conference, and one thing is clear – we need a jamming session at HCI itself.

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*Advanced Interaction Group*
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# Human-Centred Technologies Workshop review

## Square pegs in round holes?

**Alice Good & Jon Rimmer**

At the end of 2003 the University of Sussex held its seventh annual International Human-Centred Technologies workshop. This year's theme was *Square pegs in round holes? The relationship between empirical research and theoretical frameworks*. This two-day event was sponsored by the British HCI Group, and brought together PhD students from around the UK, mainland Europe, Brazil and Australia with a common interest in Human-Centred Computing Technology. The diverse and interdisciplinary nature of this area can restrict opportunities available to students, at their own universities, for peer review, feedback and discussion of their work or the process of completing a thesis. These workshops give such students a chance to discuss their work and also hear presentations from leading academics at the forefront of this field.

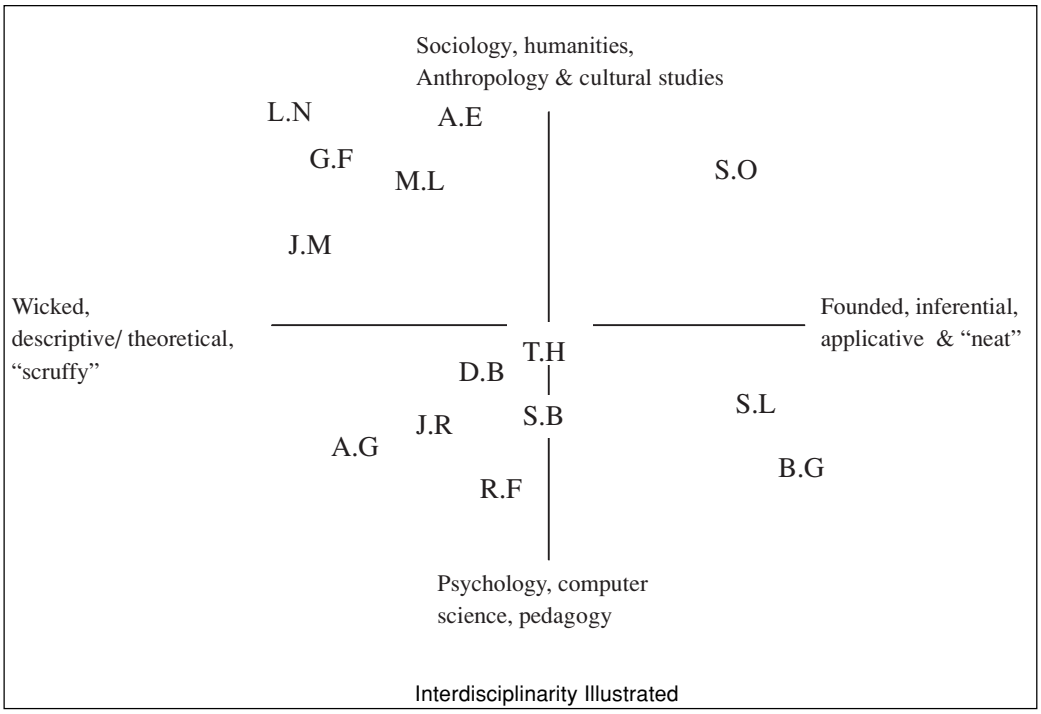
Professor Ben du Boulay led the workshop and gave a presentation on the 'Process of doing a PhD' and a final summary of the papers at the end. The invited speakers this year were Professor Peter Cheng who is researching representational systems and in particular the use of diagrams in scientific discovery, and Dr Geraldine Fitzpatrick who presented many of the themes that had emerged from her extensive industrial work.

Students presented their work and took questions from peers and received feedback from academic staff: Beate Grawemeyer talked about her research into different styles of external representations of knowledge; Jon Rimmer about his studies into the language gap between the system and the user; Simon Li presented his work on post-completion errors in tasks; Mirja Lievonen delivered a talk on the need for the representation of information within hybrid environments; Fatima Mansour is researching the usage of visualisation tools in assisting the collaborative decision making process; Barbara Crossouard talked about ways of developing online learning; Alice Good discussed how adaptive navigational techniques that supported user needs could improve accessibility to web-based information; Shaleph O'Neill's talk looked at the development of a semiotic model of interaction that focuses on interactive systems; Tom Hamilton talked about the role of technology in enhanced creativity; Sallyann Bryant's research looked at themes of representation and problem solving within the analysis and design stage; Lene Nielson delivered a talk on creating a model for personas and scenarios to represent user needs; Amanda Harris presented her research on increasing children's linguistic awareness within collaborative learning environments; Rowanne Fleck discussed the application of technology to support reflection within the learning process; Diane Brewster gave a talk on research that investigates student ownership of digital resources; Alison Elderfield discussed the concept of enchantment from the usage of mobile technologies; Thom Heslop gave an overview of the future of intelligent interfaces for service composition and, lastly, Jon Matthews demonstrated his 'Snapshot' tool to enable the visualisation and planning of tasks such as weddings.

During his concluding talk, Professor Ben du Boulay highlighted the interdisciplinary nature of papers presented. The diagram below illustrates the diversity of students' research and its integration into opposing methodologies and multiple disciplines. Students are identified by their initials.

Breakout sessions in the afternoon discussed hypothesis testing and methodologies. These were excellent opportunities to get to know each other and discuss work issues. Also, the workshop dinner, Spanish tapas in Brighton's Laines, was a lively affair with surprisingly few headache sufferers the following morning. Everyone enjoyed themselves, learned a great deal and, of course, forged links with like-minded researchers – see you next year!

To find out more about the Human-Centred Technologies group at Sussex and to read any of the papers from this workshop, go to www.cogs.susx.ac.uk/lab/hct/




Interdisciplinarity Illustrated

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# My PhD

## In search of High Calibre Individuals (HCI)

**Martha Hause**

I am currently looking for PhD students who would like to write, for *Interfaces*, a small article (from 500–800 words) on their PhD work. The article should explain the 'what', 'why' and 'how' of your PhD research in very simple terms. Ideally, the article should be HCI-related. However, if it isn't strictly HCI, describe your work and state how it relates to HCI. Describe what you are looking for (your focus), your plans for the next few years, and what you have done so far.

It doesn't really matter what stage you are in at the moment. You can write about what stage you are in, your research focus/interest, your research design (if you know it at this point), any analyses you've conducted, what your results are, your plans for further work, and the impact of your work in the field.

Adding a bit of info about you personally and some wit and humour is always good. In fact, wit and humour are both welcome and recommended.

It is a very informal piece. In true HCI style, it should be 'user friendly' and understandable to most people. It is best to use language that is not too full of jargon or too technical., pretty much as if you were explaining your work to your mum, dad or granny. As column editor, I would be happy to help you with the format.

Being a PhD student myself and having written a previous article on my work, I can tell you that this is a helpful experience in several ways. First of all, it helped to focus my work and be able to explain it in a way that even I could understand. It also put my ideas, thoughts, plans and concerns about my PhD research in a platform where people could know about it and generate further ideas. And then, of course, there is the prestige of publishing an article in *Interfaces*.

I am looking for PhD students in any and all stages of your research. If you are interested or would like to know more, please contact me at M.L.Hause@open.ac.uk. I look forward to hearing from you, as will your readers.

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# HCI 2004 workshop: Call for participation

**David England**

## Designer, User, Meaning Maker: Rethinking relationships for a more creative HCI

6 September 2004
An International Workshop at HCI 2004 • The 18th British HCI Group Annual Conference
Leeds Metropolitan University, UK

**Organising committee**
*Alan Chamberlain*, Dept of Computer Science, Loughborough University
*David England*, School of Computing and Maths, Liverpool John Moores University
*Salvatore Fiore*, Dept of Computer Science, University of York
*John Knight*, User-Lab, Birmingham Institute of Art and Design
*Ann Light*, HCT Group, University of Sussex

## Background

A great number of frameworks and models of interaction have been conceived from a cognitivist background out of the notion that people engage with technologies in order to accomplish work tasks and improve efficiency in completing everyday activities.

These origins of the majority of Human-Computer Interaction work to date have emerged to produce results incongruent with the ways that many more people now use computers for fun, enjoyment, and engagement with wider aspects of everyday living and connecting with people. As the purposes for using technologies have augmented, so too has the variety of spaces that they are used in – from desktop to handheld – and the amount of time spent interacting with and through technologies. HCI is moving and growing to address this new landscape of ubiquitous computing woven into the fabric of everyday living and working.

In particular, researchers in HCI have been increasingly seeking inspiration from other disciplines that may offer alternative metaphors, paradigms and frameworks for understanding human interaction and the relationships and roles that characterise and shape it. A number of events have successfully brought together researchers keen to explore how areas such as the creative arts, critical theory, literary theory and philosophy may help HCI to move beyond its origins. In particular, workshops at HCI 2002, *HCI and Literary Theory*; CHI 2004, *Reflexive HCI: Towards a Critical Technical Practice*; and the University of York, *HCI, the Arts and the Humanities*, have set a successful and exciting precedent in this area – see www.arts-hci.org/events.php

While a richness of related work is emerging, previous events have so far raised as many questions as they sought to answer. Within the arts and humanities there is an existing wealth of understanding about questions now being placed under scrutiny in HCI:

What characterises human interaction?

What is creativity in design?

What is aesthetic experience?

What is involved in creating and perceiving an artefact or artwork?

*We aim with this workshop to focus attention towards vital aspects of how we see experience and what value the arts and humanities can hold for HCI.*

In expanding the field of HCI, seeking to understand how interactions with or through computers may be a meaningful part of people's lives (rather than mere tools of labour), we are compelled to examine concerns relating to the aesthetic and emotional aspects of people's lives. New approaches adopt a more complex model of people whose richness of life can be augmented through the experience of using technology. In particular, we are in a position to go further and begin challenging perceptions of users as passive recipients of entertaining technologies and debate our understanding of what the roles of both designing and using technologies entail.

HCI has tended to work towards making the craft of the designer invisible to the user, who perceives the interface as the ultimate point of interaction. This contrasts with the conception of creative and perceptive roles within the arts, where the role of the creator of an artefact is often central to both the object itself and the meaning that the object holds for its perceiver. As such, the arts may provide metaphors for exploring concepts like audience, spectator, participator or collaborator, to augment our understanding of the roles of user and designer. In particular, answers to questions like 'Is it possible and meaningful to accept the role of the interaction designer as imaginative and inspired creator rather than technician of usable objects?' become more accessible.

Consequently, should we move to considering computer systems as technological representatives and channels of expression for meaningful life experience, as one might a form of artwork? Further, what can the arts, humanities, literary studies and social sciences et cetera do for HCI in helping to understand how creators and users work together and share experiences?

This workshop will seek to bring together contributors from diverse subject backgrounds to discuss and progress work in this area at an exciting time in the history of HCI and Interaction Design. It is emphasised that the day is aimed at offering an opportunity for non-HCI specialists from other fields to meet with HCI researchers to share and debate the issues from broad perspectives.

## Format and contributions

The workshop format will include *a presentation by each participant*.

Contributions are welcome in a wide range of formats including, though not limited to, position papers (maximum 4 pages), demonstrations, videos, installations, creative works and performance.

These may describe or present case studies, exploratory work, frameworks, arts/humanities-based critiques, descriptions of user experience or user–designer relationships and roles, studies on the aesthetics of interaction and creative work concentrated in this area directly.

## Submissions

Submissions are particularly encouraged to address *the ways in which HCI might work together with the arts, humanities and other disciplines towards understanding the roles and relationships between designers and users of technology.*

Please submit your work to: John.Knight@uce.ac.uk

In the case of non-paper based pieces, please submit a description of your intended contribution and the format it will take on the day.

Papers should be received by July 19, 2004. Participants will be notified of selection by August 2 or 9, 2004.

A related discussion is running at SmartGroups. Subscribe by email: lit-hci-subscribe@smartgroups.com, or on the web: *http://www.smartgroups.com/groups/lit-hci*

A website will be available soon. The address of the website, where the accepted papers will be published will be made available to the authors and on the Smartgroups discussion site.

# Diary of a Student Volunteer at HCI 2003

**Nadia Pervez**

*Thinking of working HCI 2004 as a Student Volunteer? Here, Nadia gives an SV's insight into her duties at HCI 2003.*

Before going to the HCI 2003 conference I'm not sure what I expected, only that I was encouraged by my colleagues and supervisors to apply to be a Student Volunteer (SV) and I was accepted. It was an experience I will never be able to forget. It was a good one and a tiring one.

The conference was held at the University of Bath, from 8th to 12th September. As SVs, we were asked to arrive the day before, on Sunday, to be briefed by the SV manager, Dr Jo Hyde, on what was required from us in the week to follow. Each of the 15 SVs were given their timetables, outlining what we were to be doing during that week.

Throughout the conference, SVs were required at the registration desk, in tutorial sessions, and presentation sessions, to assist the delegates. If an SV was working during the morning then he/she would have the afternoon off, and if working in the afternoon you would have the morning off, unless you were in a full-day tutorial.

We were each given five t-shirts (which, of course, we have kept) and a goody bag, which included a copy of the conference proceedings. We also got on-campus accommodation. After leaving our belongings in our rooms, we had a tour of the campus before Jo took us into Bath and gave us a brief tour of the town centre. At 8pm, after the tour, we went to a curry house for dinner (paid for by HCI 2003). At about 11pm we headed back to our rooms. Oh … forgot the bit about when we had to stuff the conference bags with flyers and the conference proceedings … this was done sometime between the briefing on Sunday and dumping our baggage in our rooms.

### Monday

We all had breakfast at 8am in the on-campus restaurant and the SVs on duty that morning were to show up at the registration desk for 8.30am, for a last-minute briefing. SVs who were booked in for registration duty started booking delegates in from 9am onwards. The other SVs on morning duty were kept busy shifting boxes from one room to the other and generally organising things. I was one of these.

Everyone on morning duty finished work at 1:45pm. We had lunch on campus and then went into town sight-seeing. In the evening, we met up with the other SVs for dinner in town. The majority of the SVs went to a Thai restaurant that they recommended highly. Myself and a few others wanted something light to eat so we went to a restaurant walking distance from the Roman Baths (don't quite remember the name). I had vegetable soup served with garlic bread and parmesan cheese. The food at the restaurant was very good, a little expensive but very good. After dinner those who were tired went back to their rooms and the rest stayed in town to further explore Bath.

### Tuesday

A similar sort of a day to Monday but I attended a tutorial all day. There was one SV in each tutorial session in case the presenter needed anything. We were asked beforehand which tutorial we wanted to attend so that we were working sessions that interested us.

The tutorial was on Systemic Task Analysis and was presented by Professor Dan Diaper (of Bournemouth University). It was good to attend the tutorial, which gave me an insight into what task analysis is. Professor Diaper presented a new way of doing task analysis and during the tutorial the participants were able to put the theory into practice. I would recommend SVs to attend the tutorials if they can.

After the tutorial session we went to the on-campus buffet dinner, and then to the on-campus bar to grab a pizza.

### Wednesday

I was on reception duty from 9am till 1.45pm, directing new delegates to pick up their badges and where to go for the presentation sessions. In the late afternoon, I attended a presentation helping the chair of the presentation with time-keeping of each presentation as quite a few people were to give 15-minute presentations. The presentation was on Organisational Overviews. I enjoyed the session as it was interesting to hear about the HCI work presented by six companies and research institutes from around the world.

In the evening we all (SVs and delegates) went to a social event. There was a buffet dinner and, as entertainment, there were live music players and professional jazz dancers. During the evening all the guests got a dance lesson.

### Thursday

I had the morning off so I went into Bath town centre to do some retail therapy. I got back to campus in time to start work at 1pm till 4.30pm. I was to look after the marquee where all the commercial exhibitors had their stalls. A barbeque lunch was served in the marquee that day. There were bookstalls, laptop computer sellers, and eye tracking equipment stalls among others.

From 6.30pm until the end of the night, I was on duty for the main social event which was held at the Pump Room in the Roman Baths. The SVs on duty that night had to get delegates on to the buses running from campus to the Roman Baths and to check everyone's tickets at the door. There was a tour of the building and then drinks served around the Roman Bath. A three-course meal was then served in the Pump Rooms.

The Roman Baths is a very nice place; if you go to Bath you must visit it. There's a lot to see and it's amazing to see how the hot water flows into the main bath from different directions. Tour guides are available as well and you can see how the Romans used to keep the building warm with the help of the naturally hot water.

From 10.30pm onwards we started to escort the delegates to the buses going back to the campus.

### Friday

This was the last day of the conference; the tidy-up day for the SVs. We looked after delegates' luggage after they'd checked out of their rooms, and tidied up the rooms that we were using for the conference. The day ended at about 2pm and we all departed.

This is the first conference I have ever been to so beforehand I wasn't sure what to expect. However, the experience I had exceeded my expectations. Throughout the conference I got to meet all sorts of people from all parts of the country and the world. I got the chance to work in a team and make new friends, as well as attending the tutorials and presentations.

I would recommend students to go to the conference as an SV, especially if you have not been to a conference before. Being an SV is a good way of breaking the ice with other delegates. It also gives you a chance to experience what a conference is all about and to meet other people in the field.

I thoroughly enjoyed the whole event and would like to do it again, even though I was completely shattered by the end of the week.

***Nadia Pervez***
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# Professor Evil's guide to Human–Computer Interaction

**Gilbert Cockton**

Linda Little asked me, on behalf of the BHCIG student representatives, to write a short introduction to Human–Computer Interaction (HCI) for students new to the field. If she'd asked someone else, she would have got a different response to the one below, but there would hopefully be some overlap.

HCI is a multi-disciplinary area. This means that HCI people bring different perspectives from their 'home' disciplines. It helps to know what these are in order to put someone's position on HCI into context.

I have a Cambridge MA (purchased for £2 off the back of a Cambridge BA) and a PGCE. This introduces some immediate complications, since I studied History for two years, followed by two years of Education with a PGCE (teaching certificate) threaded through it. I taught History and Social Studies for two years in an 11–18 comprehensive school before going back to research. I meant to go back to Education, but there was more money available in 1983 for Computer Science.

So I have a PhD in Computer Science, within which I followed (and passed) the taught part of an MSc in Knowledge-Based Systems. After my PhD, I worked on two applied industry projects. Six years on from that, I was again working for a commercial consultancy as well as carrying out independent design work. I became a full-time HCI research professor at the University of Sunderland in 1997 and have steadily become a not wholly willing manager.

I am now head of the Interactive Digital Media sub-area in Computing and Technology with responsibility for teaching (undergraduate and taught postgraduate), research and reach out (the 'third leg' of working with business and the community). I direct two large regional reach out projects (total value of almost £3M) in support of digital SMEs in the North East of England.

Unusually for someone in HCI, I have a degree in applied human sciences (Education), practitioner experience in Education, a higher degree in Computer Science and practitioner experience in HCI and Software Development. More recently, I've added an economic development string to my bow. This means that I have a fair grasp of the contributing disciplines, plus one like History which has yet to influence HCI (although it does have some overlap with the cultural and literary approaches that are critical to digital media and HCI as communication, lifestyle and culture).

Lastly, my interest in design (work), including a design presented at an international design exhibition, balances an academic view of disciplines as the pursuit of truth with a design science perspective on a discipline as an externally motivated creative synthesis explained via an explicit rationale.

I strongly suggest that no current research students try all this at home – at least not at once. I graduated 20 years ago, and looking back I would happily stretch what I've already done into 30 or 40 years. However, as an HCI research student you need to understand one key thing:

*Different disciplines do different things for different reasons*

HCI is quickly divided into several camps on the basis of reasons below. The human sciences pursue truth, design sciences pursue 'good design', engineering sciences pursue 'buildability' and improvement, and professional practice (alas rarely backed up by academics) pursues progress in the workplace.

So, when you're with a bunch of HCI research students, they will not all share the same view of success. In the human sciences, truth relative to a discipline's research methods will be the driving force. In engineering sciences, building the first $x$ (or the first $x$ to do $y$, or if they are really brave the first $x$ to do $y$ with proven quality $z$!) is what wins the prizes, and the biggest ones go (perversely some may say) to the first $x$, and not to the first thing to do something clearly useful at a demonstrable and relevant standard. That, however, is how innovation works. Without it, HCI would have nothing to study.

HCI is being joined by new arrivals. Design research students are becoming more common. They may be doing human science, but they may be much closer to a cultural studies PhD student, combining designing with a cultural intervention of some sort. Art PhDs in interactive media are still very rare, and tend to have a wholly cultural creative outlook. Practitioner PhDs are also rare, and tend to follow an *action research* paradigm where the Hawthorn effect that human scientists are taught to dread becomes an end in itself. If experimental bias can systematically make things better, then hey, go for it! Anyone with the same bias can get the same results!

So, if, for example, you are a psychologist, and a fellow research student is a psychologist, get stuck straight in and debate the pros and cons of your research. If, as is more likely, you come from different intellectual traditions, the best thing you can both do is develop your active listening skills. The more we understand each other, the more HCI can move from a multi-disciplinary hotch potch to an inter-disciplinary mosaic.

In my view, everyone in HCI needs to find some common purpose with all their colleagues in the field, regardless of discipline. I've been slowly developing a hopefully shareable purpose called Grounded Design that attempts to deliver *quality with value*. Here, quality comprises all those things that psychologists can readily measure: the efficiency, effectiveness and satisfaction of a user's interactive experience.

Value tends to come from other disciplines. Engineers and designers deliver innovations that may or may not have value. Without innovation, there can be no new value, but innovation without value is possible, as is value without quality (indeed, in most software markets, perceived value remains more of a driver than actual quality).

Value can be commercial, personal, experiential, spiritual or cultural, and I don't see this list as complete. Depending on the source of value, different disciplines are needed to properly understand and express it. Ethnography is well suited to understanding goals, needs, practices and structures in human activities. However, economics, business, or media and cultural studies can be better placed to understand, elicit and defend other sources of value. Even theology may have a role as the spiritual world exploits digital media.

So, HCI is a place where psychologists and computer scientists originally came to meet. They were soon joined by sociologists, anthropologists and engineers. Next came the

visual designers and product designers (never confuse the two, the latter take very easily to HCI). Now we have cultural theorists, media producers, economists, marketers, management scientists and even fine artists joining the party. In the process, beached ancestors such as information systems (especially sociotechnical approaches), ergonomics and systems analysis are becoming effective contributors to what we see as HCI. Others remain well beyond the fringes, having no interest in improving procurement, design, deployment or operation, but instead following the traditions of other-worldly detached scholars in areas such as Technology and Society, or Media and Culture. Here you may meet the angry brigade, for whom nothing will ever get better and design is just a capitalist device for oppression (or some similar posture). At this point, common purpose becomes unlikely.

What unites us all in HCI is the belief that we can design better and that we can deliver better interactive systems as a result. If you don't believe this, you aren't really an HCI student.

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# How might art inform HCI knowledge and practices?

**Frode Hegland**

What good are computers? They can only give you answers
(attributed to Pablo Picasso/JFK/Various)

*An exploration of how art might benefit HCI, as a counterpoint to how much of HCI is currently seen as being increasingly scientific and rigorous; following rules and measuring user performance. What can we learn by sometimes being a little less scientific, a little less rigorous?*

## Prefix: basic definitions

**art (ärt) n.**
1 Human effort to imitate, supplement, alter, or counteract the work of nature.
2. a. The conscious production or arrangement of sounds, colours, forms, movements, or other elements in a manner that affects the sense of beauty, specifically the production of the beautiful in a graphic or plastic medium.
b. The study of these activities.
c. The product of these activities; human works of beauty considered as a group.
3. High quality of conception or execution, as found in works of beauty; aesthetic value.
4. A field or category of art, such as music, ballet, or literature.
5. A nonscientific branch of learning; one of the liberal arts.
6. a. A system of principles and methods employed in the performance of a set of activities: the art of building.
b. A trade or craft that applies such a system of principles and methods: the art of the lexicographer
7. a. Skill that is attained by study, practice, or observation: the art of the baker; the blacksmith's art.
b. Skill arising from the exercise of intuitive faculties: "Self-criticism is an art not many are qualified to practise" (Joyce Carol Oates).
8. a. Arts. Artful devices, stratagems, and tricks.
b. Artful contrivance; cunning.
9. Printing. Illustrative material.
Middle English, from Old French, from Latin ars, art-. See ar- in Indo-European Roots. Synonyms: art, craft, expertise, knack, know-how, technique. These nouns denote skill in doing or performing that is attained by study, practice, or observation: the art of rhetoric; pottery that reveals an artist's craft; political expertise; a knack for teaching; mechanical know-how; a precise diving technique.

Nice definition, but it omits one powerful and widely held definition of art: the pursuit of understanding of nature, the self, and our relationship with nature and each other.

> *If I didn't think what I was doing had something to do with enlarging the boundaries of art, I wouldn't go on doing it*
> (Claes Oldenburg)

**in·ter·face (n r-fs) n.**
1. A surface forming a common boundary between adjacent regions, bodies, substances, or phases.
2. A point at which independent systems or diverse groups interact: "the interface between crime and politics where much of our reality is to be found" (Kroll).
3. Computer Science.
a. The point of interaction or communication between a computer and any other entity, such as a printer or human operator.
b. The layout of an application's graphic or textual controls in conjunction with the way the application responds to user activity: an interface whose icons were hard to remember.

In other words; what's between.

**in·ter·ac·tion ( n t r- k sh n ) n.**
1. a. The act or process of interacting.
b. The state of undergoing interaction.
2. Physics. Any of four fundamental ways in which elementary particles and bodies can influence each other, classified as strong, weak, electromagnetic, and gravitational.
**in·ter·act ( n t r- kt )**
To act on each other: "More than a dozen variable factors could interact, with their permutations running into the thousands" (Tom Clancy).

Dealing with each other, through some sort of an interface, either added on top of the elements or resulting from the interaction itself.

## Interface

Art can be seen, in many ways, as human–human interface or human–world interface with another human acting as co-interface (the artist) with the medium of the art.

A key understanding of what an interface is, is that it is a point of change. When there is no transference, no movement, when information is stored, there is no interface, there is no change. When information (or control) moves from one medium to another; air to water, person to person, anything, it passes through the meeting of those two media, the interface. And it changes.

The interface is not the handle on the blade. It is not the mouse connected to the computer. It is both what is between the hand and the handle, the hand and the mouse, and what is behind the hand, the person, and what is inside the computer, the information processing system.

It changes because it has to change. It cannot not change. This is a great opportunity.

## Art

Many of the components of art, science and of human–computer interfaces are the same; typography, colour, etc. That's in the realm of shared technique.

> *Art is made to disturb. Science reassures* (Georges Braque)

What's unique to art? Learning to work like an artist, to see like an artist, through study, contemplation, exploration and creation is pretty much all that the artist has which is unique. We can all paint. To a point. And sculpt. It's the approach, the 'vision' – or intent. In other words, it's the process that places the artist in a separate category.

> *I found I could say things with colour and shapes that I couldn't say any other way – things I had no words for*
> (Georgia O'Keeffe)

It is the process that is important in art. It's not about the art pieces.

> *Art is contemplation. It is the pleasure of the mind which searches into nature and which there divines the spirit of which Nature herself is animated*
> (Auguste Rodin)

## The process of art

What is the process of creating art?

> *Artists in various fields are always the first to discover how to enable one medium or to release the power of another*
> (Marshal McLuhan)

It is beyond the scope of this article to discuss the process

of creating art in detail. Suffice to say that the artist brings a perspective and a different way of looking at the world, and at the way we look at the world. The different perspective and processes can both help in the creation of the interface and in providing the user more of an opportunity to directly benefit from the process of the creation of art.

> *I just feel that I'm in tune with the right vibrations in the universe when I'm in the process of working* (Louise Nevelson)
>
> *Sometimes our comprehension of a total experience is mediated by a metaphorical symbol because the experience is new, and language has words and phrases only for familiar notions … But the symbolic presentation of subjective reality for contemplation is not only tentatively beyond the words we have, it is impossible in the frame of language* (Suzanne Langer)

## HCI knowledge and practices

Using the process of art to create better interfaces. Simply hiring an artist to work alongside the HCI professionals may open the HCI professionals up to other perspectives and opportunities that they would not have considered. In the early stages of HCI design and specification writing, an artist's perspective can question many of the assumptions of the HCI professional who has been there many times before and may, therefore, take known, but sub-optimal routes.

> *Professionalism is environmental. Amateurism is anti environmental. Professionalism merges the individual into patterns of total environment. Amateurism seeks the development of the total awareness of the individual and the critical awareness of the ground rules of society. The amateur can afford to lose* (Marshal McLuhan)

So that's the HCI professional taken care of. What about the user? A key understanding from both the introspective and the enquiring nature of art is that we are our own interface to the world and to ourselves – we are as much shaped by the outside as the inside. It is the process that defines us. Not the logic. The logic is but one tool of understanding and communication. Art approaches the process differently from the academic, the logical, the business 'sense', the 'common sense'.

> *Until a man has expressed his emotion, he does not yet know what emotion it is. The act of expressing it is therefore an exploration of his own emotions* (Collingwood, R.G.)
>
> *Montage in cinema, or the use of quick cuts and rapid editing, was supposedly a shock to the viewer's normal perceptual patterns and rhythms. Benjamin thought that it broadened the human perceptual power in ways sought by the Surrealist filmmakers like Dali and Buñuel* (Cynthia Freeland)

The more you look at something, the more you stare at it. The more you look at it and transform it, from looking to painting, or from looking to talking about it, for example, the more you don't just 'see it in a a new way' but you are better able to describe it from memory later – and to reproduce it should that become necessary.

> *I feel as though I haven't seen an object until I actually start painting it* (Janet Fish)

The HCI practice which can come out of this understanding is that, sometimes, when making a process easier is not the goal, it can be useful to make the user actually do some work. If the point of a system is for the user to learn something or to find patterns and information, making the user work more, or encouraging the user to get the job done, is not necessarily a bad thing; for example, showing users the same data set in different forms to avoid cognitive tunnelling and rigidity of mental models. Maybe also making the user answer random questions when doing a diagnostic.

> *Vision is information processing, not image transmission. At every stage in vision, neurons perform calculations based on their input signals, so that the end result is information about what is out there in the world, and how to act on it – not a picture to be looked at* (Margaret Livingstone)
>
> *We shape our buildings; thereafter they shape us* (Winston Churchill)

That is one of the ironies of good HCI: a good interface might let the user interact with information/people/environments so easily that they lose depth and understanding. The artist's process allows a series of questions such as: When is it appropriate to slow people down?

> *Always design a thing by considering its next larger context – a chair in a room, a room in a house, a house in an environment, an environment in a city plan* (Eero Saarinen)

A case study of art informing HCI is the Cynapse Project (www.Cynapse.org), which takes as a model the abstracted artist's work environment, where the artist can shape his or her work at will, where through training a simple twist of the hand can send the work in a whole new direction, like a sculptor can. The implemented system builds heavily on hidden links (for high-resolution addressing) and the use of dynamic pop-up menus. The process of creating the initial system was very much loose, playful and inquisitive. The testing and moulding is much more a standard HCI testing process.

## Conclusion

Art might inform HCI knowledge and practice through the process of artistic enquiry and creation (as discussed here and in the section on art quotations), with science (methodological activity, discipline, or study) providing the measurements and testing, while design (creating or contriving for a particular purpose or effect) delivers the final product.

> *The movie, by sheer speeding up of the mechanical, carried us from the world of sequence and connections into the world of creative configurations and structure* (Marshal McLuhan)

The scientist, the technician, and the engineer are able to speed up the computer, the networks, and provide us with new capabilities, but it will be the artist who opens up the doors to how we can use the capabilities and what they mean to us – and how we relate to each other.

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# UITV2004 – you are what you interact with

**Tom McEwan**

The second joint symposium between the British HCI Group and the ScotlandIS Usability Forum attracted forty delegates, split equally between practitioners, academics and students. The practitioners were fairly evenly divided between private and public sector (such as the BBC, Scottish Enterprise), while the academics covered the range from knowledge transfer to pure research. The majority were from Scotland, but a quarter had travelled from England or Belgium. This is a smaller audience than its predecessor, the sold-out UUML2002, but a creditable achievement for organiser Ian Smith in the current climate; all in all, a good result.

The day itself, as in 2002, was so rich that it's difficult to squeeze it all into a few pages here. The nine presentations themselves are usefully archived [1]. Seven were from those based in universities, but while there was a sound theoretical basis to all of the work, there was also an immediacy and relevance that is all too often missing in conference sessions. A tenth speaker (from industry) had to withdraw at the last minute, which ensured that the typical over-running didn't compromise the schedule. (Note to myself, and all speakers at future events: always assume each slide will take you 2–3 minutes to deliver! When you have 20 minutes, plan 8-10 slides, not 15).

## That iTV fellow

James Stewart from the University of Edinburgh kicked things off with a review of how far we've come since his iTV96 conference. Many would see this as the first stirrings of a UK interactive TV industry, as opposed to the existing TV and multimedia industries defined in the early nineties. His slides are on the website, but he didn't actually use them on the day! He was our interactive presenter.

For James, iTV has always been about the combination of *utility* (retrieval of media assets) and *engagement*, with the latter more significant. He reminded us that in 1996 we had a vision of interactive media for the masses, a centralised system (as suited the centralised providers of content) that would tame the Internet (perceived as too complicated for the masses) and sell repackaged existing content.

What then emerged had been driven by the largely state-owned telecomms companies on the one hand, and the consumer electronics industry on the other. These interests didn't converge very much – the former's business models are centralised and revolve around charging for textual content – initially information but increasingly communications – for example Minitel. Meanwhile, the latter sought to 'free the living room from centralised control' – with VHS allowing the consumer to manage their own access to content. Arriving late at the party, the broadcasters have built their business models less on what the set-top box might offer in interactivity, and more on what James calls 'channelled interactivity' – such as SMS income, as is typical of reality TV shows.

Looking at the users' needs and wants, James concluded that TV users want to switch off from life, possibly to learn, and to have conversations with family members (but only when they are in the mood!). These contradictory objectives brings formidable challenges for iTV designers. (The following week's *Sunday Times* echoed this with a review of the plight of iPod widows – those whose spouses have disconnected from family activity because first they spend all their time trying to get content onto their iPods, then they are cut off while they listen to it).

In the course of his talk, James ran through a complete history of iTV, pointing out how the potential uses of the medium had all been pretty well established in the 1940s, trialled and found wanting in the 1970s (CUBE) and that unexpected (mis)uses of the technology for erotic purposes lurk behind some of the success stories. His challenge to the community was twofold – to define and use creatively what he termed megachannel TV – which is more than simply camera angles at a sports event, but involves the creative use of multiple channels – and to come up with content and uses for mobile interactive TV.

## Odds-on design methods

Chris van der Kuyl will be little known to the HCI community, but as a former student of Alan Newell's he knows enough to exploit ideas from our field. His company Vis plc was formed in the early nineties. (*Then, I often bumped into him at trade shows and occasionally pitched against Vis for multimedia projects! A particularly fond memory is at a demo of Philips/ Optimage tool set for CD-I production, MediaMogul, at which we both laid into the vendor for the ludicrous prices of the authoring environment and the paucity of authoring features. Happy days!*)

In 1996, Chris refocused his company purely on the Video Games market, and they have since become one of the UK's great international success stories, shipping 1.5 million copies of 'State of Emergency' on the Playstation2 platforms alone, and a recent joint venture with Telewest, VisiTV, is already moving into profit. He now employs around 130 staff.

Vis have a particularly interesting iTV proposition called IRaces, on channel 431 on Sky, which he demonstrated. This product provides a litany of examples for teaching purposes, on how to get around constraints. The lack of processor power (other than the MPEG decompression chip) in the typical set-top box, the cheap cost of bandwidth, and the viewer's expectation of high quality visuals all mean that the high quality 3D content must be pre-rendered and sent as video streams; the lousy latency and bandwidth of the set-top box return-path demands asynchronous data interactivity, yet the viewer's interactivity, in terms of engagement, is immediate, and necessarily very high; the topic and interaction is based around the demographic of Sky + Premium channels + Horses + Gambling – a convergent demographic, though few were in attendance at the symposium!

The race outcomes are calculated at run-time, based upon detailed models of each virtual horse (a parallel product to create, train and maintain the hoofstock has been developed for non-gambling markets, as in much of the US), the characteristics of the course, the prevalent weather in the supposed location of the virtual racetrack, and some additional randomising factors. Realism is heightened by employing an

actual TV racing commentator, whose voice is broadcast live, commenting on the race as it is created.

A bank of servers render the realistic race at run-time, and the resulting data stream is fed to subscribers, whose micropayment wagers (typically 50p per horse) are collected through premium rate phone calls from the simple dialup back-channel on Sky's STB. The take-up ambitions are modest – some 30,000 users in the UK who might spend £50 each month. In TV viewership figures, this is derisory. Yet it is plainly a viable business – most obviously since the production costs are only £1500 per hour – a fraction of the costs of any other form of broadcast TV. Consider the equivalent costs for an outside broadcast from, say, Newmarket.

It's not hard to find worries with the idea in moral terms – encouraging gambling, etc. Yet there are those who squander the housekeeping on nags at present (perhaps on a far greater scale and with what some campaigners might see as detrimental outcomes for animals). Chris sees this as 'LCD Design' – lowest common denominator. Echoing philosophers such as Barnum T Bailey, he suggested: "Never underestimate the stupidity of users", and he went on to describe the amount of user error triggered on Sky handsets, by pressing the 'wrong' red button for interactivity – the On/Off switch was also coloured red!

He then summarised the anticipated changes (and convergence) in STBs and consoles all the way up to the rich-featured Xbox 3 and Playstation4 that the industry anticipates will arrive in 2012 – representing a slowing down of technology push – a doubling of the typical three-year timescales between release of new platforms. This is significant and confirms a trend I had observed in other technology push situations. 2012 sounded quite far away until I realised that, like iTV96, it is eight years away from today.

## More fundamental interaction

After coffee, David Sloan and Dr Alex Carmichael presented the University of Dundee perspective on accessibility issues in interactive TV. From the Digital Media Access Group and the Division of Applied Computing respectively, they brought the cumulative research of that community to bear on the issue, most recently from the UTOPIA [2] project. The starting point is that the analogue switch-off – requiring all users to receive TV through digital broadcasts – can't happen unless and until the STB (and its remote control) stops contributing to discrimination against the impaired. This is, of course, the cumulative result of several recent pieces of legislation.

David presented a summary of the different ways current technology discriminates against, for example, those with impaired vision, hearing and/or cognitive abilities. STBs needed to have clear, concise instructions available in multiple formats and be easy to set up (or to have others do it for you). The electronic programme guides (EPG) need to be available and usable – available in audio format, or in user's choice of font size, style and colour, and these also need to provide an easy route to accessible iTV content. The content itself needs to have captions and subtitles (not always the same thing) with, again, control over font size, etc., audio descriptions of text, as well as access to signing displays.

This gets more complicated given the divergence between different proprietary technologies – Sky and Five have used a more widely available but limited functionality approach, whereas the BBC had richer technology, but only around 60 viewers had access to it. This also requires us to distinguish between assistive and usable technologies.

## The man from Auntie

Finishing the morning, Jonathan Marshall of the BBC alerted us to the fact that digital TV now reached the majority of viewers, and had a similar level of use to the Internet itself. There were 7.7m homes with digital satellite (DS), 2.5m with digital terrestrial (DT) and 1.75m with digital cable (DC) with a further 10,000 using digital subscriber line (DSL) broadband. DT in particular has proved to be the fastest adopted technology ever (yet another one!!!). DT and DS have greater capacity for localisation – a key aspect of iTV.

In an entertaining aside Jonathan suggested that we should all blame Sky for the 'wrong-red-button' débâcle Chris had described. The first proposal was to use the green button to 'go' to interactive content. It was changed at the insistence of the Sky representatives on the standards body!

The BBC were currently offering two separate forms of iTV – the *Enhanced Services* (adding on interactivity to existing programming) and the *24/7 Services* (providing a 'bridge' – an interactive on-screen menu that can be hidden – to additional services which are delivered on spare channels).

Interactive programming fell into four categories:

*Dynamic* – an example is BBC Sport Interactive where users can select specific text to be continually updated (eg a text-based account of a particular game). This requires a back channel.

*Multistream* – the Wimbledon model, where the available channels offer multiple games from the same location, perhaps using reduced bandwidth, though one channel is given over to a 'mosaic' – a channel that shows a 'pre-composited' picture of three other channels in miniature.

*Return Path* – heavily reliant on the back channel – used to get asynchronous input from the mass audience, for example in the recent programme The Big Read. However the back channel can be web, iTV or SMS, and doesn't require STB return connectivity.

*Synchronisation* – as exemplified by 'Test the Nation' – the iTV is closely tied to the linear programming.

Each of these faces considerable challenges, and the categorisation itself is not hard and fast.

He then went on to analyse where the market is heading, and the message was one of fragmentation and individual empowerment. People would watch fewer complete programmes, and more snippets, controlling and scheduling (à la TiVO) their own viewing experiences – personalised services and peer-to-peer and other social activities. Viewers would watch on a variety of different devices, with local screen resolutions and bandwidth. This was resulting in the primacy of metadata over content – difficult for an industry in which content has always been king.

## Part 2: the next five years

Yours truly ended up taking over the chair after lunch so the descriptions here are less detailed for the second half, though the presentations themselves were just as good and interesting.

The effervescent Janet Finlay kicked off the afternoon session, livening up the graveyard slot. Narratology and Genre are becoming increasingly familiar in HCI and Prof Janet presented a succinct primer. If HCI is to cope with affective and fun aspects of design, then, citing Bazerman's

view of genre, we need to tap into ways to guide users' expectations. This requires us to distinguish between autonomous genres (things we consume when we are in the mood) and participative genres – where the fun is in joining in.

Turning to the component parts of narrative, and the different layers of narrative, Janet introduced most of us to *metalepsis*, and compromising the suspension of disbelief for deliberate effect. Reader, I learned something! (But, O hardworking studious one(s), don't you feel uncomfortable when interactivity in the narrative forces us to change from, say, observer to participant? You do, don't you … admit it?!) OK, that's enough of my feeble interpretations – Janet had much, much more to say and did so with her usual aplomb – discriminating between *agency* and *interactivity* seems particularly important. But go and look at her ppt slides for yourselves.

Joemon Jose from the University of Glasgow's GIST Group reported on *Newsboy: an interactive news retrieval system*. The basic idea is that users may not be interested in all news stories, may only want summaries or selected topics, or may want only the latest news. Anyone who has surfed through the 24-hour news channels at 55 minutes past the hour will know the frustrations Jose was trying to address. When it's not adverts or weather, it's a special-interest programme. Half the time I end up switching to teletext!

Employing information retrieval techniques along with personalisation strategies, he lets the user's actions and preferences dictate the news stories offered. There are some interesting challenges with granularity, shot segmentation and indexing, but I can think of a number of relatives who would love the finished result.

Chris Roast from Sheffield Hallam described recent adventures in knowledge transfer, dealing with the constraints of authoring Interactive DVD. I hadn't realised just how dumb the DVD player is – certainly more so than even CDi all those years ago. Pointing out the shift from passive to active viewing Chris reminded us that iTV producers are creating interactive, narrative experiences (and not for nothing do they call them *authoring* tools). Working with the Zoo Digital Group in Sheffield, he had helped them develop authoring tools for their DVD-Extra technology, which adds layers of interactivity to even the lowest-spec players. The challenge is to understand the work of DVD and multimedia developers – which sometimes includes low-level programmer-like activities, but at other times is focused on the end-user's experience. Combining *contextual analysis* with a lightweight *cognitive dimensions* approach helped the Zoo supply a toolkit that met the users' needs and would 'motivate novel design alternatives' – an important aspiration in those who develop interactive TV programmes, whether on DVD on broadcast.

I noticed that this stuff has recently been very favourably reviewed in the trade press [3], so clearly Chris has a chance of one of the 'knowledge transfer partnership of the year' awards.

Organiser Ian Smith presented his own session on Remediation, Patterns & Interactive Narrative. Starting with the middle of the three, Ian summarised the relevance and usefulness of patterns – well known to half of those present but still a novel concept to the others. Remediation was less familiar – roughly speaking, how media forms re-use aspects of themselves, and how everything has a heritage (I suppose the Greeks had a word for it!). Whether it was the polygon-based construction of Lara Croft dating back to Plato's Timaeus, or Fritz Lang's debt to Franz Hal, what goes around seems to come around. Finally there's a good introduction to forms and aspects of narrative in Ian's slides. He concluded by urging us to seek inspiration from design solutions in other media – go forth and remediate – and see that the value of patterns is not in keeping them in catalogues, but in spotting when they occur.

We rounded off the day with an excellent presentation from one of the foremost researchers in iTV. Lyn Pemberton, from the University of Brighton, asked us whether HCI research and interactive television had the potential to be a beautiful friendship. It had been a long day filled with many sources of information, but I'm sure I detected a flicker of mis-response in male delegates when Lyn introduced us to Jordan's Four Pleasures model. No, boys, it's not what you think.

Lyn criticised the lack of iTV coverage – only one paper in the last four years between the CHI, HCI & UIST conferences. Why was this – partly because it's not (yet) an issue in North America. Echoing Chris's earlier presentation, there was a perceived vulgarity in iTV – reality shows, large rating, simple profits. But also the UCD approach of our community is fundamentally alien to the world of the 'Creatives' – something we come across in the field of Marketing as well. Lyn's solution is to create the climate for dialogue between disciplines, while still doing the usability/accessibility work and simply presenting the results more effectively. As with most fields, we need to infiltrate – get an Eastenders character to press a red button (shades of last year's UsabilityNews discussion about the web arriving on Radio 4's The Archers). Going beyond usability, we could embrace, on behalf of iTV producers, approaches from media studies and sociology: cultural probes, household studies, media diaries, applied ethnographies – things that HCI does for other domains. What it boils down to is Jordan's pleasures which she then unveiled for us: Physio-pleasure, Psycho-pleasure, Socio-pleasure, Ideo-pleasure. There are lots of examples in her slides, so I shall say no more.

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[1] http://i-media.soc.napier.ac.uk/uitv2004/programme.html
[2] http://www.computing.dundee.ac.uk/projects/UTOPIA/
[3] http://www.filmandvideomagazine.com/articles/viewarticle.jsp?id=25097



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Call For Participation

Games and Social Networks
A one-day workshop on multiplayer games
at HCI 2004, The 18th British HCI Group Annual Conference
Leeds Metropolitan University, UK • 6–10 September 2004
http://www.dcs.gla.ac.uk/~barry/gamesworkshop/

This workshop will bring together researchers and professionals interested in the social potential of online multiplayer computer games.

*Participation*
Interested parties should submit a position paper of 3–4 pages to johnhall@sussex.ac.uk and barry@dcs.gla.ac.uk by **2 July 2004**.

# Book Reviews

**Edited by Sandra Cairncross**

Another set of interesting books to whet your appetite and to help in starting to plan your summer reading.

Firstly we have our first review by a student (Jackie Brodie) of a key HCI text book – *Usability Engineering* by Xristine Faulkner (familiar to many as the previous Book Review Editor of *Interfaces*, amongst other things). A special thanks to Nadia Pervez, Chair of Student Representatives for organising this. Hopefully this will be the first of many reviews by students of books they use and are asked to use.

Next, a series of three reviews of texts that offer slightly different perspectives on HCI

- Brent McGregor, Vice Principal of Edinburgh College of Art, and familiar to some as one of the keynotes at the Educators workshop last year, reviews *Windows and Mirrors*, in which examples of digital art are explored in order to bring out their relevance to technologists, including HCI practitioners.
- Lissie Davenport shares her thoughts on *Tracing Genres Through Organisations: A Sociocultural Approach to Information Design*, which explores how improvisation and creativity can improve the design of information systems.
- This is followed by Meg Soosay's review of *Twisty Little Passages: An Approach to Interactive Fictions*, which takes a multidisciplinary look into electronic writing.

And finally, four editions after starting as Book Review Editor (come back Xristine …) I get to review a book: *Learning Technology in Transition*, produced to mark the 10th anniversary of the Association of Learning Technology (ALT), an organisation with which those of you interested in educational technology will be familiar.

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*Usability Engineering*
Xristine Faulkner
MacMillan Press Ltd, 2000
0333773217, £19.99

I remember beginning my PhD and thinking that it would be helpful to read a book that offered a concise overview of the most important usability issues in HCI at that time. I decided that a good direction to start in would be to look at some of the books my supervisor used to help teach his interactive design module to undergraduates. On this reading list, hiding under the traditionally found classics of HCI, I found Xristine Faulkner's *Usability Engineering* book.

On starting to read this small but perfectly formed book (only 256 pages), I was immediately struck by how accessible Faulkner's writing style is for those not yet immersed in the language of HCI. Don't get me wrong, her book addresses some difficult ideas about usability engineering, yet she has tried to make them as clear and as interesting as she could to anyone who happens to pick up the book.

I loved the idea of the spanner in the works sections. At certain points when you are reading the book, thinking a method or viewpoint is a perfectly valid way to conduct usability engineering research, she suddenly has a quote from someone famous in HCI reminding us all that usability engineering is never as easy as it looks!

Opposing views to the current general consensus on usability issues do exist and need to be seriously considered when choosing a methodology for investigating usability requirements. For example, Ben Shneiderman's criticisms of involving the users in system design are noted. To get a proper feel for the book, then, let us ask, and answer, some important questions about it:

*Who is the book for?*

The book is for those who don't know too much about HCI. Perhaps first- or second-year undergraduates. Or those new to the discipline, coming from areas such as sociology or psychology. Personally I think it's a good read for anyone interested in HCI no matter what their background is.

*What is the book about?*

The important issues in usability engineering at the time of writing (the book was published in 2000). Using a mixture of quotes, personal anecdotes, and spanners in the works, Faulkner seeks to give a brief overview of some of the key concepts in usability in a fun and accessible way.

*What is the best thing about the book?*

It's short, well written, and you can dip in and out – which I frequently do. I love the pictures too since they bring the ideas expressed in the book to life. My favourite picture in the book is a close-up of the HCI '98 pen design!

*Any drawbacks to the book?*

Like all books of this kind you have to go back to the other thicker and meatier text books if you want to have a more in-depth view of the methods discussed, such as ethnography. But Faulkner offers relevant references so you always know where to go if a method strikes you as being worthy of follow-up exploration.

*Any more important information?*

Yes. The book costs £19.99. You can see sample chapters on the web at www.palgrave.com/science/computing/faulkner/ so you can read two chapters and see the table of contents before you even buy the book from the Palgrave website!

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*Windows and Mirrors: Interaction Design, Digital Art, and the Myth of Transparency*
Jay David Bolter and Diane Gromala
A Leonardo Book, MIT Press, 2003
0-262-025450, £19.95

Published by MIT Press, centring itself on digital art work at SIGGRAPH 2000, this book comes with serious credentials. The acknowledgements include Richard Dawkins, Deleuze, Donna Haraway, Heidegger, the Frankfurt School, Lacan and Baudrillard. All this before we get to page one.

The bibliography is similarly heavy duty, including such diverse visual culture and digital theory heavyweights as Alberti, John Perry Barlow, John Berger, William Gibson, E. H. Gombrich, Brenda Laurel, Ted Nelson, Jakob Nielsen, Donald Norman, Howard Rheingold, Sherry Turkle and Raymond Williams. On first superficial inquiry one asks: How will they fit it all into 188 uncrowded and well-designed pages?

What we get, rather than the heavy theoretical tome which the acknowledgements and bibliography might suggest, is a study which is 'about the craft of and the material engagement with digital art and design' (p. x–xi) with a disclaimer from the authors that 'we believe theoretic literature often

strays too far from practice to be useful for our purposes' (p. xi).

So the theoretical heavyweights are acknowledged (to keep Academic Press peer reviewers happy?) but then the authors move on to ground the book in actual work to illustrate an argument rather than simply reflecting on the digital age and its infinite theoretical possibilities.

One of the problems with the book is that the theory may have a long shelf life, but works from SIGGRAPH 2000 were almost out of date from the minute they were selected for exhibition. This is through no fault of the artists/designers/developers in question or the selectors/curators, but simply a reflection of the way in which the speed of innovation in digital media production makes it virtually impossible to keep up with developments.

The creative products of the digital age are evolving so quickly that any critical analysis based on these works becomes very nearly impossible as said reflective work is potentially out of date before it is published. It takes until 2003 to write and publish a serious book about SIGGRAPH Art Show 2000 by which time the work selected for the 2004 Show is already old hat to some.

This constant change can lead almost inevitably to the kind of free floating theorising, without any reference to actual products, that the authors have rightly tried to avoid. As early as the second page they make it clear that the book 'is written for digital designers and technologists in general', describing 'what digital art has to offer to its vast community' (p. 2). The following pages interweave the classic history of computing and the WWW with reflection on the selected SIGGRAPH 2000 works by way of illustration of their central thesis.

The authors posit a distinction between those people who believe the internet and digital technologies are for the sake of transmitting information and therefore should be as efficient at doing this as possible and those, on the other hand, who think that the new medium is one that can be used to display creative skills. They talk about the opposition between structuralists (a usage borrowed from David Siegel) and designers.

This dichotomy is useful for purpose of discussion but, as the authors admit in a later chapter, is breaking down as stereotypical code writing, colour blind, design free, information junkies begin to see that they might be able to learn something from the creative art and design communities who are themselves now doing more than using Flash to make things flash for the sheer joy of it.

Ignoring for the time being that the word Structuralist means something very different to academics in linguistics and literary theory going back to the days of the mainframe, the argument works to lead the reader into less oppositional reflections which help to move the debate onwards. It may be impossible to really get up to date, thorough and definitive in these matters but nevertheless it is better to make some comment rather than declare that it is too early to say.

We should welcome the attempt to relate to new work, particularly in the early chapters. The overview of digital media in Chapter 9 is a bit of a high speed run through. There is a sentence each for Glorianna Davenport and Lev Manovich while the whole field of literary hypertext, including the work of Michael Joyce and Shelley Jackson, has to make do with one sentence (p.155).

The digital age may have moved on from producing drawings in the sand and it may have started to produce its cave paintings but it is certainly a long way from finding its Picasso or its Rothko. We don't yet know who will do for digital media what Eisenstein and Griffith did for film art; the equivalents of Welles, Kurosawa or Hitchcock are almost certainly not yet born.

Whether this book will turn out to be an historic record of seminal work or a fascinating footnote of the future, it's too early to say. In the meantime see it as a fascinating snapshot of the state of play at the millennium (remember that).

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*Tracing Genres Through Organizations: A Sociocultural Approach to Information Design*
Clay Spinuzzi
MIT Press, 2003
0-262-19491-0, £22.95
2003

Clay Spinuzzi's objective is ambitious: to shift the balance of power in HCI from designer to user, and undo the rhetoric of the 'user as victim' that has distorted our understanding of participative design. His first chapter reviews a number of popular texts on 'user-centred' and 'contextual' design, and shows that these are biased in subtle, but different ways.

Spinuzzi quotes Cooper & Bowers to expose the role of 'compassionate discourse' in HCI: 'it is not so much that users are angry, frightened, and different from designers, it is more that, for this way of legitimizing HCI, they have to be' (Cooper & Bowers, 1995, p. 51). In most cases, Spinuzzi contends, users are not 'waiting around to be rescued'; instead, they subvert information systems, inventing their own ways to turn them to their needs, and there are 'many thoughtful studies of the unofficial unpredictable ways in which workers assert their own agency' (p.3).

The 'victimhood trope' (p. 5) is part of a 'totalizing' rhetoric that pitches user-centred design against the 'straw person' (sic, p. 6) of system-centred design. This dichotomy masks the centralizing tendency of many user-centred design approaches that do not in fact support the subversion by users of official design but counteract it. Such 'fieldwork-to-formalization' approaches (p. 11) often bypass *ad hoc* local practice to provide models that are suitable for generalizing, standardizing, regularizing, idealizing, and managing work, and there are many examples of this in accounts of contextual inquiry; ethnographic work and Joint Application Design (JAD)

Though these approaches aim to make the everyday practices of work visible, the motives of those involved may differ. Spinuzzi cites Engestrom's observation that, at most, workers enjoy functional empowerment with these methods, rather than democratic empowerment. This is often due to a failure to take work-arounds seriously as sources of innovation and development in the workplace.

In JAD, for example, facilitators are not encouraged to examine workarounds and they are not trained in fieldwork. Those who undertake 'light' ethnography often interpret activity with the assumption that there is an underlying work structure and that workers' adjustments are symptoms of problems with that structure. Beyer and Holtzblatt, for example, reflecting on the place of users, state

that 'It's their job to do their job, not to design systems' (1998, p. 371).

'Beating the formalism' is a continuous and recursive process for workers, according to Star, but it is something that we need to understand to design developmental systems that workers can modify. Drawing on Bakhtin's distinction between centripetal and centrifugal tendencies in discourse, Spinuzzi proposes that we investigate the 'ways in which workers rescue themselves' (p. 23) with a fresh approach ('genre tracing') that provides a way to 'highlight users' experiences with official and unofficial genres and to compare them across communities and workplaces' (p. 22).

Activity Theory (AT) allows researchers to examine in an integrated way three levels of analysis (activity, actions and operations) and discern how they interact … and 'how innovations at any given level affect the other levels' (p. 27). Spinuzzi explores variants of the tripartite approach throughout the text and devotes much of Chapter 2 to a discussion of the terminology that is used in AT analysis. Genre tracing combines AT with techniques for genre analysis and offers a historical dimension that is missing in traditional task/artefact analysis, as the genre provides a 'sociocultural understanding of the artefact' that offers an 'integrated-scope' unit of analysis and a set of heuristics for integrating research scope. (p. 29).

Artefacts (and genres) in Activity Theory are crystallizations of historically developed activity; they embody social rules that allow the subject to appropriate the tool's operations by developing his or her own activities/genres as 'culturally and historically grounded ways of seeing and conceptualizing reality' (p 41).

Genres thus carry traditions of producing, using, and interpreting artefacts, and work in a dialogic fashion: each user/speaker is a respondent as a genre 'represents others' "thinking out" of problems whose dialogue has been preserved in the genre' (p. 43). As a result, 'genre memory' and 'genre addressivity' (as speakers use genres to address specific social actions) are important analytic concepts that can help us understand how workers cope when faced with contradictions that arise when activity systems throw up contradictions. A breakdown in practice at the level of the mouse click, for example, may be a manifestation of a discoordination across functions that, in turn, has emerged because of contradictions in work practice produced by a system upgrade.

Spinuzzi takes the reader through a detailed working demonstration of genre tracing. This takes the form of an extensive longitudinal case study of IS development in the Iowa Department of Transportation. Chapter 3 is an historical account of the mutations of the ALAS (Accident Location and Analysis System) from pre-automation to mainframe, to PC-based to GIS-based.

Spinuzzi describes the process by which existing genres are 'drawn into' subsequent genres (p. 66), and shows how contradictions in activity give rise to unofficial localized innovations. He suggests that the art of genre management depends on the ability to coordinate interrelated genres in an 'ecology' so that they co-mediate activity; breakdowns and mistakes occur when a worker finds that the present interpretation of an artefact is inadequate for the task at hand (p. 70).

Pages 79 –111 provide a compelling reconstruction of genre adaptation as systems are adjusted and replaced: 'Over the span of four decades, an ecology of genres has grown around the activity of accident location and analysis in the state of Iowa. This genre ecology serves to mediate the transformation of accident data into analyses, analyses that are then used in mediating other activities. Within the ecology, genres serve to mediate the use of other genres: mainframe ALAS request forms, and later PC-ALAS dialogue boxes mediated between the node maps that workers used and the printed reports they wanted to produce. The genre ecology constantly develops as workers adapt still other genres to mediate those that already occupy it'. (p. 110)

Chapter 4 and 5 develop the theme further, and Spinuzzi suggests that ecological niches are opened up by changes in activity and that workers innovate to fill those niches with hybrid and new genres. Hybrid genres may be a site of breakdowns and discoordinations, a topic explored in detail in Chapter 5 in an account of two 'GIS-ALAS' genre hybrids. Problems arose because the new system only captured 'official' genres and 'left behind the unofficial centrifugal genres and practices that held the activity together' (p. 197).

Spinuzzi concludes the book by suggesting that genre tracing techniques can not only support investigation of existing practice, but can also inform design in ways that take account of worker ingenuity.

I would recommend this as a 'demonstrator' text to graduate students and teachers interested in sociotechnical methods. Spinuzzi's methodology and method are plausible, and well grounded in relevant domain work. His work is consistent with the philosophy of AT as described by experienced practitioners such as Kuutti: 'The idea is that humans can control their own behaviour 'from the outside' using and creating artefacts' (Kuutti, 1991, p. 531).

The book, however, reads at times like a minimally edited doctoral thesis, as there are details on sampling, the design of fieldwork and inter-coder reliability testing that dilute the power of the mainstream narrative. Spinuzzi makes good use of scenarios and vignettes that involve a consistent set of actors throughout the text and his many tables effectively model the links and relationships between the different elements of activity diagrams. (His representation of these is unorthodox though it does capture the required information). He uses specialist terminology appropriately, though at times assumes an understanding of AT on the part of readers that goes beyond novice level. His reviews of diverse source materials are succinct and effective, and the bibliography is comprehensive.

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*Twisty Little Passages: An Approach to Interactive Fictions*
Nick Montfort
The MIT Press, 2004
0-262-134365, £19.95

Amidst a flurry of publicity on behalf of multimedia, the written word sparks images and evokes metaphors that get much of their meaning from the reader's imagination and experience. Recently I was asked to review a new book called *Twisty Little Passages: An Approach to Interactive Fiction*.

My first attempt to review the book was an intriguing one. I was expecting a book filled with literary jargon but found it refreshingly clear to read! It is also the first book I've read that takes a well-researched multidisciplinary look into electronic writing; it is clearly written, informative and convincing making it suitable not only for the IF discourse community but also for general audiences.

It was surely a trip down memory lane of playing textual adventure computer games in the 1980s where the ultimate reward was not just solving riddles (i.e. find the key/code/magic spell to unlock a door) and winning, but the whole entertaining, interactive experience.

The book offers in-depth exploration of the relationship between story and games where you play the protagonist who can influence the progression of the plot and its ending. Most have the analogy of riddles that need to be solved to build the narrative. The title *Twisty Little Passages* is inspired from such a popular analogy that IF is based on. Judging from the noteworthy references, the book puts forward original insight about IF's literary and theoretical context. The author, Nick Montfort knows how to write – presenting discourse surrounding electronic literature relatively jargon-free is a challenge in itself!

He presents a brief history of the riddle, and makes vital comparison with IF. He then looks at important predecessors to IF and progresses into a study of different IF game genres such as Adventure, Dungeons and Dragons, Infocom and the most influential one, Zork, ranging from the mainframe era to the advent of personal computers, which introduced more commercial IF works, and to online IF communities in the 1990s.

The book concludes with a discussion of the influence that IF has had on other forms of literary and gaming production, digital or otherwise, and some possibilities for the future of IF. Montfort presents IF with a scientific, technological and sociological slant of computer science and cites social commentators, playwrights and the makers of video games as among those most influenced by IF since their efforts often take the shape of virtual worlds. It leaves us to contemplate the mark this new media genre has made in our culture.

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*Learning Technology in Transition*
Jane Seale (Editor)
Swets & Zeitlinger, 2003
90-265-1963, 75 Euros (£52)

As someone who became involved in HCI through an interest in educational technology in general and multimedia in particular, I welcomed (and indeed actively sought) the opportunity to review this collection of papers, put together to commemorate the 10th anniversary of the Association for Learning Technology (ALT). Essentially the book reviews a decade of learning technology, the changing face of that technology, and the changing impacts these have made, and are making, on tertiary education.

It has certainly been an eventful decade, witnessing the growth of the internet. It is hard to believe now, but when we first set up our multimedia Masters course at Napier in 1993 we didn't teach or use the WWW; mainly because it wasn't readily available – something which soon changed and became a key part of the curriculum and a tool to deliver that and other curricula.

In charting these changes, as Jane Seale, the editor, points out, four key themes are highlighted throughout the book:

- The individual enthusiast and their role in institutional implementation
- The institutional enthusiast and their role in local and global e-learning initiatives
- Finding the evidence to justify enthusiasm and underpin implementation
- Reinventing the individual enthusiast

Many of the concerns presented here are similar to general concerns facing HCI researchers, educators, and practitioners. I was pleased to note that the importance of context was stressed time and time again and that there was growing recognition that focus has to shift from the technology to the learner. Indeed the tension between technology and pedagogy was explored in a number of papers. For example, Grainne Conole, in a 'plea' to senior managers, warns against '… buying a Virtual Learning Environment to support learning activities and then decreeing that all courses must use the system without considering whether or not this might be pedagogically appropriate', which is essentially advocating a user-centred approach to design and recognising that we must consider the context in which the technology will be used.

Papers are wide ranging. For example, to name but a few:

*Tom Boyle and John Cook* examine issues associated with the reuse of learning object from a pedagogical perspective, which will no doubt be of interest to many readers of this magazine.

*Grainne Conole*, in a paper which would be useful to students and others starting to carry out research in this area, explores some of the key questions and methodological issues.

*Martin Oliver's* paper ends the book by critically asking 'what we have learnt from the past, are we questioning the present and have we considered our role in this?' and arguing that learning technologists need to consider their 'role reflexively, not simply reflectively – we must analyse our own motives and practices as well as those we work with and work for'. A thought provoking paper in which the 'we's above refer to learning technologists but could equally apply to HCI-ers.

All in all, a worthwhile book that is of interest not just to those engaged in the design of learning applications but also to those using such applications to support teaching and learning. I will certainly be referring to it from time to time as I explore how best to use new learning technologies.

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# *British HCI Group – Application Form 2003–2004* *Please print or type*

www.bcs-hci.org.uk

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Please send mailings to: my work address ☐; my home address ☐.

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Do you wish your contact details and professional interests to be listed in the Membership Directory sent to all members of the group? (We will NOT use your home address, unless that is all you have given us.) Yes ☐ No ☐

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*Interfaces* is published quarterly by the British HCI Group. 