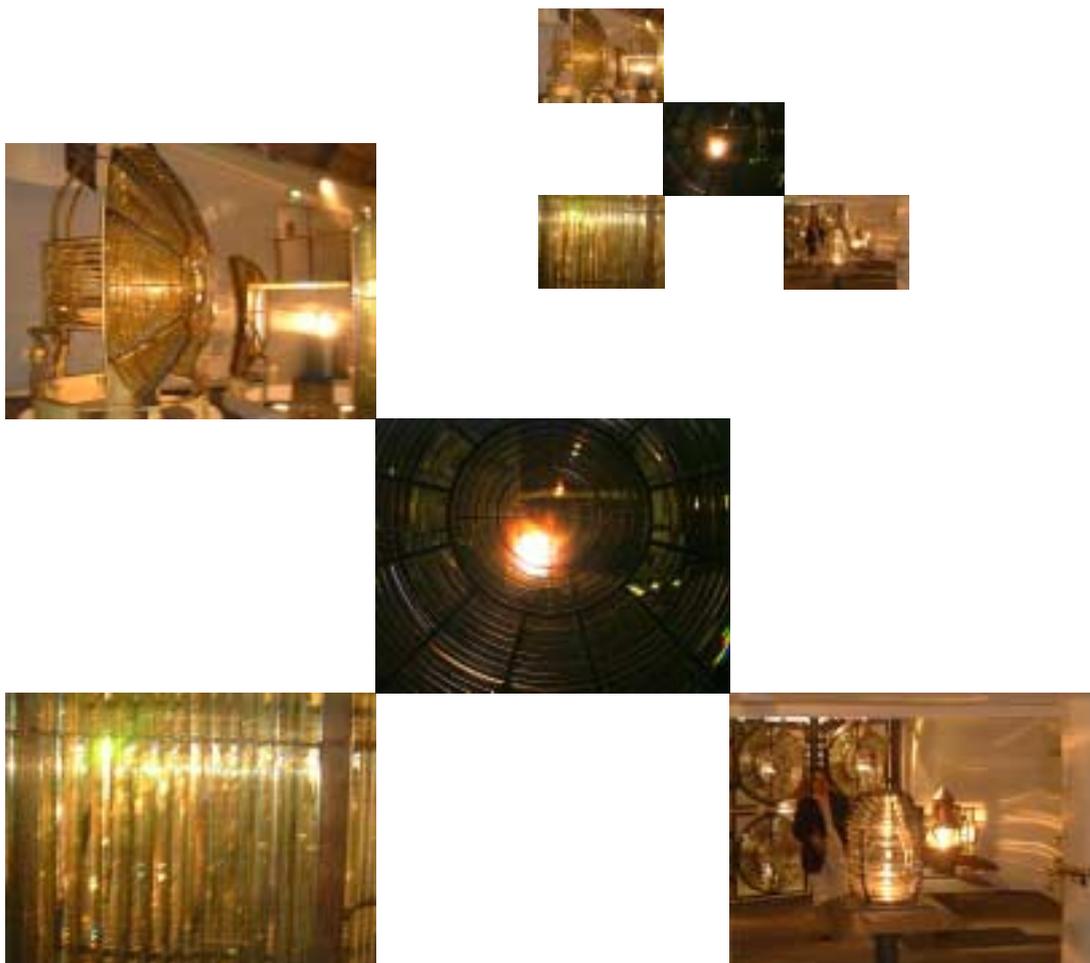


Interfaces

No. 45 Winter 2000

*meet conjoin interact confer connect many
disparate various diverse multiple facets
reflections views aspects perspectives*





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Views from the Chair

December approaches and it is time to start thinking about fun. No, I am not referring to the annual binge of eating, drinking and TV we know as Christmas but a slightly less venerable tradition, the Computers and Fun one-day meeting in York. Computers and Fun 3 (well OK hardly venerable at all) will be held on December 13. The talks embrace such topics as smart toys, humour in electronic commerce, measuring fun, and fun as it is understood in the entertainment industry. My favourite abstract was from Norman Alm and Dave O'Mara from Dundee. They will be describing some fun interventions that can be supported by computers (games and story telling) aimed at people with dementia. See <http://www-users.york.ac.uk/~am1/candf3.html> for more about this meeting.

The abstracts for all the talks in this meeting will be published in the next issue of *Interfaces*. I have it on good authority that the trains will be relatively normal by then, though you can always use them as an excuse to stay the night in York. Have fun.

Andrew Monk



Editorial

By the time you read this, the USA may not have a new President – that won't happen until the traditional snowy oath of allegiance in 2001 – but it will have decided whether or not the “actions” of voters, whose “goal” was to vote for a particular candidate, had any “effect”.

The only consistency about the system seems to be that the “butterfly” ballot paper “must have been designed by a computer person”. Andrew Monk has the opening few pages of this issue in a timely reminder of the very real gulfs of execution that lap around not just the shore of Florida.

The remainder of this issue represents a number of views from a number of different perspectives. Herein you may find conference descriptions – as seen by students, volunteer organisers and delegates – as well as the view of a manufacturer and of a veteran HCI guru.

I hope these multiple reflections inspire many of you to get those papers written (by 26th Jan 2001) for the 2001 conference of the British HCI Group – IHM-HCI2001 “Interaction without frontiers”. This joint venture with the AFIHM, to be held in Lille, affords an opportunity to think a little further beyond normal linguistic boundaries. Lille, hub of the European high speed train network and within

minutes of five countries, has a good claim to be the interface to Europe. After the triumph of Sunderland, now is the chance to demonstrate just how global British HCI ideas are.

I had an unplanned trip to the Fraserburgh Lighthouse Museum recently, and I was surprised by what I saw. After several years of creating computer-based multimedia for such visitor centres, I was impressed by the effectiveness and audio-visual quality of nine synchronised slide projectors and a taped voiceover. This described how engineers took oil lamps, and then a 150W bulb, and created light so focused that it could be seen 20 miles away. Far from throwing power and money at interface problems, perhaps we can achieve the same with ingenuity married to user focus.

The Florida ballot paper may have been ingenious, but the pregnant chads attest to some (literally) disenfranchised users.

Tom McEwan
Editor

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.

NEXT ISSUE

Interfaces welcomes submissions on any HCI-related topic, including articles, opinion pieces, book reviews and conference reports. The next deadline is **15 January** – we look forward to hearing from you.

To receive your own copy of *Interfaces*, join the British HCI Group by filling in the form on page 19 and sending it to the address given.

Cover photos from Fraserburgh Lighthouse Museum by Tom McEwan

Deadline for issue 46 is **15 January 2001**. Deadline for issue 47 is **15 April 2001**. Electronic versions are preferred: RTF, plain text or MS Word (5/6), 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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Noddy's Guide to Consistency

Andrew Monk

Most people would feel that consistency in a web site or user interface is a GOOD THING, but are not terribly sure what consistency is. This article describes some basic kinds of consistency and why they are important in interface design.

Consistency not uniformity

Imagine a window where the menu tabs were labelled 'Menu1', 'Menu2', 'Menu3'. Each led to the same number of items each of which was labelled 'Item1', 'Item2', 'Item 3' and so on. This is an interface designed on the military principle 'if it doesn't move paint it white'. Everything looks uniformly the same.

The point is that uniformity does not necessarily lead to usability as it makes things difficult to discriminate. An example of uniformity that recently irritated me was a standard front page for internal reports. The information that distinguished the reports from one another, title, authors, date, etc., was in 8 point text and hidden in a mass of logos and titles that appeared on all the reports. Put together, the collection of reports looked very neat and uniform but finding the one you wanted was a nightmare. The same principle applies to user interfaces. If all the icons are identical, except for the labels under them, why have icons at all?

So if consistency is not uniformity, what is it? Actually it is several things and to explain them I will need to develop a THEORY.

The bluffer's theory of human-computer interaction

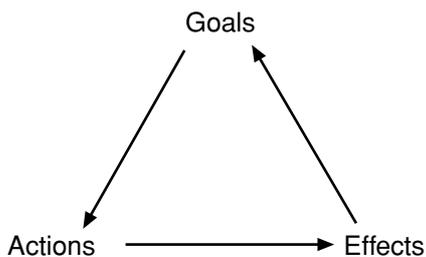


Figure 1. The Monk & Dix Triangle ([20])

Figure 1 is a caricature summarising several classic theories of what goes on when someone interacts with a computer (see [18] for a review of these models). The arrows indicate that it is cyclic. It works as follows.

The user has *goals*. Perhaps you are using some untrustworthy software (several examples come to mind) and you are getting nervous about the machine crashing. You decide it would be a good idea to save the work you have done so far. We can describe this state of mind as having the goal 'save your work'.

The goal 'save your work' leads you to take some *action*. As this is a graphical user interface you

scan the screen for something that might do this. Your eye lights on the 'File' menu tab. You click on it. We can describe that as taking the action 'click on menu tab File'.

Clicking on the menu tab makes the display change, the menu drops down. This can be described as an 'effect'.

The visible effects of your action lead you to change your *goals*. Let us say that the goal 'save your work' had led you to generate the sub-goal 'reveal save command'. The effect 'file menu drops down' could lead you to replace this sub-goal with another sub-goal 'select save command'.

The new goal set and new display state lead to a new *action* and the cycle continues.

OK, I suspect that many readers will be glazing over at this point. What is the point of all this? Well it leads to the two most important definitions of consistency: action-effect consistency, that is consistency in the effects of actions; and task-action consistency, that is consistency in the way actions relate to task goals.

Action-effect consistency

Consistency is mainly about ease of learning. The hope is that if a user interface or web page is consistent, then one will get what psychologists call 'transfer of training'. That is to say, learning to do one thing in one context will make it easier to learn how to do similar things in similar contexts. This will of course be easier if the same action always leads to the same effect.



Figure 2. Action-effect consistency says that the same action will have the same effect irrespective of the context. What will happen if someone double clicks on the word 'york' in the URL ('Address:') and in my email address? My browser is action-effect consistent: the rules for what gets to be selected seem to be the same. Is yours?

Action-effect consistency, then, is the principle that if the user takes some action it should have the same effect whatever the context. Let us say you are working on a web page that contains a form as in Figure 2. Double clicking on a word should have the same effect whether one is editing a field in the form or editing the URL. Try it on your own browser. Is your browser action-effect consistent?

Action-effect consistency has been the main contribution of the 'style guide'. This rather misleading term is taken to

mean a set of guidelines describing how a graphical user interface should work. For example, they lay down what a dialogue box should look like, how it should behave when the user interacts with it, and when it should be used rather than some other device such as a menu.

Apple produced the first style guide in 1987 [1, 2]. Style guides encapsulate a great deal of empirical and analytic work carried out by HCI researchers to find out what actually is the best way of doing things. There are now style guides for all the commonly used graphical user interfaces, e.g. [14]. A user interface designer will not generally have to consult a style guide because style guides are enforced by software tools. Thus a software developer using a programming tool such as Visual Basic will find it much easier to obey the style guide than to ignore it and develop idiosyncratic action-effect inconsistent interfaces.

So, action-effect consistency is enforced by style guides. Because of the Windows style guide, a user only needs to learn the effects of actions on a Windows component once. If you know how a dialogue box behaves in Excel then you also know how it behaves in Word. This was not always the case.

Another way of expressing this principle is to say that interfaces should be 'mode free'. Unnecessary modes (e.g., Excel-mode versus Word-mode) should be avoided, but sometimes they are inevitable. In particular, small devices like mobile phones have only a few buttons, which are the only channel of communication from the user to the device. The enormous number of commands the user could issue to the phone have to be funnelled through this narrow channel. Inevitably the action of pressing a particular button will have different meanings depending on the mode the phone is in. For example, in normal mode, pressing a number key has the effect of putting a number on the phone's display. In letter-entry mode pressing a key adds a letter.

Modedness (action-effect inconsistency) is less of a problem if the user is aware what mode they are in. The above example of modedness is workable because the mode is clearly signalled by the prompt in the display. Hidden modes should always be avoided. Actually there are two letter-entry modes on my mobile phone (see Figure 3). If you press '*' you can toggle between upper and lower case letters. Unlike the



Figure 3. Hidden modes and the Ericsson PF768. Will the next letter be upper case or lower case? This mode is signalled by the last letter so we know that pressing the key for G will result in 'G' not 'g'. Only when there is no last letter is this a hidden mode.

shift lock on a keyboard this changes the case of the last letter entered. This is rather clever.

The shift lock on a keyboard is effectively a hidden mode. When you are looking at the screen, there is no way of telling what case the next letter will appear in. This regularly catches me out and I often type half a line before I realise it is all in capital letters. With the mobile phone, the mode is signalled by the case of the last letter on the display. The only times that the mode is not signalled in the display is when you have not yet entered any letters, or the last character was not a letter. This was the only case of a hidden mode I have detected in my phone. It would appear that the people who devised the interface for Ericsson phones gave some thought to minimising the impact of action-effect inconsistency.

Task-action consistency

I use the terms 'task' and 'goal' interchangeably here. 'Task-action consistency' is preferable to 'goal-action consistency' as it links to work on Task Action Grammars [23, 25]. 'Goal' is preferable in the Monk & Dix triangle (Figure 1) because it links to Card, Moran and Newell's model human processor [4].

Task-action consistency is intended to result in transfer of training when learning the set of actions needed to achieve similar goals. The idea is that similar goals should require similar sets of actions to achieve them. The original work in this area took the example of a drawing package that allowed one to draw circles, squares, and so on, as well as to enter text. The set of actions required to enter text were quite different from those needed to use the other drawing commands. To draw a circle one selected the relevant tool and then drew the object. In contrast, there was no text tool, one simply clicked and typed.

From the point of view of the designers this is eminently reasonable as, in terms of the software architecture, these are very different tasks. The problem was that the users saw these tasks as very similar. The users found it confusing to have to learn one set of rules for drawing objects and another to enter text. They would have found it easier to learn a single rule: 'select the tool for the thing you want to insert and then insert it'.

```
rm [-f] [-i] file ...
ls [-RadLCxmlnogrtucpFbqisflAM] [names]
mv [-if] file1 [file2 ...] target
cp [-fip] source target
cat [-u] [-s] [-v [-t] [-e]] file . . .
lp [-c] [-ddest] [-nnumber] [-s] file...
```

Figure 4. Unix commands with their syntax, an example of task-action consistency?

As another example of task-action consistency take the UNIX command set (see Figure 4). These have a consistent syntax for the arguments they take; also key command names may be generated by deleting vowels. So the task 'move' (a file) is achieved by the command 'mv', copy is achieved by 'cp', list by 'ls' and so on. This soon breaks down (cat, lp?)



but was an admirable attempt at task–action consistency all the same.

Task–action consistency turns out to be more difficult to pin down than action–effect consistency. It is apparent in the examples given above that task–action consistency, like beauty, is in the eye of the beholder [8, 26]. Different people will see different tasks as similar and dissimilar. For this reason, style guides encourage task–action consistency by suggesting multiple task–action methods. Some people will see entering text in a drawing package as similar to entering text in a word processor, so give them a method that is similar. Some people will see it as similar to drawing a circle: give them an additional tool that works that way. This accounts for the fact that there are many ways of achieving a given task in a large application like Microsoft Word, and that most people only ever use one of them.

Other sorts of consistency

So far we have two rules for consistency: (i) the same actions should lead to the same effects, and (ii) similar tasks should require similar sets of actions. The former action–effect consistency rule has to be tempered by the knowledge that sometimes it will have to be broken and if this is the case one should avoid hidden modes. The latter task–action consistency rule is tempered by the knowledge that different people will see different tasks as similar and so there may need to be several ways of doing things. What other forms of consistency may lead to usability?

What about the third side of the Monk & Dix triangle? This would imply a need for consistency in the way effects on the display lead to changes in goals of the user. A designer can change the actions needed to achieve a goal or the effects of an action but has little control over what goes on in the head of a user. It is difficult to see what form these consistency rules might take.

Consistency of syntax can be seen as an example of task–action consistency at a very high level of generality. So, there is a general ‘noun-verb rule’ stated in the style guides for most graphical user interfaces. This simply says that one should select an object before the action to be taken on it. This is task–action consistency at the level of all tasks.

Reversibility is another of these general principles expounded in all style guides. Being able to reverse the effect of any action encourages learning by exploration. Thus style guides prescribe a variety of devices for undoing the unwanted effects of actions taken by a user: e.g., the ‘back’ button in a web browser, the ‘cancel’ button in a dialogue box, or the ‘undo’ function in a word processor.

Consistency *with* principles like reversibility is obviously a good thing but it is not really the same thing as consistency *in* the way a user interface works, which is what this article is about. Consistency with style guides and international standards like ISO 9241 is also a good thing but not what this article is about.

Future research: consistency across heterogeneous user interfaces to the same data

I can access my bank account through an ATM, a call centre or a web browser. Soon I will probably be able to program my video recorder through my mobile phone or with a wireless keyboard and the TV screen. In each case the same data and functionality is accessed through a range of very different devices. The goals may remain the same but the actions and effects are very different. One could design for action–effect and task–action consistency within each of the separate interfaces, but how does one reason about consistency across interfaces?

A possible solution is to abstract. Rather than describing actions at a concrete level (e.g., click on X, type Y) one can use a more abstract level that applies whether one is using a keyboard, mouse, a stylus or speech (e.g., select X, enter Y). A type of consistency across heterogeneous user interfaces can then be achieved by ensuring that the same goals lead to the same abstract actions with each interface. This is different from the definition of task–action consistency provided above, which is a requirement for simplicity in task–action mappings. This is a requirement for the same abstract task–action mappings across interfaces.

It may also be possible to abstract the effects (e.g., ‘file menu drops down’ → ‘menu displayed’). One could then check that the same abstract action led to the same abstract effect in all the interfaces. The problem with this is that different devices are capable of different effects. The small display on a mobile phone can display many fewer menu choices than a VDU screen. Menus implemented by speech will only work if they are limited to three or four items. Unless all devices are constrained to some lowest common denominator, the action–effect mappings will be necessarily different. It remains to be seen whether it will be possible to devise suitable abstractions to solve this problem and whether the kinds of consistency checking they allow will be enough to give effective transfer of training.

One problem that abstraction will not solve is how to provide a common product image. When I access my bank account I want it to appear familiar and to project the same brand image. I want the process of conducting transactions with it to be familiar too. Transactions need to have familiar landmarks marking the beginning and end. How you ensure consistency of this kind across speech, very small and large displays is even less clear.

Conclusions

There has been much thought given to consistency over the years. The new problem of consistency across heterogeneous devices guarantees there will be even more thought given in the future. What I hope this article demonstrates is how even quite complex topics such as consistency can be tackled by systematic analysis. More generally, there is theory in HCI,



but it is often hidden behind the recommendations that are passed on to engineers.

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I have attempted to write this as an accessible introduction to the topic of consistency. To obtain a deeper understanding of the topic the following reading is recommended.

Theories of human-computer interaction involving goals [3, 4, 15, 18, 19, 21], theories of how we learn goal-to-action mappings [10-13] and a simple way of checking an interface that draws on these theories[24].

Early attempts to describe actions-effects mappings were made in the context of user interface management systems (UIMS) and 'the separable user interface' [6, 7] where there was a concept of a 'dialogue model' to serve just such a purpose.

More or less formal ways of describing how different actions can lead to different effects so that one can reason about the usability of a computer system [5, 9, 16, 17, 22].

Style guides [1, 2, 14].

ISO 9241, 'Ergonomics requirements for office work with visual display terminals (VDTs)', is the International Standards Organisation standard for different kinds of human-computer interaction. There is also a standard describing a user-centred process of design, ISO 13407, 'Human-centred design processes for interactive systems'.

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HCI2000 from a Student Volunteer Perspective

including some selected conference highlights when I wasn't working

Richard Boardman

Many of you will have attended this year's HCI2000 conference in Sunderland and been impressed with its smooth running and superb organisation. You may have also noticed the omnipresent student volunteers hanging out in identical T-shirts and talking into walky-talkies. As one of those student volunteers, I'm writing about my experiences at HCI2000 to illustrate how *superb conference organisation* and *student volunteers* are inextricably linked. This article is intended to answer the following questions: What do student volunteers do? Why do they do it? What is it with the t-shirts? Hopefully it may also encourage some of you to volunteer in the future!

The article starts with a general introduction to the student volunteer programme, followed by a day-to-day eyewitness diary of HCI'00. I've also included 'selected highlights' from the few occasions when I wasn't hard at work. Presenters: please don't get upset if your paper isn't mentioned, this means that I was probably lugging crates around in the basement, or a mate was speaking elsewhere at the same time...

At HCI2000 the overall workload was about 20 hours over the 5 days of the conference. In exchange we received complimentary registration, accommodation, meals, a free tutorial, and a set of four matching HCI2000 t-shirts. In addition, working as a student volunteer provides a great deal of experience in event management (sometimes stressful, always fun), insight into the workings of BCS-HCI and plenty of opportunities for making contacts. What a bargain!

Alan Woolrych and Peter Wild, both the veterans of many an HCI conference (and with impressive t-shirt collections to prove it), were responsible for coordinating our activity. Their job was to assign the eleven student volunteers to a wide variety of roles from AV support for the paper and tutorial sessions, through to manning the registration desk and signage. Despite the workload, they both managed to



Back row: Al, Jane, Rick. Middle: Nicky, Shelly. Front: Ann, Bhuru.
photo by Nicky Danino, from www.urban-studios.com/hci2000/

present a paper as well – now that's dedication! Every effort was taken to allocate us to those sessions of most relevance to our own interests, meaning that much of the work involved working sessions that we would have wanted to attend anyway. When not allocated work, we were free to enjoy the conference as regular delegates, except for the occasional call to arms.

As well as working hard, student volunteers also like to play hard – at HCI2000 this included a curry night, the conference reception and the infamous HCI ceilidh, buffets at Sunderland's impressive glass centre and one or two visits to local pubs.

The following diary should fill in a bit more specific detail.

HCI'00 day by day

Monday

- Arrive in Sunderland, safely delivered by GNER. Get to know the other SVs over lunch.
- Receive the sacred student volunteer uniform: the conference T-shirt. Sigh with relief, T-shirt is a remarkably tasteful blue and we receive four of them, one for each day of the conference. Shudder with the memory of wearing the same lurid orange T-shirt for four days at CHI2000.
- Spend a couple of hours stuffing exciting snippets of information into collectable conference bags. Setup registration. Answer any questions from early arrivals.
- Monday's number 1 question: can we register yet?
- Evening: curry night! Late to bed.

Tuesday

- Early start. A bit groggy after last night.
- Registration kicks in! Put faces to the big HCI names. Start to make some contacts.
- Do some (partially successful) practitioner research on the interface to the walky-talkies!
- Spend most of day supporting the tutorial on 'Designing multimedia presentations'. Things run smoothly. The calm before the storm...?
- Tuesday's number 1 question: why haven't I got a cup/towel/electricity/cable TV in my room?
- Evening: welcome reception, followed by exclusive opportunity to dine with the plenary speakers, industry reps and the conference organisers. Late to bed. Again...

Wednesday

- Early start. Mild hangover.
- Start of main conference. Last-minute signage panic. Registration still busy. Pack the last conference bags.
- After working registration, attend the Industry Day paper session. Firstly Anne Kaikkonen of Nokia presented a usability evaluation of a WAP banking application. Now, I always thought 'WAP usability' was an oxymoron, but apparently it isn't – if you take enough care in the design process. Next Mary Czerwinski of Microsoft presented an investigation of whether instant messaging interruptions can be filtered based on their relevance to the user's task at hand... 'who shall we interrupt today?'. Very interesting, but I wonder if they could apply this technology to their paper clip? Finally, Dave Caulton, also of Microsoft, investigating the effectiveness of voice recognition software for dictation and command tasks. Looks like I can't throw away my keyboard quite yet...
- Bounce research ideas around over lunch. Get lots of (mainly constructive) criticism. Ego slowly recovers through rest of day.
- Afternoon: help out at the Short Papers session. Particularly liked Stephen Brewster's context-aware volume control (how about making it migraine-sensitive?) and Neil



Davidson's investigation into just how much information can be squeezed into a PDA display (answer: a lot, if you use a StarField visualisation). Arthur Kirkpatrick's presentation on 'web information gathering' proves reassuring: here's some work particularly relevant to my own research! My sense of academic isolation is partially dispelled.

- Freudian slip of the day: Important Microsoft usability boss allegedly mistaken for a student volunteer.
- Wednesday's number 1 question: when does the bus to the accommodation/reception/conference depart?
- Evening: conference reception and ceilidh at Ramside Hall in Durham. Carry out prime SV responsibility: dance with any delegates who seem lonely/sober. Late to bed. Again!

Thursday

- Early start. Bad hangover. Where did that aircraft carrier come from? Were we *that* rowdy last night? (apologies to readers who weren't at HCI2000, you had to be there...)
- Main conference continues. Registration starts to ease off. After an hour working the front desk, free to enjoy conference but need a caffeine boost first. Receive two tempting job offers over coffee!
- Attendance is compulsory at the 'Work and Work Context' session where two friends are presenting their work. Peter Wild (him again, how does he do it?) leads off with a discussion of dealing with change in information systems from a task-analytic viewpoint. Deals professionally with awkward questions from some of the big HCI names we registered yesterday. Next Cecilia Kremer Vieira da Cunha from Rio (fellow CHI2000 SV veteran) presents her work on applying semiotic engineering principles to web-based workflow. Also deals with awkward questions from HCI big names (begin to wonder if this is a tradition at HCI conferences...). Some amusement as session degenerates into an esoteric academic squabble between HCI big names. Finally Dan Diaper wraps up with a new approach to system modelling (claim to fame: this is the longest paper in the HCI'00 proceedings).
- Lunch: check out aircraft carrier
- Afternoon is fairly busy but manage to catch Harold Thimbleby and Matt Jones talking about the potential of 'usability certificates' for helping

consumers choose friendly software. 12, 15, 18 ratings for the number of weeks to master the gui? Maybe we need expertise certificates for users too: 'Boss, what do you mean you can't use your email program? It's rated *idiot-proof* – we'll have to downgrade your expertise...'

- Finally help out at Lucy Suchman's closing plenary in which she discusses her work in rethinking the nature of human-computer relations. Nice tight focus that one. Raises many questions about many over-ambitious claims of machine intelligence. Illustrated by examples of 'emotional' Woggles and Ananova the 'human' virtual news presenter. Highlight of talk is a live ethnographic investigation of video projector usability. This leads up to the classic video of Alan Newell ('one of the founding fathers of AI') and Ron Kaplan ('a brilliant computational linguist') trying to do a bit of photocopying... ah, if only they'd had a couple of resourceful SVs on hand!
- Thursday's number 1 question: where's the nearest pub?
- Evening: visit to Glass Centre. See important HCI academics blow glass. Excellent buffet. Late to bed. Life is cruel...

Friday

- Early start. Worst hangover. Looking forward to a lie-in tomorrow.
- Get another job offer over breakfast (don't tell my supervisor).
- Last day of conference. Support paper session in the morning – the delightfully named 'New Tricks for Old Dogs' (I happened to find this session particularly interesting, is someone trying to say something about my research interests?). Mark Treglown leads off with a survey of workspace organisations from a metaphor-theoretical viewpoint (pre-empting my own ambitions to write a paper in a similar vein, oh well!). Andy Cockburn from New Zealand (winning prize for 'delegate with most air-miles') presents a usability study of Cone Trees. What do flashy 3D graphics give you over a nice 2D tree diagram? The users like 'em visually but what about task performance... a very insightful paper. Finally Sacha Brostoff and Angela Sasse present their work in applying HCI ideals to perhaps the last bastion of anti-usability, IT Security. Their PassFaces system presents a more usable, easier to remember alternative to passwords (but is it as secure? Should

Microsoft use it on their source code server??).

- Also support Gillian Crampton-Smith's closing plenary on HCI from an art & design perspective. She points out that 'usability is not enough' – there is also the need for digital artifacts to look good. Note that video projector usability has improved dramatically overnight, as Gillian presents several cool examples of innovative work from the RCA.
- And finally an impressive bilingual call for the next one – IHM-HCI2001 in Lille. Formidable – je l'attends avec impatience!
- Tidy up! Tear down! Get delegates onto buses. Get taxis for delegates who missed buses.
- Time for home. Fond farewells.
- Friday's number 1 question: what do you mean the buses have left?

Resources:

Nicky Danino's HCI2000 pictures: <http://www.urban-studios.com/hci2000/>

If you are a student and interested in volunteering, the following two email lists are worth watching for future opportunities at HCI conferences:

- The BCS-HCI mailing list, see <http://www.bcs-hci.org.uk>
- SIGCHI's CHI-Students mailing list, see <http://www.acm.org/sigchi/listserv/>

Thanks to:

- the student volunteer coordinators Pete and Alan for all their effort in making sure things ran as smoothly as they did.
- everyone involved in organising HCI2000, particularly Gilbert and Lynn for making it all possible and looking after us so well.
- and of course the other student volunteers: Jane, Ann, Jill, Nicky, Bhiru, Georghe, Michael, Malcolm, Shelly and Maria!

The author

Richard is working towards a PhD in workspace organisation and CSCW at Imperial College in London, when he's not volunteering at HCI conferences around the world. He can be contacted at rick@ic.ac.uk.



Reflections on HCI2000

Sandra Cairncross

This was the first full HCI conference I attended – my own research interests are in using interactive multimedia to enhance teaching and learning and as such straddle the fields of HCI and educational technology. This inevitably means making choices – should I ask for funds to go to an educational conference this year or an HCI one? Not always an easy choice but one that some practitioners in my field do not even try to make.

At times it seems like there are two camps – the learning technologists and the HCI specialists and ne'er the twain shall meet. I exaggerate, there are a number of learning technologists actively involved in the wider HCI community, but they are in the minority. Indeed, I was surprised at a comment from one delegate at the ALT-C (Association of Learning Technology Conference) last year, on hearing my interest in attending this conference: HCI – isn't that a bit

technical?! Perhaps some outreach work is called for?

Human-computer interaction is not just concerned about the nitty-gritty of interface design – it is about looking at the big picture: understanding the user and the context of use. As such it has much in common with learning technology design and implementation, and has much to offer practitioners. This is certainly the impression I got from HCI 2000 – sessions ranged from the specific (focusing on individual interface components) to the general (arguing for new paradigms, applying theories from other fields, and debating the future of research in HCI).

There was something to learn and think about in each session – and, for me, this wasn't just from those papers to do with learning. To me, this is one of the values of attending a conference – exposure to new ideas and bigger pictures. Papers, which superficially

REFLECTIONS2MOITCEJER

Calling occupants of interdisciplinary crafts! The first of a series from the interfaces between HCI and other disciplines. These serve two purposes – to make the (purer) HCI community see how their messages are perceived outside the discipline, and to attract readers and contributors with other expertise.

Or as we might say on Burns night...

O wad some Pow'r the giftie gie us
To see oursel's as others see us!

So if you see things that others don't, or just feel somewhat on the edge of this HCI thing, send us your reflection on HCI, or vice versa.

appeared to have nothing to offer me directly, often contained insights which were useful both for my research and teaching.

Finally it struck me during one of the coffee breaks that perhaps the most valuable aspect of packing your bags and going to a conference is the opportunity it affords to confer, formally and informally, with colleagues, not only from other institutions, but also one's own!

Sandra Cairncross

Napier University School of Computing

Call for Participation

'Feats and Frontiers'

An International AI Symposium in memory of Sidney Michaelson

Edinburgh

Saturday 7 April 2001

Extended abstracts due by 12 January 2001

<http://www.dcs.napier.ac.uk/~mac/AI.html>



British Computer Society
Edinburgh Branch

Anyone whose research could be broadly described as at the intersection of HCI and AI will be interested in this one day event. *Feats and Frontiers* will celebrate some of the major achievements of Artificial Intelligence over the last 30 years or so, but the Symposium will not dwell on the past. We will select speakers who can illuminate the first quarter of the new millennium by sketching out what they see as the likely developments that will see AI contributing to emerging technologies. This promises to be a lively and practical meeting at which scholars at the forefront of AI research will mix with industry delegates who have real problems to solve.

Keynote speakers: Marvin Minsky (MIT), Michael Brady (Oxford)

Submission categories: Papers, industry forum, debate, exhibition

Booking: This event is limited to 120 delegates plus speakers. Early booking is essential.

Please see web site for details.



Vet's Diary

Alistair Kilgour

Alistair Kilgour beats the floods, the mulch and the cracked tracks, and soars to new heights to rail against the latest re-invention of old ideas in the second of our ever popular *Vet's diary* series.

How time flies! It seems like only yesterday I received my first email message. In fact it was 25 years ago – and email was already quite old then. In recent months several technical journalists and others born after the beginning of email have made ridiculous claims about who invented email, and who sent the first message. It seems that even Al Gore is now keen to claim credit, not just for email, but for inventing the Internet. (*but now Bush claims every web address starts with a dub-ya – ed.*)

So far as I and most people on the technical side of HCI are concerned, email began with Unix. Although in 1975 when Unix became the system of choice in the Computing Science Department at Glasgow, most email messages were between users of the same system, all connected to the same host. From the beginning Unix came with the ability to exchange information with other Unix systems, over whatever kind of serial link was available, using what was called UUCP (Unix to Unix – or was it Universal Unix? – Communication Protocol). And because the support was there, pretty soon machines did start to talk to each other, albeit mostly in the middle of the night, and it became possible to send email to others in other towns and eventually countries.

In 1984 I organised a graphics summer school in Glasgow, to which a number of US graphics pioneers were invited, including several from Lucasfilm (which later became Pixar). I did succeed after several attempts in exchanging email with one of the speakers in California – although when sending a message it was necessary to include in the destination address the names of all the hosts through which it should pass en route from Glasgow to

San Francisco. It took around 6 days for the message to complete its journey, but it was the start of something big.

Although the establishment of Arpanet was the central underpinning for the eventual development of the Internet, and this took place initially more or less independently of the spread of Unix through the world's computer science community, nevertheless, the foresight of Dennis Ritchie and Ken Thomson in including support for inter-system communication in the Unix kernel was an equally important factor in making possible the lift-off of the Internet in the nineties. The moral is, if you provide a facility, people will find a way of using it.

The second thing about Unix was that it was a time-sharing system. When we started running Unix at Glasgow, we supported up to 16 simultaneous users on an under-powered PDP11/40 with 48K bytes of memory, and 2 RKO5 disc drives, total capacity 10M bytes. In today's language the PDP11 was a server – the clients being just dumb (and later slightly smarter) character terminals (operated of course by highly intelligent computer scientists). (*or, in non-PC(!)-speak, 'masters' and 'slaves' – ed.*)

Roll forward 25 years, wave the magic wand, et voilà – we are invited to consider the projected rise of 'Application Service Providers' or ASPs. A new generation will, no doubt, learn for themselves why time-sharing systems went the way of the dinosaurs – not enough cycles to go round. When I carry around in my pocket a machine with an order of magnitude more power and memory than that early PDP11, why should I want or need to rely on a remote server for computational services?

What I do want, however, is remote system management. That's the real revolution, which after several false starts, may finally be about to happen. One of the false starts was the network computer, hampered by the dogma that it should have no backing store. When I can obtain for a few tens of

pounds a credit-card sized hard disc with 40Mb capacity, why should I forgo local backing store? Again it's the management of that storage which is problematic, and the solution to the problem is, of course, caching. The idea of caching is another of ancient pedigree – it might even qualify as a paradigm. It would be fascinating to read a history of caching – maybe there is one, but if so I haven't seen it. However, if it is a paradigm, it's one which, though instantiated in every browser in the world, does not seem to have impinged much on public awareness.

Finally in this catalogue of reborn ideas, let's hear it for the Use Case, that rather poorly disguised impostor in the panoply of models comprising UML. That's a story which may have to wait for another time – or another writer. I am sure there are lots of you out there giving deep thought to how to make use of this new and maybe ultimately triumphant Trojan horse, through which HCI may finally be accepted into its true home, software engineering. I know that's heresy to many. I would be glad to host a debate, or give over this column to anyone with a corner to argue. HCI is, for sure, at a turning point, let's hear where you think it is or ought to be going.

Alistair Kilgour
alistair@realaxis.co.uk

So, is HCI going in circles, facing dilemmas, dichotomies or choices, or merely rambling. Those who do not learn from history are destined to repeat its mistakes, or as Confucius might say 'Review the ancients, gain wisdom'. Hopefully some veterans out there will be tempted to respond to Alistair with their own 'Vet's diary'.



A British HCI Group one-day meeting on
Computers and Fun 3
Wednesday 13th December 2000
The Huntingdon Room, King's Manor
University of York

Programme

- 9.30–10.00 Registration
10.00 Opening remarks – Andrew Monk
10.00–10.30 *Having fun with dementia*
Norman Alm and Dave O'Mara
University of Dundee
10.30–11.00 *Engaging consumers, using humour in electronic commerce*
Claire Dorman
Center for Tele-Information, Technical University of Denmark
11.00 Coffee
11.30–12.00 *From usability to user experience*
Peter Wright, Tim Marsh and John McCarthy
University of York and University College Cork
12.00–12.30 *Measuring fun – usability testing for children*
Janet Read and Stuart MacFarlane
University of Central Lancs.
12.30 Lunch
2.00–2.30 *i-sk8 trainer and the automated emotional DJ*
Renn Scott
Royal College of Art
2.30–3.00 *Ladies and Gentlemen, Boys and Girls, Children of All Ages: multiple layers of fun in entertainment*
John Mateer
Interactive Future, UK
3.00 Tea
3.30–4.00 *Tangible interfaces in smart toys stimulating haptic play in 5–9 year olds*
Mark Allen and B Ramsey
Brunel University
4.00–4.30 *Exploring interactivity with smart toys*
Lydia Plowman and Rose Luckin
University of Stirling and University of Sussex
4.30–5.00 Closing discussion
What makes for enjoyment in the use of information and communication technologies?
An opportunity for members of the audience to contribute their own ideas.
5.00 End of meeting

The meeting will be held in The King's Manor in the centre of York and within walking distance of the railway station.

WHY FUN?

Most of the research effort in HCI and design is aimed at the world of work but leisure is also a large part of people's lives. As more researchers get involved in this topic it has become clear that our current understanding of user concerns, derived from the world of work, is simply not adequate to this new design challenge. Fun is set to be a major issue as information and communication technology moves out of the office and into the living room.

To register

Please see <http://www-users.york.ac.uk/~am1/candf3.html>
or phone 01904 433189.



‘“Is there anybody there?” said the Traveller...’

Cassandra Hall

A friend of mine who happens to be on the HCI executive (yes, I do have friends who wield influence) said that recently one of the exec members had tried looking for Paul Booth.

Now, those of you who have been in HCI longer than 10 minutes will know that Paul Booth wrote one of the very first books on HCI. It was called *An Introduction to HCI* and it was just that. It was green. It was published by LEA who showed a foresight and insight unusual in publishers. And what was more amazing about this book was it was actually readable and very good. I don't know who reviewed it and got LEA to publish it but they deserve hearty thanks from the community.

It was short and light and you could carry it around with you. It didn't require a loan the size of the national debt and it was written in ordinary English by a writer with extraordinary common sense. It was interesting and lively, even though it didn't have any pictures or diagrams to write home about. I read it myself and was captivated by it. So much so, that I set off into a life of HCI, instead of the AI to which I had previously been addicted. There are some people who would say that Paul Booth has a lot to answer for, in doing just that, and maybe that's why the poor man has gone to ground.

Now, I've no idea if the Paul Booth book is still around but that's not particularly interesting as books, like fashion, and women in Prufrock, come and go. The thing is that members of the exec did a search for Paul Booth. It seems one member spent an afternoon with a search engine and tracked him down to Telford Institute where they discovered (oh horror!) no Web page and no email address. Apparently, the exec were gobsmacked, having rewritten: "I think therefore I am" into "It must be me, that's my Web page"... or, in the case of one eminent HCI'er, it must be the many sides of me because I have two zillion Web pages and a computer the size of a Cray on which to store my pictures. One exec member took to repeating, like Mole from *Wind in the Willows*, "Oh my! Oh my!" as they pondered life without a Web page, no doubt sharpening their pencil with a Swiss Army knife.

Now, my friend, bless the dear one, isn't exactly the sort of person who thinks much further than the next email so the assumptions about Web presence and email addresses were altogether lost on the poor darling. But as I heard this story, I grew aghast. It reminded me of a few years ago, when I kept forgetting my telephone number, so decided to say I didn't have a phone. The looks of horror and disbelief I encountered were amazing. That in turn reminded me of some years before then, when I really didn't have a television set and got hounded by the licensing people because they thought I ought to have one. In fact, I bought one eventually, just to shut them up. It seemed easier.

Amazing though, isn't it! I can see the look of horror and disbelief, and social ostracism and stigmatism, when people try to say they don't have email and, no, they are very, very, very sorry, but, no, they really don't have a Web page. Now, call me a Luddite but actually really and truly, hand on your heart and Dix et al., do ordinary people really really need Web pages? Yes, it's nice to do a Web search and bring up a

mug shot and an email address but think of the disadvantages of being so public.

Paul Booth is effectively lost. He's gone out into the snow and may be some little time and jolly good luck to him. One of the authors I know, whose books actually get published and sell, says that being an author is awful. Apparently, every new semester you get 2 zillion emails from other people's students saying they've read your book or they're going to buy your book. Or they've got your book out of the library. Or a fall-back position of: they saw your book in the bookshop and they would buy your book, but they can't afford it and their lecturer has just given them a coursework and they need some help from an expert, so would you mind?

And when it isn't students, it's hassled lecturers trying to borrow your overhead slides or pressurising you into producing all your stuff on PowerPoint. This particular author gets more thank-you cards each year than Christmas cards. It's my belief if the British Universities ever start whole-scale testing of student submissions for plagiarism my friend will get done for having written just about every ethics coursework that's ever been submitted, one way or another. And there's no need to standardise the courses because my friend's lectures cover half the world in any case.

(Good trick – type a distinctive sentence from a suspicious coursework into www.google.com and you can see not only the source, but the dozens of US college students who plagiarised from the same source – ed.)

But there's more to it than that. Why do people saddle themselves with all these means of making their lives miserable and controlled? Now, I happen to have a mobile phone. It's the number I give out when people ask for a phone number. It gives me time to think about whether or not I actually want them to phone me and I know that at the end of the year, I'll chuck the phone and get a new number. So, it's a way of restricting other people's access to my precious time.

It saves me from the embarrassing results of having foolishly passed on my phone number to someone who seems witty and interesting after too much champagne and who, on reflection, having heard them after the coffee, seems not quite so enthralling. But I refuse to have the thing switched on. It's for me to phone the office when I'm running late. I can use it to get things delivered to examination rooms, I can phone my parents when I'm away and not have to worry about finding a phone. I can hand it round when I host events so that delegates can get the cat fed or whatever else they want to do. But it isn't there for me to be interrupted when I'm sitting on a train enjoying Richard Dawkins or having a quiet moment to myself.

HCI is not just about enabling technologies, bringing technologies to the people, it also about maintaining individuality and privacy. The Web is a powerful tool. Email is so vital to me that I cannot bear to think of how difficult my life would be without it. It puts me in touch with a father I see too little of, in a way that is at once immediate and intimate and yet not intrusive. It gives students access to me



... continued

for solving their problems without having to meet them at a particular time. It has been the medium for much joy as well as information exchange. But it is there to serve me, a tool for me, not I as a medium for its expression.

If I have a Web presence then it should be because I want one, not because society now expects me to be delineated by all things webby.

How many of us allow the phone to intrude when we are doing something that is important to us? How many tutors answer the phone to a student when there is already a student in the room? I actually refuse to do this now and figure that if it's important the caller will phone back. At home, if I don't feel like talking then I either tie the computer up with the modem or switch on the answer machine. I refuse to be ruled by a technology that is inconvenient for me.

Just now, as I was writing this column a friend phoned. He asked me what I was doing so I explained. He said that email was excellent for giving out information and that he believed this was better than information being controlled. It was better for information to be visible. And yes, bless him, he is right. But he's sensible, he doesn't bombard people with information just because he can do that. He is selective. But let's face it, how much email do we receive that we don't need? My guess is that about half of what I receive is useful, the rest is noise.

I filter out a lot of the noise by setting up rules so the stuff is deleted before it gets to me. Yes, yes, yes – information should be visible, information that is controlled and hidden makes us helpless and vulnerable, but my friend is too decent and honest to see that bombarding people with information, thereby creating noise, is another and much more insidious means of control. Just as expecting other people to conform to technologies we have saddled ourselves with is another form of control.

Paul Booth, wherever he might be, is presumably where he wants to be and how he wants to be. I shall remember a book that was ground breaking and I shall remember it with affection and gratitude. I might wish that he would write another but I can also say that if I knew his address there is a series editor I would be pestering till he agreed to write another. He may have made a very wise choice. There are some times when the answer to "Is there anybody there" is quite rightly, push off and leave me in peace.

Cassandra wails in every month from a respectable campus in the verdant fields of England. No danger that she be swallowed up by the information overload. You can get in touch with her, if she wants you to!

Forthcoming Events

As many of you probably know, the British HCI Group organises (or encourages others to organise) a series of meetings, events, workshops, and so on, focussing on topics of interest to an HCI audience. Over the next year or so we have a number of events that are billed as 'sponsored by' or 'in association with' the Group. Those currently planned are:

Cultural issues in HCI

Tuesday, 5 December 2000, University of Luton

Contact: Andy Smith

andy.smith@luton.ac.uk

Computers and Fun 3

Wednesday 13th December 2000, The Huntingdon Room, King's Manor, University of York

Contact: Andrew Monk

A.Monk@psych.york.ac.uk

Design, Specification and Verification of Interactive Systems, 2001

13–15 June 2001, University of Glasgow

Contact: Chris Johnson

johnson@dcs.gla.ac.uk

People in Control

19–21 June, 2001, UMIST, Manchester

Contact: *pic2001@iee.org*

IHM-HCI2001 (incorporating both HCI2001 and IHM2001)

10–14 September 2001, Lille, France

Many of these events have their own web pages with all the details. For links and more information look at the Group's 'Events' web page: <http://www.bcs-hci.org.uk/hci-calendar.html>. The list is updated as new meetings are added to the programme, so check on a regular basis for events relevant to your interests.

If you are interested in organising an event that might be of interest to HCI Group members, or you are already involved with the organisation of such an event and would like to consider running it in association with the Group please get in touch with the Group's meetings organiser, Bob Fields, at the address listed on the back cover.



Manufacturer's view

We invite articles from manufacturers highlighting industrial research findings. Stan Allen of PCD Maltron, manufacturers of specialist keyboards, reports that RSI sufferers who relieve their condition by using an ergonomic keyboard re-introduce the condition by reverting to the traditional keyboard.

No turning back!

Switch back to a conventional flat keyboard after using a fully ergonomic version and the pains of RSI will return.

As court settlements start to swing in favour of plaintiffs suffering from keyboard-induced RSI, it is time to take a look at RSI, its origins, and hope for the future for keyboard operators.

But when did the problems of RSI start? Research in Australia published as far back as 1974 indicated that the disproportionate amount of ill health of Telex operators (working without a VDU screen) was due to stress caused by working at the keyboard (Duncan & Ferguson 1974). Duncan and Ferguson showed that there was a correlation between hand abduction – twisting outwards – and operator problems. Operating a flat keyboard also involves almost maximum hand pronation with sustained muscle tension. These two postural stresses can be relieved slightly by raising the shoulders but this in turn produces muscular fatigue and pain across the neck.

When Telex machines were originally introduced, their keyboards followed the conventional typewriter shape to maximise acceptance and, likewise, when computers were introduced their keyboards followed the same pattern for the same reasons. This was despite the fact that electronics had separated the keys from the printing mechanism and opened the way to a complete redesign of the keyboard to overcome its known disadvantages.

In fact, the QWERTY letter layout was carefully arranged to slow down operators and reduce type bars jamming, away back in 1872! The first practical typewriter was patented in 1868 by an American, Christopher Scholes, and the keyboard layout has remained unchanged for over 100 years. The shape of the keyboard in this early model, with the keys forming an even slope of between 20 and 40 degrees to the horizontal and with diagonal key columns was

determined by mechanical limitations of the time. The most commonly used letters had to be separated to avoid mechanical arms clashing when typists were operating at speed.

'Although we don't know exactly what causes keyboard operators to be struck down by the twentieth-century curse of RSI, we can at least recognise the signs and symptoms' says Stephen Hobday MD PCD Maltron of East Molesey in Surrey, England. These can include pains in wrists, forearms, shoulders, neck, upper arms, elbows and back, aching hands and wrists, 'fizzy fingers', pins and needles in the fingers, numbness passing from finger to finger and numb fingertips.

When Hobday started out 'to produce a more efficient keyboard' some 24 years ago with ace typist's tutor Lilian Malt he did not foresee that his revolutionary keyboard could actually help RSI sufferers back to work. At the moment his list of those who have benefited from the keyboard and returned to work after 'time in arm splints', 'debilitating pain' and 'you'll never work again on a keyboard' totals well over 600 worldwide.

The PCD Maltron keyboard looks like two empty grapefruit skins with an angled roller-coaster set of fully ergonomically positioned individual keys to suit the easy movements of hands, and has been designed to eliminate dangerous wrist-twist. Separating letter keys into two spaced groups has reduced abduction to zero and pronation stress is reduced by providing the keys at differing heights to suit the varying lengths of the fingers on a hand. What's more, Maltron's design philosophy concerning the reduction of muscle tension was confirmed by a report in *Applied Ergonomics* (Zipp et al, 1983).

Maltron keyboards are different, not a bit like a flat keyboard, and this can be daunting for some people. Those who take the bother to convert to the Maltron shape often experience a substantial lessening in pain immediately and recover their career prospects. Usually this change for the better takes only a few days but the period of convalescence can take

several weeks of persevering effort to overcome past habits. During this 'conversion' period, both management and operator must accept that output will be reduced – regardless of how frustrating this can be for both.

Often recovery from the strains and pains of RSI is complete providing that no attempt is made to return to a flat keyboard! This is because flat keyboard injuries are a personal body-response to the strains of using a flat keyboard. Even though RSI pains disappear after using a Maltron keyboard, there is no real cure in medical terms, as a return to a flat keyboard has been proved, time and time again, to recreate the previous state of pain.

Operators say that having to work more slowly during initial adaptation to the new Maltron shape is in itself beneficial as they are forced to use a more controlled and gentle finger action. Maltron keyboards are usually supplied with letters in the QWERTY layout which is still universally used, though, as noted above, it is far from ideal. Maltron have themselves developed a new layout which is easier to learn and reduces 'finger work' to about one-tenth of that demanded by the QWERTY layout. The Maltron layout is optionally available on the two-handed keyboards and can be learnt in around a quarter of the time usually needed.

Many user reports can be found on Maltron's web site, including the latest by Kate Parker in the *IEE Review* magazine.

References

- Applied Ergonomics* Vol. 142 Ref. 117 (1983) by P Zipp, E Haider, N Halpern and W Rohmert of Darmsdtart University in Germany.
<http://www.maltron.com/>
IEE Review Sept 2000 (page 6)

Contact

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Mashed Potato and Swedes

Lynne Baillie and Liisa Dawson

NordiCHI2000 was an important event: it was the first NordiCHI to be held and it hosted an array of key presenters and speakers. Scandinavia is certainly a crucial and prevalent part of the HCI and user-centred design world and it seemed fitting that it should have its own event to mark this influence.

The importance that Scandinavia plays in the research and development of these areas was certainly reflected by the quality and renown of the speakers and keynote presenters. It was additionally fitting that it was hosted in Stockholm, a central Scandinavian city. The conference itself was held at the Kungl Tekniska Hogskolan; we preferred to refer to it as KTH – we're sure you can understand why! KTH is a very beautiful campus with lots of fountains (we're not sure of their purpose, but they're nice all the same) and it is in a very central location.

We were a bit surprised to see the highest recommendation given for lunch was 'they make great mashed potatoes!' It was an interesting insight into the Swedish culture that recommendations for lunch seemed to be gauged by the quality of their mashed potatoes rather than their roll-mop herrings.

Besides the 'mash' there was an impressive array of demonstrations and posters. These informal snippets of work had a very futuristic slant and involved demos of how brain activity can be used as a form of interaction and, by giving objects memory, new storytelling mediums could be developed. Being able to see the ideas being brought to life was thought provoking and provided a well-needed rest from a quite intensive set of presentations.

Our favourite Keynote

The first and also, we feel, definitive keynote speech was "Co-operative Design – perspectives on 20 years with 'Scandinavian IT Design Model'".

The keynote address was delivered by Susanne Bodker, Peter Ehn, Dan Sojogren, and Yngve Sundbland. They were all involved in the 'seminal'

Utopia project, 1981–85, where co-operative design methodology, involving users very early in the design process, had an early development and application in the use of computers. They commented that many things have changed since the 1980s, when industry mainly used mainframe computers and terminals, compared to today when information technology is everywhere, not only at work but also in our whole life.

However, they suggested, some things never change in participatory design (PD). For example, it is important to find the right set of participants, the right tools and techniques, as well as the right location and physical space for co-operative design. And, by no means least, it is important to create a setting where all involved groups can make active contributions that are meaningful to themselves as well as to other groups of participants.

The value of having your work heard

An addition to the conference was the doctoral consortium, which was the main purpose of our visit. It mirrored the 'design V design' theme of the conference and covered a wide range of HCI and user-centred areas. For a second-year Ph.D. student, new to this type of event, it proved to be one of the most valuable insights into the world of academia and Ph.D. life. Not only was it reassuring to talk to others in the same situation, but presenting your immature research ideas to people whose books have supported and fuelled your work to date was an exhilarating experience.

As the morning went on I was able to observe the responses given to others' work, and I began to really witness the value of this whole exercise. Not only did the 'experts' feed back about the particular research area, posing practical questions and advising of references, pitfalls, alternative angles and such, but they were also able to recommend techniques for analysis, structuring methods, plus many more practical hints for completing a successful Ph.D. It was

therefore useful to every student to take notes on the feedback given to each other, as the quality of comment was superb.

Admittedly, I felt a little deflated after some criticism had been made about my precious ideas. However, after some internalisation and digestion of the points raised and further informal discussion with various people from the consortium, I realised that these criticisms would direct my work for the next few months at least. If I got stuck, I could always email one of my new-found expert-friends!

The style of the day was informal, the range of experts extremely impressive and the quality of work was very high. For a lonely Ph.D. student it made me feel a small part of something big and tremendously exciting. I felt very honoured to have been part of such a valuable day and would recommend this experience to any Ph.D. student.

Conclusion

NordiCHI has set a precedent for itself that will be hard but not impossible to continue. The quality of the material presented was rich and varied, the setting impressive and the conference dinner was a night to remember. We are left with a high regard for this new conference and would recommend the next to be noted in your diaries. For any Ph.D. students, it really is an inspiration to have your work assessed by the best – an opportunity not to be missed.



Book Review

Peter Wild

Model Based Design of Interactive Applications

Fabio Paternò

Springer Verlag, London, 1999

ISBN 0-8058-3383-8, £24.50, 192 pages

<http://giove.cnuce.cnr.it/~fabio/mbde.html>

Within this small but comprehensive volume Paternò draws upon a number of key strands of Human-Computer Interaction and IT development, to present an overview of how models can be used in the development of interactive applications. If you're looking for a step-by-step approach to developing, you'll be disappointed. What you get in this book is more a framework for the development of interactive applications akin to, say, Multiview, than an attempt to describe a unified process model for the design of interactive applications.

After the initial scene-setting, chapters 2 and 3 provide a broad view of the range of model-based approaches to analysis, development, and evaluation of interactive applications. This provides a useful contextualisation of a range of diverse methods, and Paternò provides a thorough, but fair, view of a range of diverse approaches, including task analysis, petri-nets, scenarios, use cases, scenarios, UML, and formal approaches. For a newcomer to the field, development methods for interactive applications can seem, at best, unconnected, at worst, partisan, but throughout the exposition, he points out relationships between the approaches and shows how, more often than not, they actually complement each other.

Another chapter serves to introduce us to Paternò's task description formalism, ConcurTaskTrees (CTT). CTT is clearly a powerful approach to the representation of task models, and related information. It is sufficiently complete to compete with contemporary approaches (e.g., UAN, TKS, GTA). However, a problem with CTT is its usability; Paternò's insights about usability and the criticisms of other formalisms do not appear to have been applied to some of his approaches.

Whilst CTT has undoubtedly benefited from its roots in LOTOS, its difficult to justify temporal relations such as T1 [] T2 being more accessible than T1 CHOICE T2. This is particularly pertinent when we consider the increasingly participatory nature of many development projects.

An important feature of the book is its continuous presentation of concrete and relevant examples. This is especially pertinent when we consider Paternò's treatment of architectural models and user interface patterns. Most presentations of the notion of Interactors have relied solely on formal representations (e.g., LOTOS) and neglect to show how they are rendered in contemporary tools and environments. For those without the appropriate foundation this limits accessibility to the powerful notion of an Interactor. Paternò manages to show us how examples can actually be rendered. Similarly, to date most discussions on patterns within HCI have been fairly vague and have made no attempts to relate the patterns notion to issues such as models of task or architecture. Overall this is a great introductory text to a number of contemporary model-based approaches. Paternò clearly understands the strengths, weaknesses and complements of a large range of contemporary development techniques, and is willing to point out when and where these are usefully used together. Paternò provides many examples of how different model-based approaches relate to each other. Overall, a solid, well-written account, lucid in its exposition of relatively complex ideas, and clear about its intended scope and purpose. Furthermore, for those involved in teaching the accompanying software from Paternò's website, it provides support for creating task models using the

ConcurTaskTrees notation (though it does have many quirks and annoying low-level usability problems.).

A drawback is that, at £24.95 for 192 pages, many students will balk at investing in this worthwhile volume. Despite this I would recommend it as primary or secondary reading on HCI and Software Engineering courses, although cost considerations may force it into secondary position in favour of more comprehensive HCI volumes such as the Dix et al. or Preece et al. volumes.

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The last couple of issues, you have had bluffer's guides from people who knew what they were talking about. Bo-Ring! No-one made good on their promise to bluff for their country in this issue, so the editor decided to give you the benefit of one week's experience in the field of ... Cognitive Psychology. As a mathematician, singer-songwriter and software/multimedia developer turned lecturer, I never knew there were all these words for things I encountered, and so much learned research on each. But they made me start a PhD the other day, and since I was waffling about motivation and knowledge and stuff like that, m'learned supervisor stuffed a pile of textbooks and articles in front of me to read. How does anyone read all this stuff? (More to the point how does anyone write so impenetrably, but let's not bite the hand that feeds). A first-year text book proved to be about my level, coupled with parsing the odd paragraph from conference papers. What more does anyone need to bluff their way in a field, anyway? A little knowledge is a dangerous thing, then a microscopic perspective must surely be less dangerous?! Trouble is, half of you know something about this topic (so look away), and the other half don't (be beguiled).

Tom McEwan's bluffer's guide to Drive Theory

a part of the Cognitive Psychology of Motivation (with humble and abject apologies to Heckhausen and Weiner)

In the forty years up until the early sixties, there were all these hep cats running round saying we responded, mechanically, to stimuli. Then this bunch of touchy-feelies decided that we thought about it (no matter how briefly) before we responded. So Brehm (1962) starved a bunch of people, and only rewarded half of them. But they wuz the half that complained the most! Lesson 1: No Gain, no pain!

Lazarus in 1966 showed that people felt less fear if they were fed information in advance that helped them rationalise a scary situation. Lesson 2: Only mushrooms actually like the mushroom effect. Schachter & Singer (1962) meanwhile stuffed people full of epinephrine, and found that if you surrounded them with angry or happy people, they got more angry or more happy accordingly. Lesson 3: drugs make you conform – more mushroom theory!

Valins (1966) did some dodgy stuff with pix of what sounds like page 3 girls and showed how, if you made people feel they "fancied a bit of that!", whether or not they did, they got the hots accordingly. Sounds a bit Hollywood to me that one. Lesson 4: people believe believable lies (or, don't let the facts get in the way of a good story!).

Spence (1956) had already shown that anxiety makes easy tasks easier, and hard tasks harder, but Weiner and Schneider (1966, 1971, (as I'm sure you're all aware)) found they could mediate the anxiety with false feedback. Lesson 5: Encouragement does actually help!

Now Dollard (1939) might have shown that frustration causes aggression, but that aggression was constrained rapidly by the fear of punishment. (As the road hogs

recently demonstrated in a national two part experiment!). Berkowitz, Lapinsky and Angulo (1969) built on Mallick McCandless's discovery (1966) that understanding the cause of the frustration made you less, um, frustrated. B, L & A showed that making people feel good about their anger made them feel more justified in showing that anger. Which probably explains the success of the first People's Fuel Road-hogging.

Then there's this whole resistance of extinction thing, but you really don't want to go into that, do you? This drive theory analogy, with recent protests, can only be stretched so thin.

OK if you insist. The general idea is that you "never forget how to ride a bike", I think. The extinction thing is the idea that you might forget how to do, or respond to, something. Well we resist that notion. No matter how many years it is since you played football, you can still make your body do that "half-volley on the turn" thing you used to do.

Trouble is of course, your mind remembers how to do it, but the flesh is weak! Funny how quickly muscles tear, and how slowly they repair, once you start to lose your hair. And if this was all true, surely people could cope with not running their cars because the price of fuel got too high. Suppose this is critical evaluation rather than bluff, now. Time to quit.

Surely you can bluff better than that! If you want to bluff on some learned, if obscure, aspect of interactivity, or simply want a bluffer's retort (don't kid a kidder) then email to t.mcewan@napier.ac.uk with the message title 'Interfaces Bluffers Guide'.

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