

Interfaces

69 • Winter 2006

How mix and match technologies
are changing the way we interact

- mixed reality gaming
- user generated content
- Web 2.0 mashups
- mobile interaction

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(re)Actor



3 Volts and 1 Carrot
Eva Sjuve
University of Plymouth



Askew and Avis Live vocal-looping band with live VJ set
Jeremy Avis & DJ Robin Whitnell with
VJ Julian Konczak



*Dansor A dynamic approach to live
electronic music in the dance scene*
Anett Kulcsar



Once I was Dead A Wi-Fi performance
Douglas O'Connell and Andy Lavender
Wimbledon College of Art & Central School of Speech and Drama



View from the Chair

Andy Dearden and Russell Beale

Who are we? 'The British Computer Society's specialist group on Human-Computer Interaction': it's quite a mouthful. The BCS SG on HCI is pretty meaningless as well. Even the British HCI Group leaves us having to explain what we do. And since it's our aim to become more relevant to funding agencies, industry, government and the media, it's important that we can more effectively communicate what we are and what we do. This is primarily done through our actions, but also in our appearance and approach, and so the group has been undertaking a rebranding exercise over the past few months.

We've identified the core values of the group both from an external viewpoint: we aim to be informative, authoritative, relevant, to promote academia and industry working together, to be expert, respected, professional, principled, practical, critically relevant to society, passionate, open, collaborative, educational, user-centred, research-based, rigorous, creative and reflective; and from an internal viewpoint: we aim to be inclusive (cross border, cross discipline, cross specialism, cross opinion), participatory, open-minded, and mutually supportive. We have also analysed our target audiences, and are now developing the graphic identity to go with this. The work is being done in consultation with Enable Interactive, a design consultancy with a track record in this area and a keen interest in HCI.

Once finalised, the new visual identity will flow through all our communications, from letterheads to websites, from members' information packs to UsabilityNews, from the conference to the journal. That process may take a little time, as consistent graphic designs will need to be produced. But we must emphasise that we are not just producing a new logo to be pasted on over the top of the old one. We're trying to engender a new attitude in our communications so we can reach a broader audience, using a palette of graphical elements that we can combine with our words to make more of an impact.

We're also changing the name of the group, to something more meaningful – interaction. The strapline will be 'A British Computer Society Specialist Group', but the focus is on the interaction. Indeed, in the new logo the word will be segmented with colour, making the 'action' part stand out.

We've gone through a long process of consultation, discussion and deliberation, and we hope that you'll like the new group style and approach: we think that it will freshen it up, make it more professional and effective, and support us in our mission to champion the cause of HCI, usability and design in the research, commercial, media and policy worlds.

The brand will be rolled out through the different outlets and media in the New Year.

Andy Dearden

A.M.Dearden@shu.ac.uk

Russell Beale

R.Beale@cs.bham.ac.uk

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Editorial

Laura Cowen and John Knight

It's four years since I co-edited Issue 54 of *Interfaces* with then-Editor, Tom McEwan. Fifteen issues later and it's my turn to pass on the red pen. This time, it's slightly different, as John Knight, who co-edited this and the last couple of issues, is going to continue his role as Content Editor. We are, however, looking for a new General Commissioning Editor to replace me to work with John and with Fiona Dix, the production editor.

The role of General Commissioning Editor is mostly just that: commissioning content for each issue of *Interfaces*. It's a job made much easier by the regular column inches supplied by Russell Beale, Gilbert Cockton, Robert St Amant, Rod McCall, and our commissioning editors Martha Hause (My PhD), Alan Dix (Profile), and Shailey Minocha (our new Book Reviews Editor who will be replacing John Knight in that role).

Of course, *Interfaces* is just a part of the wider Communications Sub-group within the British HCI Group. So I am, by default, a member of the Comms Sub-group and was involved in early discussions defining the role of *Interfaces* and other BHCIG publications (like *UsabilityNews.com* and the BHCIG website). These discussions became part of the more recent re-branding work that Russell and Andy discuss on the opposite page.

Obviously, *Interfaces* will be affected, sooner or later, by the re-branding work, and part of the Editor's role will be to help define *Interfaces*' future place in the renamed interactions group and its relationship with, for example, *UsabilityNews.com*. One of the main considerations to bear in mind during such discussions will be that almost everyone (including the Content Editor and General Commissioning Editor) who contributes towards each issue of *Interfaces* gives their time voluntarily.

If you would be interested in becoming General Commissioning Editor or, indeed, contributing to *Interfaces* in another way, get in touch with Andy Dearden, the Communications Chair. Don't be put off by feeling that you don't have much experience of the BHCIG or that you don't know anyone. Getting involved with something like *Interfaces* or other work with the BHCIG is a fantastic way to meet other people in the HCI world.

Thank you to everyone who has written for, or solicited content for, *Interfaces* during the past four years, in particular the people I mention

above and their predecessors. Finally, thank you to Fiona for sanity-checking, proofing, formatting, and ensuring that each issue made it to the printers on time. I've thoroughly enjoyed my time as Editor.

And now, over to John...

In this issue of *Interfaces* we cover some of the issues raised by a new raft of technologies that challenge traditional notions of single users interacting with an interface. Mix and match technologies have two characteristics. Firstly, they allow integration of multiple interface elements and, secondly, they enable different types of content to be generated and put together. Rod McCall's overview of Mixed Reality is a good example of the former, where the real world is mixed together with virtual elements. Look no further than the YouTube site to see an example of the second characteristic, where users shift from passive interaction to being active content creators. These are fast-moving and exciting times with many of HCI's theories and principles now becoming a commercial reality: users really are becoming the driving force in commercial technological innovation. As well as looking at some new technologies we have a number of reviews, including reports from HCI 2006 and books on mobile and speech interaction. Oh, and it seems a good place to say thank you to someone...

Laura: you have done a great job; we appreciate it and will miss your enthusiasm and commitment. Thanks from everyone involved at *Interfaces*.



Laura Cowen
IBM United Kingdom Ltd
laurajcowen@yahoo.co.uk



John Knight
John.Knight@intuio.com

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 Content Editor until further notice.

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 January 2007**, but don't wait till then – we look forward to hearing from you.

With thanks to commissioning editors:
Interfaces reviews: John Knight, John.Knight@intuio.com
My PhD: Martha Hause, m.l.hause@dsl.pipex.com
Profile: Alan Dix, alan@hcibook.com
Photo credits: p14 Willem-Paul Brinkman

Deadline for issue 70 is 15 January 2007. Deadline for issue 71 is 15 April 2007. Electronic versions are preferred: MS Word, RTF, or plain text via email or on CD; but copy will be accepted on paper or fax.

Please send to the Content Editor until we have a new General Commissioning Editor; email: John.Knight@intuio.com and copy email submissions to Fiona Dix, *Interfaces* production editor; email: fiona.dix@hiraeth.com

PDFs of *Interfaces* issues 35–68 can be found on the British HCI Group website, www.bcs-hci.org.uk/interfaces.html



Deflections

Are we really so thoughtless?

Gilbert Cockton

One year into my NESTA fellowship on Value-centred Design, and I'm unsettled by a common response to my work: "somebody has to do the thinking". I get even more uncomfortable when people outside of HCI, one a long-standing design facilitator, innovator and educator, say the same. I really can't be the only person in HCI, never mind Design, who's thinking about what we are doing and why.

Comfort returns: these utterances aren't to be taken literally. Of course other people think, but I have the luxury to focus away from immediate issues in research and practice about usability methods, user experience design evaluation, designing for context and interaction design. As a result I can focus on some bigger questions, although there are days when I am intimidated by the sheer scale of what we mean by 'value', which erases distinctions between the narrow field of interaction design and Design in general. 'Value' is a big 'meaning of life' word that has me pining for the comfort of time on task, error rate and Likert scale measures.

There's more to life than context, cognition and emotion (really). At the very least we must embrace volition as a key HCI focus

The binary distinction between thinking/not thinking is not intended, so what is? The short answer is that I'm wrestling with the things that get avoided (and now I know why!) but are central to *all* Design (when defined as the 'Creation of Value') and to HCI. But even this is too simple: one brave Gilbert in the midst of lily-livered researchers and practitioners in 'drunk under the lamp-post' mode, looking where the light is best and not in the dark where they actually dropped their keys. So, as well as rejecting a literal analysis, I also reject one based on self-virtue in the face of grim challenges. I'm not HCI's Clint Eastwood.

So, what's left as an explanation? My preferred one is that someone has to do the thinking because mainstream HCI and Design get too easily distracted. During design, there's too much comfort in focusing on artefacts and systems, rather than on purposes and intents. Here, modernist designers align with software engineers. Underneath a veneer of HCI, both imbue their designs with strong hCi powers where cool features will overpower all usage contexts. Not all, however, go as far as some design idols whose Platonic virtues transfer from their creative spirits into their designed objects. So, it's not long before any initial focus on users and usages gives way to a less fraught focus on the shaping of craft materials, or even to the ego-laden focus of design stars.

Crafting designs is comforting: choosing the colour of a background is far less fraught than deciding the purpose of the whole application (suite). The design equilibrium of craft practice pushes deep questions aside. Existing views of HCI go unquestioned. And most were forged by outsiders (especially

by project and programme sponsors). For example, industrial and public sector views tend to keep us locked in the 1980s hope that adding psychology to computer science would result in 'user-friendly' systems that are easy to learn and a pleasure to use (based on guidelines and 'best practice' of course). Alternatively, within academic research, ethnographic approaches marginalised cognition and crowned context king. Each focus does have value: cutting edge design practices have made good use of anthropological approaches, and have blended in the aesthetic and affective sensibilities of 'proper' designers from 2D and 3D disciplines. Despite adding to cognition, first context and then affect, we are still just scratching the surface of humanity, and the I in HCI still dominates the H.

Much more is needed to move us from hCI to Hci. In her opening keynote at NordiCHI 2006, Suzanne Bødker argued that the third wave of HCI must "embrace people's whole lives". There's more to life than context, cognition and emotion (really). At the very least we must embrace *volition* as a key HCI focus, grounding designs at the interface between individual motivations and the agency of social collectives such as families, communities (from neighbourhoods to nations and beyond), institutions (political, religious, cultural and commercial), markets, and less formal 'organisations' (clubs, street cultures and other communities of kind). For Suzanne, the move from the first to the second wave lay in Liam Bannon's refocus from human factors to human actors. A refocus on volition will move us further to human *satisfactors*.

The fact is that we have been thoughtless in that we are only now having a critical reappraisal. The affective refocus of user experience (especially the niches of funology and ludic computing) was long overdue when it emerged at the end of HCI's second wave. As HCI moves from a near exclusive focus on work systems, we will all have to confront human nature in all its richness. This offers the HCI community its first real opportunity to define ourselves by ourselves for ourselves. We must stop simply accepting the views of others, whether corporate management, optimistic psychologists, academic anthropologists or the acolytes of the experience economy. We must question, and our answers must be our own.



Gilbert Cockton is Research Chair in HCI and Chair of Interactive Digital Media in the School of Computing and Technology at the University of Sunderland. He currently directs NITRO, a £3.6M collaboration between four universities to provide access to expertise and facilities for digital companies in north east England. Gilbert was recently awarded a NESTA fellowship for his work on value-centred design.

Gilbert Cockton
gilbert.cockton@sunderland.ac.uk

Battery matters

Russell Beale

Why does my mobile phone battery not last long enough? It doesn't really matter how long it actually goes for, it's never quite enough.

Which brings me to my new phone. Now, I used to be a phone junkie: I had one of the first pocket-sized analogue mobiles – though I used to wear Rohan bags, and for those who don't know, you can get a sizeable amount of iron-mongery, and provisions for a week, in the pockets of those trousers. I still have my first digital mobile phone, and it really is like half a housebrick, only blue not brown in colour. Mind you, even that was replaced by a temporary substitute that was brick brown in colour; this was before phones became a fashion accessory, obviously. It was so far back, Rohans were almost still trendy, for goodness sake. But I'd not updated my phone for over two years, maybe more – the previous one did all I wanted it to and worked quite reliably (even surviving being dropped into the sea) – yes, it had a black and white screen, and it didn't have a camera, but it did all I wanted it to. Until I got a TomTom navigation system for the car.

These are GPS devices that tell you where you are and how to get to where you want to go, and dynamically recalculate their directions if you deviate *en route*. Interestingly, from a psychological perspective, they are devices that you buy so that you always know exactly where you are – and promptly become completely unaware of your location, so completely do you transfer direction-finding and positioning tasks to them. But back to my theme: their other advantage is that they can check with a central server as to the traffic conditions on your route, and adjust your timings or directions accordingly, ensuring you aren't unduly delayed. For this to work, the devices need a mobile data connection, and this requires Bluetooth to connect to the mobile phone. And my old phone didn't have Bluetooth. Infrared, yes, Bluetooth, no. So, time for a new phone.

It's really whizzy – not too big, but with a decent-sized screen. Bluetooth, so it can connect to my TomTom. Infrared, so it can connect to my old laptop, which doesn't have Bluetooth. It's 3G, GPRS, EDGE, and, as far as I know, PAYE, VAT and DIY as well. It has a digital camera – actually, it has two – and takes video and records sounds and plays songs and speaks the name of the person calling. It supports Symbian operating systems and Java ones, including the Java location API. It even has wireless connectivity (I'm not sure why this excites me, but it does, and I am sure it will be useful – somehow). So far, so good. The operating system is usable, the interaction understandable (it could be improved, in places, but is basically fine). It works well as a phone, okay as a camera, badly as a video recorder, and as for being a wireless access point, well... but overall, it's great. Except for the battery. It lasts less than 48 hours.

Now, that's not quite a weekend, and for me, that's not long enough. My other phone lasted for more than a week, and with this one I have to carry the charger with me wherever I go. Usability, portability, user experience – all shot to pieces because of the battery life. You may say it's because of all the extras on it. And yet, interestingly, I've just tried an experiment. I've turned off Bluetooth, and the wireless connectivity.

I've even turned off the dual mode networking, getting rid of 3G connectivity and going back to good old GSM. I've not used it as an MP3 player, or a video recorder. I have taken a few odd photos with it, and sent a few text messages, and called a couple of people briefly. And it still gives me only two days before collapsing in a small heap (with, I'm frustrated to report, still one bar of battery life indicator sitting in the display).

This is not good enough. I can accept that if it's doing a multifunctional role and working on five different things at once, then I should accept a much reduced life. But if I ask it just to act as a phone, and to do it simply, then it needs to at least last me a weekend. For all the gadgetry and gimmickry, it has to operate as a mobile phone – which means fitting into people's lives, which in turn means that they should be able to take it away with them for a few days at a time and not worry about it. Being dead is not very usable.

It's very frustrating, when you're doing anything, for batteries to die unexpectedly. I once knew an elderly chap, who had lived a wild life – he leant across to me, and said, "You see this pacemaker here? Well, the battery in it is able to " ...



Russell Beale leads the Advanced Interaction Group in the School of Computer Science at the University of Birmingham. His research focus is on using intelligence to support user interaction. Before returning full time to academia and research in 2003, he co-founded, ran, or worked for various internet-related companies.

Russell Beale

R.Beale@cs.bham.ac.uk

Advanced Interaction Group, University of Birmingham

Call for Papers

**The Shock of the Old 6:
The Shock of the Social**

Saïd Business School, University of Oxford
22 March 2007

Shock 6 will explore the issues arising from the rise of social networking tools, Web 2.0 software and related collaborative technologies, and how best to make use of these innovative tools in teaching, learning and research.

Submissions deadline: 5 January 2007

<http://www.oucs.ox.ac.uk/ltg/events/shock2007/>



Wish you were here?

Introduction

Scientific research and EU projects seem almost obsessed with making people travel to other places, which they would not normally be able to visit or even consider visiting, whether this be through Star Trek style methods such as teleportation, mixed and virtual realities, or more conventional methods such as Ryanair. However, teleportation and Ryanair aside, one interesting and expanding area of research is within the field of mixed reality (MR), or environments that seek to combine the real world with computer generated models. In this article there will be a brief overview of the issue of presence in MR, through to a quick look at the IPCity project (www.ipcity.eu). Finally, after many requests, a section on tips for academics travelling to the Rhine region of Germany and the Free State of Bottleneck is provided at the end. The latter, you may be surprised to hear, is already a member of the EU.

Presence and mixed reality

The issue of presence in virtual environments (VEs) has been subject of much heated debate, with many people viewing it as a theoretical diversion technique in order to take time and resources away from the real issues of the underlying technology. Indeed with there being so many different definitions, such as “the subjective experience of being on one place or environment even when one is physically located elsewhere” [1], or “the perceptual illusion of non-mediation” [2], through to “forward and backward presence” [3], it is clear that the debate is just as heated within the presence community. And this ignores the plethora of models, evaluation methods and associated research.

The debate on presence in VR will no doubt continue; however, I would argue that several of the key areas such as theories and measures have now been covered, to the extent that industry may be able to draw upon and use them. This maturity perhaps indicates the success of this research topic, although several sceptics will no doubt remain. By contrast MR represents a comparatively untapped area of presence research. For example, with VR the difference between real and virtual is almost always clear – i.e. people have to visit a specific location and take part using head-mounted displays, CAVEs or desktop VR. However, in MR the divide is not so obvious, for example the experience can be anything from a real world environment with a few augmented objects to one that presents multiple simultaneous experiences of different spaces and times. Moreover, these interactions can take place anywhere using a range of technologies from mobile phones through to dedicated MR hardware, which in theory should make MR experiences more accessible to the general public. Furthermore, mixed realities reduce the division between participants and non-participants, as passers-by can in theory become part of the experience without even knowing it, which in turn opens up a whole range of ethical and social presence issues.

Mixed reality environments also present a number of exciting benefits when compared to virtual reality, as in theory an entire city can become the stage, as opposed to VR where there is usually a finite computer-generated model. Moreover,

such mixed reality environments should overcome problems with realism as large parts of the scene will be the real environment in which users find themselves. However some issues will no doubt remain with respect to the image quality of the augmented (rendered) objects.

IPCity

With MR opening up a whole range of exciting theoretical and technical innovations it is perhaps not surprising that the EU has chosen to fund the IPCity consortium. IPCity brings together partners from across Europe including Fraunhofer FIT (Germany), Aalborg University (Denmark) and Sony Netservices (Germany). The project has the dual role of exploring the issues that surround presence in mixed realities and developing new devices and software that support MR interaction. Outputs of the project include four showcases entitled: Time Warp, City Tales, Large Scale Events and Urban Renewal.

With mixed reality, time travel becomes almost old-hat; indeed with appropriate advances in technology it should be possible to augment the real city with stories about people and places from the past or future. One such example is the proposed Time Warp showcase within IPCity, which currently exists in the form of a board game prototype (see figure 1). In Time Warp, participants are asked to find the local Heinzelmännchen, who are fictitious characters trapped in different time periods. To do so they need to visit several locations across the city of Köln (Cologne) and interact with virtual characters and objects. Moreover, the environment will be augmented with sites from that particular time period. Although this exists within a game format, other applications could include tourist information, where people can see the city of Köln in its former glory.

In addition to the accidental participation by members of the public highlighted earlier, MR opens up other exciting possibilities for public participation. Public involvement can, for example, allow city dwellers to share aspects of their life with

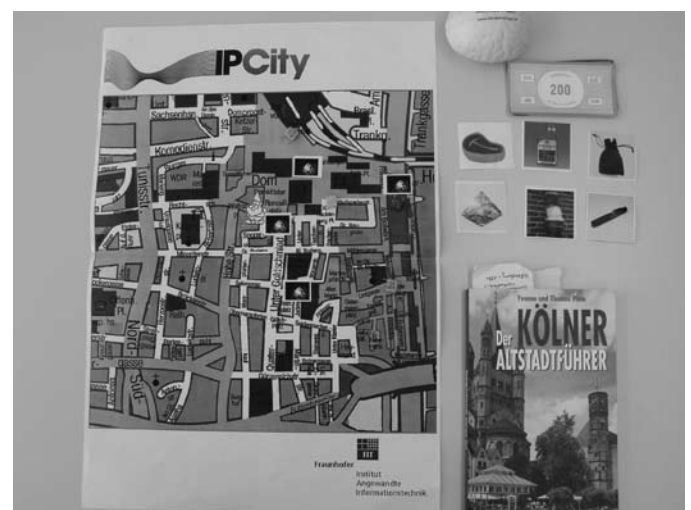


Figure 1 A picture of the Time Warp board game in action. The counters on the board represent players and Heinzelmännchen.



participants taking part in the MR experience. These stories can then be woven into the MR experience and other people can share in the experiences of the city dwellers. In many ways this idea forms part of the City Tales showcase and is one way to overcome the problem with virtual reality, which is usually a technology for the most part that members of the public have only heard about but rarely seen, let alone used – with the notable and debatable exception of computer games.

There are of course many other areas where mixed reality can play an important role, for example within town planning, by letting designers and planners view changes to a city from within the actual city itself. Other areas also include large-scale events, which could use such technology to increase the level of audience participation. Both areas are also explored by the IPCity project.

The presence community

Of course, all this talk of being somewhere else opens up a whole range of interesting research issues, from defining new models of presence to how on earth to measure it. There are already a number of useful sites on the Internet, not least www.presence-research.org, which has many links to interesting articles covering these areas, and also the associated area of sense of place. More recently, though, the EU has instigated the PEACH co-ordination action (CA), which is managed by Starlab, in partnership with, among others, Napier University, Fraunhofer and the University of Zagreb. Although in its early days, the PEACH CA should provide a good forum for researchers to share their knowledge of this expanding research area. For more information visit www.peachbit.org.

Acknowledgements

The author acknowledges the assistance of Iris Herbst and Hagen Buchholz, both of Fraunhofer FIT, for providing information which has been used in this article.

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Rod McCall is a post-doctoral ERCIM research fellow and is based in the CVAE group at Fraunhofer FIT in Sankt Augustin, Germany; a short trip from the Free State of Bottleneck. Prior to this he held the same post at the Public Research Centre – Gabriel Lippmann, Luxembourg. He was also a senior research fellow within the HCI group at Napier University, Edinburgh.

Dr Rod McCall
ERCIM Research Fellow
FIT Fraunhofer, Sankt Augustin, Germany
rodmc@acm.org

Tips for travelling academics: Rhine area 1

For those seeking to organise workshops at a suitable time of year, why not try September when the Rhine on Fire (Rhein in Flammen) event takes place? This basically involves visiting one of the many towns that lie on the Rhine from Rudesheim to Bonn and drinking lots of wine including the German Ice Wine. Interestingly, nearby lies the former Free State of Bottleneck (Freistaat Flaschenhals pop. c8000 – which makes Lichtenstein look big). From 1919–1923 Flaschenhals was an independent country that arose due to a mapping error and existed between the allied areas belonging to the French and Americans. They had carved up the land by drawing circles, neglecting to realise that spaces arise between circles. Flaschenhals (Bottleneck) thus took its name from the shape and (almost) its size. In 1924 after a brief period of French occupation and having to rely on its own currency and smuggling to survive it was finally reunited with Germany. For the beer drinker, be warned that when asking for a beer in Cologne or Bonn you may end up with a Kölsch, which is a 200ml serving of the amber nectar. The sheer horror will probably cause the average Sun or Daily Mail reader to take an immediate flight home. However, that aside, the Rhine region of Germany is certainly worth visiting.

Tips for travelling academics: Rhine area 2

The Dom is the second largest Cathedral in Germany and took from 1248 to 1880 to build. The cathedral dominates the Köln skyline and, despite its visibility, remained untouched during the Second World War. Locals suspect that the RAF intentionally avoided bombing it, despite laying waste to most of the city. When fireworks are set off in the city, locals joke that the RAF are flying over again.

Moving along the Rhine you might want to visit Düsseldorf. Rivalry between the cities is intense and was exacerbated when, after the Second World War, the British created Nord Rhine Westfallen and made Düsseldorf its administrative centre.

Oddly enough, this industrial area became a crucible for the emergence of electronica, and in particular ambient music. One of the first modern ambient pieces was recorded in the Dom and, more significant perhaps to HCI practitioners, is that Düsseldorf is home to man–machine symbiosis pioneers Kraftwerk. And Goethe and Joseph Beuys.

<http://www.freistaat-flaschenhals.de/eng/index.htm>, accessed 27 October 2006



What's your view on Web 2.0?

There has been considerable debate on the definition of Web 2.0 since Tim O'Reilly first added a suffix to something (i.e the Web) that many of us thought of as being fixed. Or at least if the Web was not set in stone then at least most people saw a gentle evolution from today's browsing to tomorrow's rich user experiences. Most of the discussion on 2.0 has been from a business and/or technical perspective. So it is refreshing to see HCI practitioners beginning to enter the debate and hopefully shifting the focus towards what the reality means for users and HCI.

General thoughts on Web 2.0

Oliver Tse

Recently, I was asked to give my thoughts about Web 2.0. So, in my email reply to my colleagues, I noted a few important properties of Web 2.0 as based on Tim O'Reilly's piece (www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html).

On collaboration This is important because it demonstrates a 'democratization' of data where 'users add value' by aggregating their own data to existing information. This means users are not just authors but also *collaborators*. I pointed out that a good example of this is Google's Writely (<http://www.writely.com>).

On relevancy I noted that another important point of Web 2.0 applications is that relevancy and importance are determined *not* by the producer but by the consumer. The general idea is that when more people use something ('use' means viewing, accessing, tagging, etc.), that something is more important than if that something is used less. Consumers determine value. Producers do not. Two good examples of this are Flickr (<http://www.flickr.com>) and Digg (<http://www.digg.com/>).

On integration and interoperability Web 2.0 applications easily facilitate integration and interoperability due to 'a network of cooperating services'. Systems expose lightweight APIs, which allows others to interact with the data or use the APIs to manipulate their own data. This has fostered a bevy of 'mashups' which use a number of technologies to get at the data and the APIs. I even noted a 'mashup' that I wrote which uses an RSS feed from Zip Realty and the Google Map API. It is all sewn together the old fashioned way using HTML, CSS and a little JavaScript – <http://www.skypoet.net/mashups/gmapHomeGrown/zipRealty1.html>.

Not long after I wrote that email, it occurred to me that though we may define Web 2.0, nowhere in the definition do we say that the application is richly interactive. We naturally assume that it is.

I think that assumption is correct because another important piece of Web 2.0 that I did not mention in my email is that Web 2.0 treats applications as a service. In fact, I would argue that successful ones are not only service-oriented but are also richly interactive applications (RIA). For this example, look no further than the history of Web email services.

Email applications, by nature, are services. Every email you receive and send is facilitated by a server. This has always been the case from the days of the first Yahoo! mail to today's

Google Gmail. I think most people thought email was solved. Well, at least Yahoo! and Microsoft did.

Google approached email differently. Rather than treat the Web as a collection of static pages with a refresh on every request, they took an approach where partial page updates would be the norm. Why update the entire page, when you only have one new email appear in your Inbox? Why not update just the part that changed?

Consumers determine value. Producers do not.

This relatively simple idea changed the way we look at Web client behaviour (note that the 'idea' has been known for some time, but it took a large application with the mass audience of Google to make it well known). Why not treat the Web application as if it was a local application – as if it was installed on your system? Why not have seamless behaviour and every HTTP request be behind the scenes without you even being aware of it?

In fact, the success of Gmail forced Yahoo! to re-launch their Web email and their new version is rich with interactivity.

With the growing number of people having broadband, the maturation of JavaScript toolkits such as Dojo, Bindows, etc., to facilitate Web development (DOM manipulation, Ajax, etc.), and with other competitive technologies such as Adobe's Flex 2.0 and Microsoft's WPF along the way, Web 2.0 will indeed make applications more interactive.

The significance of this is that interaction designers will need to address workflows in a manner that focuses on partial page updates (for example, should you paginate large lists or use the scrollbar?) rather than assume full page refreshes.

In fact, designers like Yahoo!'s Bill Scott are already tackling workflow issues with their UI Design Patterns library (<http://developer.yahoo.com/ypatterns/>) supplementing their JavaScript toolkit and rich set of REST APIs. While other more 'development centric' people such as Mike Mahemoff have patterns on the use of Ajax (<http://ajaxpatterns.org/>).

I am sure that we will see more in the months to come.

Oliver Tse
otse@hyperion.com



Developing Web 2.0

Dave England talks to Josh Nimoy

Dave England talks to artist and programmer, Josh Nimoy, about Web 2.0 and his development of the www.hci-fun.org.uk site

What does Web 2.0 mean to you and what advantages do you see from a developer's point of view?

If the web business was a Christian sect, Web 2.0 would be the second coming. It is a gelling of esoteric industry concepts. What I find funny and interesting is that people in different digital industries describe it in their own way, and understand it in different ways. I subscribe to a subset of the Tim O'Reilly definitions on Web 2.0 (http://upload.wikimedia.org/wikipedia/commons/2/21/Web20_en.png). Speaking from a developer's point of view, I see it as a way to cut out a lot of programming time. It also provides a pool of convention during my client negotiations while discussing interface and back-end issues.

Thinking specifically about the HCI site what were you able to do and what end user tasks were you able to support?

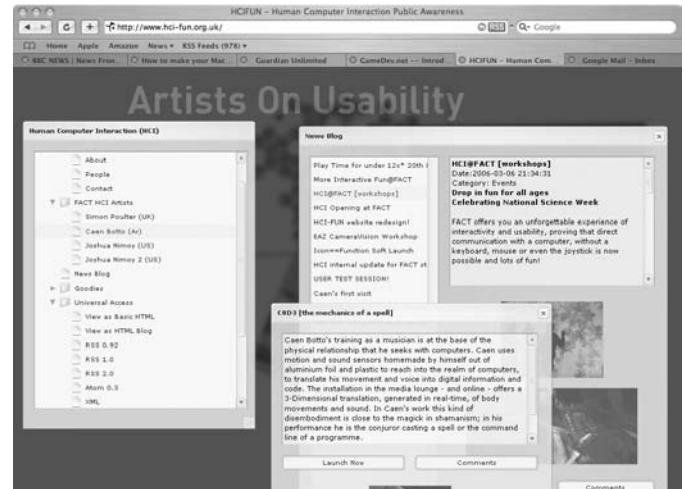
I was asked to build a website and given empty server space at John Moores University. I installed Cygwin for SSHD, and did the usual request to open firewall ports. I then installed various open source frameworks onto the system, most notably a very successful blog engine called B2Evolution. I then wrote a semi-progressive Flash app that fills the browser window and provides draggable in-browser windows with little default Macromedia components. I had not really done anything in this style before, but I figured it would be relevant for an HCI website, which ponders OS controls, among other things. I had no intention of doing anything in any 'Web 2.0' way. Rather, I just looked to what was efficient for the scenario.

If I wanted to be harder-core Web 2.0 with the HCI website, I could have written the front end in AJAX rather than Flash, and just used some blog account elsewhere rather than installing a custom blog engine onto the server. In terms of efficiency, I liked the sudden rush of features you get after a 30 minute install process. It is overkill, but you only need to use a subset of it. It had more user tasks supported than I would ever need. In fact, the blog engine provided too much facility and I believe it was too complicated for some users to bother with.

As a developer, I am accustomed to negotiating new features in software I write. When dropping in these overkill frameworks, the conversation usually becomes much shorter, because it is more a matter of showing the user the way to operate the part of the interface that has been exposed to them. In addition to blogging, users were also able to edit all the content on the website, upload sounds and video in a guided way, and SSH into the server for more advanced work. For developers, the Flash front-end was done in open source (GNU license) using two applications called mtasc and swfmill. A link is made to the actionscripts and even the basic document structure (the equivalent of a FLA file) in XML form.

What elements of Web 2.0 do you think are over-hyped?

For my own network of developers, there is disagreement about what is more 'Web 2.0' than another thing. I have experienced a lot of trouble with clients on implied understanding and I think that is due to a lack of description on the specifics than using the term 'Web 2.0' itself to describe something. I have the same problem with using the term 'AJAX' with people. You can't just throw in the words into a conversation



casually. I think we need to stop focusing on the discourse on collaborative nomenclature and return to doing the work. In the words of Alan Watts,

A person who thinks all the time has nothing to think about except thought. So, he loses touch with reality and lives in a world of illusions.

Finally, where do you see Web 2.0 going in the future and what particular developments are you interested in seeing?

I'm interested in projects that try to take Web 2.0, as a style of software, in some direction of *excess* or deeply evolved form. I am a big fan of the pursuit of collaborating well. I also like watching the way businesses use web APIs in order to make use of the wealth of open source whilst protecting their growing body of IP. I often wonder about Google's dominance and the popularity of newer projects like YouOS. I hope that in the future, we will see less complexity in the discourse.

The HCI Fun II project was funded by the EPSRC Partnerships for Public Engagement with Science initiative

Dave England

School of Computing and Mathematical Sciences
Liverpool John Moores University.
D.England@ljmu.ac.uk

Josh Nimoy

www.jtnimoy.net

Pre-Google and the emergence of the various technologies described in the two articles, a lot of HCI work was about making sites intuitive by creating good information architectures. Now, this focus seems out of step with users' expectations having been raised by Google Search and, I assume, a shift from menu navigation to keyword searches. From my own experience I hardly ever visit sites and systematically go through their menu options; instead I Google. It is a bit like the Sony Walkman. I didn't know I wanted a portable tape recorder with a set of headphones I could carry around but when I got one it suddenly made sense and life was more interesting. Web 2.0 reminds us that improved user experience is not just about understanding users in the present but also speculating on the possibilities that new technologies can offer. If we do not balance speculative design with research we can end up being stuck at 1.0.



A passage to India

Andrew Dearden

I'm lucky enough to be leading a new EPSRC project which is part of their 'Bridging the Global Digital Divide' initiative, which is supporting UK researchers in addressing IT solutions that might support international development. The initiative was kicked off around Christmas 2005 at an IDEAS Factory Sandpit.

As a result I am trying to learn quickly about successful design approaches for IT in rural India. The experience has been fascinating and reminds me of some basic principles in designing systems for people in both the developing and the developed world. Most importantly, recognising that designing information systems is about focusing on *human* benefits, that effective systems have to be sensitive to their context of use, and that often good design is about seeing what is possible with the resources to hand.

A couple of examples illustrate this point. The first is the basic idea of microfinance self-help groups. The idea is that people on low incomes do not have enough money as individuals to establish their own bank accounts, and are unable to take loans from traditional banks because of the small sums involved and the difficulty for the bank in assessing the reliability of the borrower. So, instead, a co-operative self-help group is established, with each member saving a small sum every week or month – this might be as little as 50 Rupees (60 pence) a month. The savings are recorded by the group (in paper notebooks), and an agent from the bank or microfinance provider operates an account for the whole group. When a member has established their ability to save regularly, they are then able to take loans from the microfinance provider, with the social pressure of the group making sure that the loan is repaid. This whole activity may not involve any computers, but it does involve an information system (remember the notebooks). The service drives down the cost of loan transactions by applying the network of 'social capital' (represented by the personal links between the group members) to reduce the risk. You may have noticed that the economist who 'designed' this system (Dr Muhammad Yunus) was awarded the Nobel Peace Prize.

The second illustration is rather different. This is a scheme to provide farmers with expert advice on their crops. The scheme called e-Sabhu is based at IIIT Hyderabad. Here a group of agricultural experts offer advice to remote rural farmers – but this is not just generic advice about how to grow different crops – the aim is to advise the farmers about the problems that they are having with their crops right now. The system works by agents going out to the farmers, taking digital photos of the crop and listening to the farmers' questions. The photos and questions are taken to a district office that writes them to CD. The CD is posted to the experts in Hyderabad who can then give the advice. The farmers have to pay for the service, but recoup the benefits in increased yields/reduced input costs. Here again, the service is relying on people as much as the technology. Intermediaries are needed to translate from the farmers' language and situation to the electronic medium in which the images are exchanged, and humans are used to provide the 'transport layer', namely the Indian postal service.

Both of these examples show how good solutions to complex problems arise from effective use of resources that

What is an IDEAS Factory Sandpit?

The Sandpit is a new idea for EPSRC in the way it allocates funding – though it is probably quite mainstream for people involved in interactive systems design. Basically, it involves selecting a group of people who are interested and competent to investigate a topic, locking them up in a (posh) conference centre for 5 days, and telling them to define a research agenda, then design (and peer review) some projects to investigate that agenda. In the sandpit, there are all the usual components of any successful design activity: coffee, felt tip pens, pieces of card, flip charts, lots of floor and wall space on which to cluster/group and sort these things, and plenty of ice-breaking/team building games and activities (run by professional facilitators) to get people to work together. A group of 'mentors', who are experts in the particular research field, oversee and assist the development of the ideas. The people in the sandpit act as both the proposers of the projects and the peer reviewers and funding panel. The outcome is a set of projects that EPSRC then agrees to fund (subject to a suitably written and costed proposal being written up and submitted after the sandpit). For more information see <http://www.epsrc.ac.uk/ResearchFunding/Programmes/Cross-EPSRCActivities/IDEASFactory/default.htm>

are already present in the environment and of the people who hope to benefit. And the systems are designed to provide benefits that make sense in the particular context, that the intended users can recognise, and in a form that they can use.

In the international development literature, the sustainable livelihoods approach considers people's situations in terms of a pentagon of different assets at the individual, household and community level. The types of assets discussed are human (individual skills), social, (community relations, linkages and organisations), financial, physical (tools) and natural resource capital. For details see http://www.livelihoods.org/info/guidance_sheets_pdfs/section2.pdf.

These solutions make use of different mixes of these elements. Perhaps, as designers, we have something to learn about this approach to problem solving.

Our project is called 'Rural e-services: Participatory co-design of Sustainable Software and Business Systems in Rural Co-operatives' – that is providing e-services (particularly financial services such as micro loans) in rural areas of the developing world. So how can we drive down the costs of running microfinance schemes still further by applying ICT? That probably means applying low cost devices (mobile phones, PDAs or similar) usable by people with limited IT skills (and often limited literacy). But most importantly, it involves us working with communities to find effective ways to use the creativity and the resources that they already possess to create benefits that are relevant to their context.

The partners are myself, looking at the problem from a participatory design perspective, Dr Xiaolan Fu (an economist at Oxford) looking at economic sustainability, Paul Matthews (a researcher at the Overseas Development Institute), Dr Sebastian Wills (an engineer with experience of design for development) and Subodh Gupta, who manages an NGO promoting microfinance and livelihood initiatives in rural India.

Andy Dearden
A.M.Dearden@shu.ac.uk

My PhD

Encouraging collaborative creativity in a music-composition based task

edited by Martha Hause

I began by looking into learning theories with regard to developing educational software, and realised the similarities between the processes of learning and creativity. Taking this into account I began researching into social learning theories and existing models of the creative process. This raised two questions for me, firstly, "how can we encourage children to think creatively in the classroom?" and secondly, "how can technology be used to assist with this?". As a result of this I developed a generative framework for creative learning which presents a distillation of creativity theory and can be applied to the design of classroom-based materials and the design of educational software. In order to demonstrate how the framework can be applied in software design I created an educational program called SoundScape. SoundScape is a creative-collaborative music composition program, which has been designed and tested for and by school-children aged 11 years.

Wallas's four-stage model was adapted as the fundamental basis for this generative framework (Wallas, 1926), with the processes of preparation, generation and evaluation represented laterally across the framework (see Figure 1).

of the framework. Students simply drag the objects from the coloured boxes onto the theme and structure them on the composition background. In terms of the framework, it is expected that students will collaboratively discuss and personally construct ideas. It is also expected that pair-wise discussions may also trigger further realisation of ideas. In terms of evaluation, it is expected that on an individual level, a student will form their own judgements concerning the composed work. On a collaborative level, it is expected that pair-wise reflection and judgements concerning the composition will take place. Arising from this, students may move between generation and evaluation phases as refinements are made to the composition. Students might then seek wider evaluation of their composition from their peers and/or teacher. Screen shots of interactions during the three framework processes are illustrated in Figure 2.

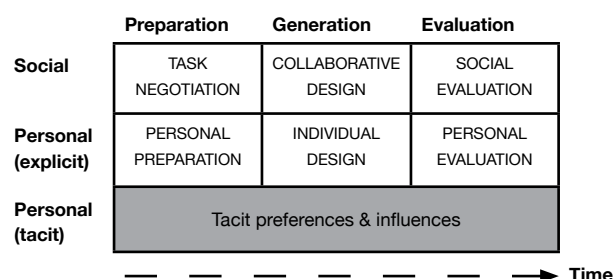


Figure 1 An integrative framework for learning and creativity

The vertical dimensions of the framework reflect individual and social components. Here 'social' refers to others, peers and society. Personal levels reflect explicit and tacit levels of thinking. Regarding preparation, an individual will develop a curiosity or a desire to create at the personal level. Once this desire has been established, information is consciously accumulated from the external environment and thoughts may be discussed with others on a 'social' level which the individual can reflect upon. Inevitably, the way in which an individual prepares for the task will be influenced by their past experiences. The generation process of the framework encompasses social and personal design. Within this process ideas are generated which can involve negotiation between the individual and peers in their environment. The evaluation process concerns reviewing early creative ideas through to evaluating the final artefact.

SoundScape has been specifically designed for school-aged children, allowing them to work collaboratively and creatively to construct a piece of music in pairs. Students begin their interaction with SoundScape within the preparation process of the framework. Students are set the task of selecting one of four themes, comprising a street, a jungle, an ocean and a space theme, and are then presented with ten cartoon objects associated with the theme, which they then match to music samples. At this stage, students can be expected to discuss the task to be completed within the pair. The composition interface is the point at which students enter the 'generation processes'

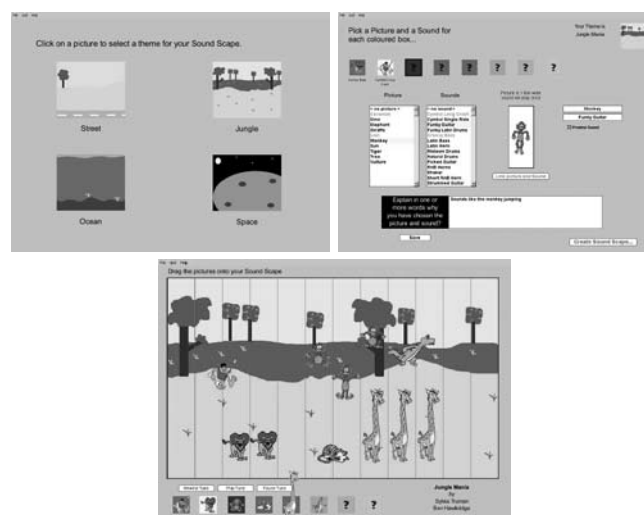


Figure 2 Software design: Designing in accordance with the framework

The SoundScape system was tested by 96 school children (aged 11 years) in music composition tasks. The generative framework presents an approach towards advancing educational materials through technology by considering the creative process in any domain. The framework has been developed to encourage a more HCI-centred approach towards the design of systems focused on supporting and encouraging creativity. Results from the study are currently being analysed.

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Acknowledgements

Ben Hawkrigde (Knowledge Media Institute, The Open University) for his assistance with developing SoundScape.

Sylvia Truman
 Knowledge Media Institute
 The Open University
 Milton Keynes
 MK7 6AA
 s.m.truman@open.ac.uk

Martha Hause
 m.l.hause@dsl.pipex.com



HCI 2006 Workshop Reports

CCID 2006: The First International Symposium on Culture, Creativity and Interaction Design

Peter Wright

CCID 2006 is the culmination of a two-year Culture and Creativity Research Network funded by the UK's EPSRC. The network, LeonardoNet, is funded to define a programme of research at the intersection of culture, creativity and interaction design. It draws together researchers from art, design, computer science, engineering, architecture, and cultural and media studies. The idea is to look at how researchers in the arts, sciences and humanities can work together to develop a research agenda for social and cultural applications of interactive technologies. The network functions through a series of workshops and the production of a number of interactive artworks that bring together participating researchers from around the UK. The aim of the CCID Symposium was to encourage wider participation from around the world and also, to some extent, to disseminate the work of LeonardoNet.

The CCID day was 'topped and tailed' by two invited keynote speakers. Professor Jay David Bolter is the author of a number of books at the intersection of arts, new media and HCI. Jay spoke to us about the theories of Walter Benjamin and how his concept of 'Aura' can be used to understand the nature of interaction with today's new media. Professor Andrew Feenberg is a researcher in science and technology studies, whose Critical Theory of Technology is gaining some interest in interaction design. Andrew spoke to us about the way his approach can be used to understand how cultural assumptions about technology shape design processes.

The symposium attracted presenters from the USA, Australia and Japan, and the papers and posters included topics such as digital literacy, popular culture and critical theory,

computer support for creativity, interactive narrative and streaming video, interactive art as a resource for learning and as production method, body movement and affect, performance art and game design, affect and interactive product design.

Artworks produced by members of LeonardoNet were also on display for the symposium. *Threshold* uses sound and touch to explore the experience of boundary crossing. *The Literary Fridge* provides a digital interactive version of fridge poetry. *TIDE* expresses the experiences of a textile artist working with a graphical user interface for the first time. *Slowtime* offers an audio-visual representation of the timescapes of everyday possessions. *iPOI* uses sensor and wireless technology to allow people to perform together in a music-and-image environment. *Weegie* is a community art installation using vision-projection and audio photos. *HCI-fun* allows users to explore alternative interaction paradigms and HCI principles.

Feedback from the workshop has been very positive especially from overseas speakers and the keynotes who were excited by the interdisciplinary dialogue that characterised the day. We hope this will be the first of a possibly biennial event.

Check out the website <http://www.leonardonet.org/> for more information about LeonardoNet.

Papers will be available in a post-conference proceedings in December. Contact rachel.dare@cuhtec.org.uk.

Peter Wright
P.C.Wright@shu.ac.uk

Combining visualisation and interaction to facilitate scientific exploration and discovery

Elena Zudilova-Seinstra

On 11 September 2006 twenty-eight participants from the United Kingdom, Netherlands, United States and Australia met to discuss the integration of modern interaction and visualisation technologies. The aim was to employ HCI research to improve interactive visualisation tools and systems available for scientific research.

First, authors of selected contributions presented results of their ongoing research. A wide range of topics were covered, including: models, principles and practices of interactive visualisation; usability and design guidelines; novel display systems and interaction devices; collaborative and high-performance visualisation.

Then we split into two groups to discuss visualisation problems and to outline possible solutions. The results of this discussion are summarised below.

Both groups stressed that adoption by end-users (scientists) is crucial. To achieve this, HCI design practices need be actively integrated into the software engineering pipeline to ensure users' involvement in the design process starting from the early visualisation prototypes. Also, all participants agreed

that it is necessary to develop and apply novel interaction modalities to allow more natural user interaction with scientific data. Efficient visualisation abstractions can also be helpful if they are presented to users in ways that reconcile expressiveness and ease of use.

Some other problems were also identified, including the amount and complexity of scientific data. The data explosion has led to very large detailed datasets and the level of detail in these datasets continues to grow. The time has come to break down the artificial barriers that currently exist between information and scientific visualisation experts, and start actively working together to find efficient solutions for the analysis of large-scale scientific data. Integration with networking and data mining technologies was also discussed by participants. The starting point for better communication with each other and with specialists from other domains is to develop a common 'interactive visualisation' terminology.

Elena Zudilova-Seinstra
elenaz@science.uva.nl



The role of emotion in human–computer interaction

Christian Peter, Elizabeth Crane and Russell Beale

Back in 2005, a number of courageous HCI researchers met for the first time for a workshop on emotion in HCI. Their intention was to share the thoughts, ideas, and – most importantly – problems they had with the vague, intangible, yet intriguing subject of emotions and their implications for human–computer interaction.

This first meeting had four main functions: showing what one has done, asking others their opinion, venting one's frustration at the increasing number of issues that arise when going deeper into the subject, and finally brainstorming possible solutions to some of these.

Following the success of last year's workshop we gathered again this year in London. The subject remained fairly wide and open: the role of emotion in HCI. Among the 27 participants were some from last year who happily reported on the progress they have made. The others were a broad selection from various fields: system developers, human factors researchers, multimedia experts, media designers, industrial designers with a foible for robots (and just a little knowledge about communication devices), psychologists with an interest in HCI, and HCI researchers with an interest in psychology. We all got on very well, found a common language (at least for the workshop), and worked together with joy and enthusiasm.

After very short introductions we discussed the issues most interesting to the participants and decided which subjects we should work on for the rest of the day. The following themes were identified:

Ethical and legal issues

From theory to practice: out of the lab and into the real world

Sensing and modelling

Affective applications and systems

Finally we formed three groups. The ethical and legal issues group was postponed for another occasion, since all, really all, saw the importance of this group but couldn't decide to join it.

The groups separated for the rest of the day and discussed their topics. Here is a synopsis of the notes from the workshop:

From theory to practice: out of the lab and into the real world

First we made clear that the drive behind our ambitions is to move out of the lab. We asked ourselves what value there is in affective computing (we agreed on that term for the time being) and came up with a few key phrases:

Increasing motivation

Increasing performance

Making products more attractive

Supporting social bonding and networking

Reassured that we were on the right path, we started thinking about how to approach real-life applications and found two ways: starting with the needs of the user and moving towards the application; and starting with the goal of the application and moving towards the user. We agreed that an in-out-in approach would be most practical: starting with users evaluating the whole application, going into the lab to scrutinise single isolated issues, identifying and improving specific parts of the application, testing the application again, going back into the lab and so forth. Although this doesn't look very scientific, we felt that this might be the best way to go on in the field and acquire more knowledge.

Sensing and modelling

The group began by discussing differences between emotion signals, modalities that carry signals, and sensors. We acknowledged that emotion signals are carried in one or more modalities (i.e. face, body, voice, physiological cues) and that more than one type of sensor may be necessary to adequately detect an emotion signal. The group agreed that a sensor is distinguished as the technology that captures a signal. It is not the job of the sensor to infer meaning from the signal. Currently, sensors are often intrusive and may interfere with natural behaviour. Once we develop a better understanding of affective signals it is important to develop sensors that fit naturally into our lives. We decided that, while developing sensors is technologically challenging, the inference of meaning from signals lies deep in the complexities of emotion theory and modelling. From this, we struggled with two key questions. First, does the ability to infer accurate meaning depend on task and context, or can inferences be made without such knowledge? Second, what is the best way to model a system with multiple affective modalities? More questions than conclusions were generated in this discussion. However, this group looked forward to continued discussions and collaborations throughout the year until we meet again.

Affective applications and systems

A broad range of possible issues were discussed: the role of emotion in systems, the desirability or otherwise of emotive systems, how to include emotion in systems, how to represent it, and so on. A number of potential application areas were also explored, ranging from games to driving aids to online shopping. We eventually focussed much of the discussion on one particular system, outlining how emotive agents may be able to help people improve their health, and explored some of the issues behind this specific application. These included how to represent the emotion, how to respond appropriately to users' emotions, and the ethical dilemmas of using empathy to affect people's behaviour.

At the end of the day the groups reported back to the workshop. We agreed on the following perceptions:

There are more questions than answers

Each answer has at least one question in tow

There are strong interrelations between most of the issues

Ethics must be addressed!

Finally the majority of participants expressed the wish to carry on discussions and keep in touch electronically as well as informally at other conferences. In addition, we decided to have a dedicated mailing list for this purpose.

After the workshop the group carried on discussions over dinner. The question of where to have dinner was fortunately answered beforehand by two caring participants who selected a very nice Turkish restaurant.

For those of us who didn't get enough, and for all others interested in the subject, there is now the mailing list, which can be signed onto via the workshop's website: www.emotion-in-hci.net. There you can also find the abstracts of the workshop contributions, photos, and personal impressions of the workshop. We look forward to another workshop on this subject in September 2007!

Christian Peter, cpeter@igd-r.fraunhofer.de

Elizabeth Crane, bcrane@umich.edu

Russell Beale, R.Beale@cs.bham.ac.uk

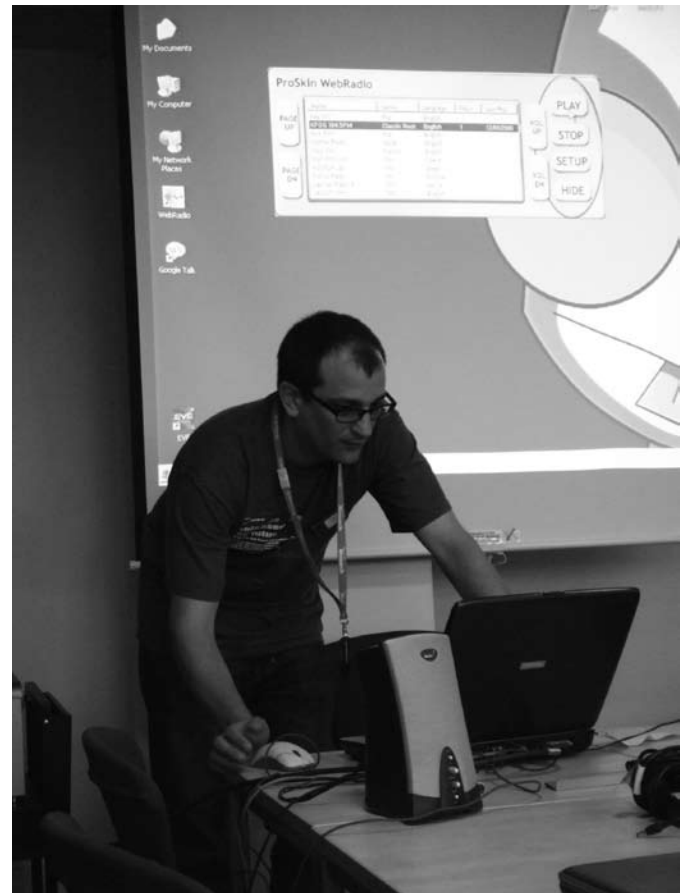


Interaction tracking

Willem-Paul Brinkman

It became clear at the Interaction Tracking workshop at this year's HCI 2006 conference that the recording and analysis of user interaction data is not a simple matter. Participants had come together to discuss their work and explore new issues related to the recording of interaction data. With each participant approaching the subject from a different angle, there was considerable discussion in what has become a controversial subject. The workshop started off with each participant presenting their work and then providing a short demonstration, and concluded with a round table discussion on issues relating to interaction tracking in HCI (e.g. ethics, privacy, human rights).

Joshua Underwood was the first to talk about his work in the morning session. His work involves both automated and manual data capture and analysis of Tablet PCs that are used in school as well as at home by a class of primary school children. Next up was Marie-Luce Bourguet. She talked about capturing interaction data to generate personalised multimodal interaction models. Instead of the interaction modality, Damien Clauzel's work focuses on the user's task. He has studied interaction data to support a task-oriented approach instead of the application-oriented approach which, as he sees it, is forced on users by the current desktop interfaces. Damien's demonstration of a task-oriented desktop that rotates made everyone sit up and pay attention. There was also much interest in the work of Paul Tennent. He talked about an extension of Replayer, a software toolkit tool for the combined analysis of video data and recorded system logs. The extension he presented augments video recordings with the location and heading of observation cameras. With this data Replayer is now able to give an indication about which event has been captured by which camera; a function, Paul



Nick Fine demonstrating his ProSkin webradio that captures user interaction, which Nick relates to the users' personality.

Issues, concerns and ideas for interaction tracking

1. Make participants aware that data is collected.
2. Inform participants about what is collected and what it means (or what kind of measures you want to derive from it).
3. Give participants the possibility of seeing what data has been collected about them.
4. Why are you collecting the data; what are your intentions?
5. Be specific in your explanation; however, also give a short explanation in layman's terms.
6. Give participants a summary, not just a long list.
7. Include an opt-out procedure/function for specific types of data collection (for example event-click, pictures, screen dumps).
8. Data collection of vulnerable people (e.g. children) needs consent guardians.
9. Opting-out afterwards means data will be removed (or even the possibility of removing data from publications).
10. A national ethical logging organisation that reviews research proposals (quality assurance), and can give researchers their stamp of approval, which they can then publish.
11. A trustworthy organisation that brings researchers and potential participants together (database with participants, which can only be accessed once researchers and research proposals have been screened).
12. An Ethical Management System for managing consent given (at beginning of experiment and after experiment).

People's behaviour is already heavily recorded, for example: CCTV, loyalty schemes in shops, and, online, visits to websites. Therefore why would we, the good guys, out there to improve the interaction experience, restrict ourselves?

stressed, that is especially relevant for the evaluation of mobile systems in the field.

After lunch it was Nick Fine's turn. He talked about capturing personality information from interaction data. Nick's provocative stance on gathering behavioural data also kicked off a lively afternoon discussion. He argued that current ethical concerns are rather outdated and too restrictive. People's behaviour is already heavily recorded, for example: CCTV, loyalty schemes in shops, and, online, visits to websites. Therefore why would we, the good guys, out there to improve the interaction experience, restrict ourselves? Needless to say, not everyone agreed with his stance. The simple fact that it is often difficult to get participants' permission to record their everyday behaviour demonstrated that people clearly have reservations sometimes. As the discussion evolved a number of key concepts kept reappearing: trust between the participants and

the researchers, and next, the user's hesitation to participate – perhaps because they may simply not know or understand what they are getting themselves into.

The outcome of the afternoon discussion was a list of twelve points about issues, concerns or ideas with regard to user participation in interaction tracking research. The list was in no way an attempt to replace useful codes of conduct formulated by various organisations such as the British Psychological Society (2006) or the British Computer Society (2001). Whereas the first nine points are practical, and related directly to the set up of recording mechanisms in a study, the last three points on the list are more general in nature, and are ideas directed at the research community.

For those who want to learn more about this workshop, draft position papers and slides are available on the workshop website (<http://disc.brunel.ac.uk/hci2006trackingworkshop/>). Here people can also find information how to obtain the workshop proceedings, which besides the slides and the papers include minutes of the questions and answer session after the presentations.

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Willem-Paul Brinkman
Brunel University
willem.brinkman@brunel.ac.uk

Call for participation in online radio experiment

Nick Fine • Brunel University

ProSkin WebRadio is an Internet radio player that can play more than 150 radio stations from around the world, including all BBC radio stations and other UK favourites, like Virgin, Capital, Jazz, Classical, Magic, Kiss, Heart, and TalkSport.

We have built ProSkin WebRadio for an online experiment that I am running to investigate personality and interaction. You can download WebRadio from www.proskin.org to participate in the experiment. I need at least 100 people (preferably 1000) to participate by downloading and using WebRadio.



The radio has three special features to make it easy to take part in the experiment:

Fully reskinable

It is easy to change the user interface to suit your preferences. New skinpacks are automatically downloaded to your radio over the course of the experiment.

Automatic questionnaire delivery

Message Centre allows us to send you online questionnaires to complete. These questionnaires include a personality test. When you complete a questionnaire, your results are shown to you immediately.

Log recording

WebRadio records your interactions with it and sends the logs to our server. This log file recording allows us to analyse interactive behaviours in a natural setting, rather than the somewhat artificial environment of an observation laboratory.

To take part in the study:

1. Download WebRadio from the project website: www.proskin.org
2. Use WebRadio wherever and whenever you like.

If you have a favourite radio station that is not listed in WebRadio, e-mail me at nick.fine@brunel.ac.uk and I will do my best to add it.

Thank you in advance for your help. Please pass this invitation on to your friends/family/colleagues to encourage them to download WebRadio too.

Nick Fine
School of Information Systems Computing and Mathematics (SISCM)
Brunel University
London
www.proskin.org



Workshop on HCI, the web and the older population

Joy Goodman

This workshop focused on HCI issues for older people, which are extremely important in the light of the rapidly ageing population and the potential offered by computer technology.

The day started with a keynote speech from Prof Roger Coleman, co-director of the Helen Hamlyn Research Centre at the Royal College of Art in London. He argued that people do not change when they reach a specific age and become 'older'. In addition, older people are not homogeneous and designers need to be aware of their varied life experiences. This was reinforced by the second keynote by Rick Crust of Hackney Silver Surfers. He described the varied experiences of the club members who have benefited from a supportive learning environment and gone on to create personal websites that reflect their current and lifelong interests.

(re)Actor: The First International Conference on Digital Live Art

Jennifer Sheridan and Alice Bayliss

Imagine a flying robotic sculpture swooping through the air, interacting with a virtual Hip-Hop dancer, hallucinogenic juggling, an ultrasound dance floor, vocal-looping, a musical sensor suit, three massive screens painted with VJ animations and performers wandering through the crowd with laptops. This was (re)Actor: The First International Conference on Digital Live Art.

(re)Actor was an overwhelming success and brought together practitioners and academics from diverse backgrounds and countries in a lively debate and interactive event that explored the emerging field of Digital Live Art – the intersection of human-computer interaction (HCI), live art and computing, specifically within the context of club culture. The daytime event featured three keynote presentations (Philip Auslander, DVJ Charles Kriel and Jon Dovey), 22 international papers, 11 performances and eight interactive installations.

Winner of the Best Paper Award went to Brian Curson and Robin Stuart from al'Ka-mie Intermedia Theatre for 'Exploring the Livingroom: How to get more of an onstage physical kick for your virtual bytes'. The best papers will be published in the Spring of 2007 in the *International Journal of Performance Art and Digital Media* (Intellect Press), Special Issue on Digital Live Art. So successful was the event that plans are already underway for (re)Actor 2 which will see the University of Leeds at the helm.

Updates on (re)Actor 2 as well as video and reviews of the conference can be found at <http://www.digitalliveart.co.uk>.

Jennifer G. Sheridan

BigDog Interactive Ltd, InfoLab21, South Road
Lancaster LA1 4WA
jenn@digitalliveart.co.uk

Alice Bayliss

School of Performance and Cultural Industries, Bretton Hall Campus,
University of Leeds, West Bretton, Wakefield WF4 4LG
alice@digitalliveart.co.uk

The afternoon included lively discussions and a session on creating personas to represent older internet users and support the creation of a games-like activity. Drawing on the keynotes and personal experiences, the delegates ignored the stereotypical association of age and frailty and instead created strong, inspirational women who use the internet to maintain family links.

All the delegates briefly presented their current research and have been invited to submit papers for a special issue of the journal *Universal Access in the Information Society*.

For details of the papers presented see: http://www-edc.eng.cam.ac.uk/~jag76/hci_workshop06/. Organisers: Joy Goodman, Anna Dickinson, Suzette Keith, Gill Whitney

Joy Goodman

jag76@cam.ac.uk

HCI 2007

HCI 2007 comes to Lancaster, home of InfoLab21 (the 'green whale' that lurks on the side of the campus as you drive up the M6 motorway), and gateway to the fabulous Lake District. The conference represents a fantastic opportunity to mix business, discovery and pleasure!

We are organising an exciting range of workshops, tutorials and interactive experiences to accompany the main conference, along with what we hope will be an enjoyable social programme of cruising in boats on Lake Windermere, schmoozing in fine hotels over dinner, and generally having a good time.

InfoLab21 offers a unique co-habitation between academic and business ICT developers and users, and exemplifies everything we want to achieve at HCI 2007 – a perfect blend of researchers and practitioners, learners and trainers, developers, users and fun-seekers!

The conference is co-hosted by the Computing and Psychology Departments. Together these departments set up the innovative Masters by research in Design and Evaluation of Interactive Systems course, which puts a cutting edge into HCI training. Graduates from that course have gone on to do exciting HCI design and evaluation at a wide range of companies such as Sony Ericsson, IBM, Systems Concepts, Bunnyfoot and many others. Similarly, many have gone on to PhD research – in recognition of this, we are introducing a Student Papers track at next year's conference.

The conference co-chairs, Tom Ormerod and Corina Sas, are delighted to welcome you to HCI 2007!

www.hci2007.org



Experiencing design Machines that cry wolf

Mark Seawell and Robert St Amant

My house has a smoke detector in the room next to the kitchen, just outside the doorway to the kitchen. This is a reasonable place for a smoke detector, given the number of heat-generating appliances in the kitchen. Unfortunately, the detector is extremely sensitive and will sound if even a tiny leftover crumb sings on the top of the stove. This is a frequent problem for me – the alarm goes off even when I'm trying to boil a pot of water! I have learnt from repeated experience that the alarm will go off no matter what it is I'm cooking. When it does, I dash out of the kitchen to the alarm, grab a piece of mail and start fanning the air below the device to silence it. Ironically, this effect counters the purpose of the device. Instead of drawing my attention to an unknown fire hazard, the alarm causes me to leave a hot stove unattended.

The smoke detector is just one example of all the monitoring devices that pass without notice in our everyday lives, invisible while they wait for events that may be interesting, important, or dangerous to us: an alarm clock, the timer on a microwave oven, devices inside a car to tell us that we are not wearing a seat belt, a door is ajar, the key is in the ignition, and so forth. All of these devices are intended to be unobtrusive except in situations when they can tell us something relevant to what we are doing.

The most obvious general design flaw in these monitoring devices is that they may fail in their task. When a seat belt indicator fails to remind the driver, the effect may be negligible, but the failure of a smoke detector can have serious consequences. The example of the smoke detector described above shows three more subtle design flaws. First, another type of failure is over-sensitivity; if ninety-nine times out of a hundred the detector is sounding a false alarm, the effect will be no different in practice than if it did not work at all; people become habituated to false alarms. Second, the detector does not transfer control gracefully whether it is functioning correctly or not; it continues to blare away once it has begun, with no button to shut it off. Third, the detector is simply in the wrong place to fit easily into the activities that it is intended to support. It is straightforward to imagine solutions to these problems: some detectors have a blinking light to show that a battery is running down; smoke detectors and fire alarms in some public buildings are tested on a regular schedule; some detectors can be deactivated for a short period in case of false alarms; many houses have smoke detectors in every room. The issue is that such flaws are not universally recognised; even critical devices for monitoring safety can be poorly designed if the broader context of their use is not taken into account.

In my car, if the cap is not replaced tightly enough after I pump gas into the tank, a dashboard light comes on saying that I need to check the engine. First, that message is just wrong, and it's ridiculous to have such a general warning for such a specific problem. Second, the light doesn't go off if I just retighten the cap. The only way to reset the computer controlling the dashboard light is to disconnect the leads to the car battery for a few minutes. Once, on a trip, I drove the car for several days with the dashboard light on, but eventually I could no longer live with the

suspense: was it just a loose cap, or was my engine failing?

My telephone answering machine sometimes answers a call even when I'm in the room and have picked up the phone receiver. I have to tell whoever is on the other end to wait a minute, while I listen to my own voice saying that I'm not there and asking the caller to leave a message. Finally, when I hear the beep, I apologise to the caller and we start talking. Even then the answering machine doesn't always give up: it sometimes records the first part of our conversation for posterity.

The answering machine is not quite the same as a monitoring device, in that it mediates communication between people. The connection is that such devices fit into everyday human activities in a similar way: a doorbell, a buzzing intercom, or a ringing telephone interrupt what we are doing to signal that someone would like to communicate with us. These types of devices can fail in the same ways as standalone monitoring devices, but because managing communication between people can be more subtle than individual behaviour, some problems are more immediate. The faulty answering machine behaviour, for example, interferes with an immediate interaction between two speakers, distracting them, delaying their initial exchange, and even possibly changing the flow of their conversation. As in the case of the smoke detector, what is needed is better control over the answering machine's behaviour during the time that it is active.

It is straightforward to see how these concerns should be reflected in the design of interactive software. Alarms and notifications for email, instant messages, appointments, and so forth should ideally be sensitive to the context of user actions, not splashing pop-up windows across the screen to interrupt users' concentration. If such sensitivity is not possible, then the user should still be able to customise how and when notifications appear. For some applications, such as those involving software installation, more may be needed: control over the type and amount of information that the application provides as it works.

The design of systems meant to interact with humans should always consider the whole environment as part of the system itself. If a designer of the phone system and the fire alarm system thought of the device functionality and the interaction of the human tasks as subroutines, he or she might have been able to account for more possibilities in the flow of the algorithm, and handle errors better as well. Intuitive and flawless transfer of control from human to device, and vice versa, are integral to designing a successful system. When neglected, these aspects are not only frustrating to the end user, they can often undermine the reason for using the device in the first place, making tasks harder and sometimes even more dangerous.

Robert St Amant

www.csc.ncsu.edu/faculty/stamant/

Mark Seawell

SAS Institute and North Carolina State University

<http://www.markseawell.com>



A day in the life... of User-lab

Mark Hindmarch

I recently joined User-lab at UCE Birmingham after several years at Sunderland University developing my pre-cognition skills under Gilbert Cockton (you don't have to be psychic to work for Gilbert but it helps). User-lab is unusual to some extent in being based in an art & design department rather than a computing or psychology department; so I'd like to share my experiences of what it means to 'do' usability within art & design.

They understand usability

It's refreshing to work in a faculty where everyone understands the benefit of usability. I certainly wouldn't have expected artists to have an interest in usability but that isn't the case. I'm currently working on a large project which is expected to be a major research output for the School of Theoretical and Historical Studies in Art & Design. The Virtual Gallery of Contemporary Fine Metalwork aims to be the definitive reference work on what is happening in the world of, well, fine metalwork, art that uses metal as its main material. Those involved in producing this reference work well understand the value that multi-media can add to a field that is primarily visual – it's also tactile but we'll come to that later – and came to User-lab to design and evaluate the interface. Our brief was to make it easy to find information on any particular artist or art work; that now done, we are preparing to evaluate the interface in the new year with real artists. We are also working on re-purposing the material so it can be used as a museum exhibition. To that end we are creating an alternative interface that can be operated by a touch screen and whose purpose is to enhance the user experience and promote exploration through browsing.

Look but don't touch

As mentioned previously, a large number of these art works have a tactile dimension that most people never have the opportunity to experience. A recent trip to the British Museum demonstrated to me the power of touch; as I wandered round the museum alarms regularly went off as little (and not so little) hands were drawn to touch exhibits that were thousands of years old but far too large to lock away behind glass. David Prytherch, Research Fellow in Haptic Interfaces, is a former glass sculptor who realises the importance of the sense of touch; a member of User-lab, he is working on creating new haptic interfaces. Some will be for artists, so they can create more realistic digital art because they will be employing the sense of touch in ways that are common for them in the physical world but are currently impossible to recreate digitally. He will also be expanding on User-lab's work on augmenting museum and art gallery displays with digital technology by using haptics, so hopefully the alarms at the British Museum will stop going off.

Multi-disciplinarity is king

User-lab has working with multiple disciplines at its very heart. As well as myself, the mongrel social scientist turned usability analyst, the disciplines of psychology, design, software engineering, anthropology and art are represented amongst the

staff of User-lab and we all work closely together on projects, each discipline having an input on every project from beginning to end.

Going forward

We support HCI work wherever it is being carried out within the UCE Birmingham. Since the lab was founded by Marie Jefsoutine and John Knight, six years ago, we have developed working relationships with almost every faculty, from Engineering, through Health, to music at the Conservatoire, as well as Library and IT services. In addition, the lab works with external partners, including the regional development agency, Advantage West Midlands. Lastly, we have developed a range of commercial services with which we augment our research funding. With a new haptics lab in the process of being installed we will be doing more work in the field of haptics in HCI. Pervasive and mobile systems can make a major impact on the experience of visiting a museum or art gallery; we are looking at the possibilities that this opens up and are working with Russell Beale to try and secure funding to explore the potential of Ambient Informative Art. As we move in HCI from pragmatic, utilitarian issues to a greater focus on hedonics and pure pleasure, art approaches will be increasingly important to HCI. User-lab wants to be at the heart of this.

Mark Hindmarch

User-lab

Birmingham Institute of Art & Design

UCE Birmingham

mark.hindmarch@user-lab.com

NordiCHI 2006

This year's NordiCHI took place in Oslo. Fortunately, it was still reasonably warm, as was the welcome by the Norwegian hosts. While most delegates came from the European mainland and the Nordic countries in particular, there were a handful of Islanders in attendance from England, Ireland and Scotland including Janet Read, Liam Bannon and Gilbert Cockton.

A topic of one panel session was whether there is such a thing as a distinctive Nordic flavour of HCI or CHI. Unsurprisingly the answer was yes. And probably salty liquorice flavoured. To me (and I think the panel) Nordic HCI is more design-friendly and consciously political (i.e. participatory and user focused) than many other types. And both of these qualities are rooted in the culture – and funding – of the locale. It made me think about what flavour of HCI we are, whoever we are. As ever, questions of cultural similarities are perhaps more a palaver here. Falling between designerly social democratic Europe and the rational industrial complex across the Atlantic, I guess I would go for perfidious Britannia again or perhaps more in line with our diversity: perfidious islanders.

John Knight

John.Knight@intiuo.com

Introduction

In my role as a consultant for Serco Usability Services, I primarily work in the development and evaluation of video games and other electronic devices. The use of the term 'games' in this article refers to video games, but most of the principles within this article could refer to games of any type.

There's no simple way of user testing games, much in the same way as there's no simple method for user testing any other product. Each product needs to be evaluated along a relevant set of criteria. These criteria often change according to the stage of the product's development and what the developers are particularly interested in receiving feedback on. We work to provide them with the answers they specifically want to know; this is what the focus of testing is on, even though there is invariably much more user information discovered during the research.

There are fundamental ways that games differ from labour-saving devices, such as word processors or websites. Labour-saving devices are designed to help users perform tasks as quickly and easily as possible: the letter needs to be written, formatted and printed with the minimum of fuss; the website needs to give us the train times for the route we want as quickly as possible. Games, however, need to engage us, challenge us, keep us playing them, and make us want to play them again. And they need to be fun!

So in some respects games are as similar to test as any other product. However, they are also fundamentally different, and it is these differences that require the use of particular evaluation techniques.

Much research has gone into discovering what makes a game fun, and how one can measure how good a game is. The gaming industry is a multi-million pound market, and anything that can help discover a magical formula to create a winning game is used. Currently, however, that winning formula is still to be found.

Instead, we need to work with the genius of the developers, plus quick and frequent research with potential users to gauge how the game is forming. This brings us back to the stages of development. As with other user research, we can be brought in to review a game at any stage, either early days, or to 'rubber stamp' an almost finished product. Here's an idea of some of the key stages, and how we research them.

Early stages of development

Concept development

The evaluation of a concept for a game is one of the earliest stages of our inclusion into the game process. Focus group discussions are a very fruitful method of understanding what may work for users, and what may need further thought. They also allow us to ask the users to work on a partially completed concept that the design team are unsure about.

On the whole, users are very good at describing features of games that they already know and like (or don't like). However, they are less good at thinking up fresh concepts, or even imagining concepts that we present to them. The key at this stage is to give them something to play with, either literally, through Flash-based mock-ups, or at least visually, with

sketched-out storyboards. In general, the less of a cognitive leap the users have to make, the better the feedback they generate.

This is pretty much normal focus group discussion and idea generation, and not unique to games design. However, we do have to contend with other issues at this phase, especially when working with new clients. There is an idealised conception that a great game is created purely through genius, and that the intervention of usability (or 'marketing' as it is often perceived) will take the shine off the invention, creating something designed by committee (an often cited example of such a thing is the *Alien Vs. Predator* film). However, once the development team have seen that the focus groups are addressing the issues they were debating between themselves, providing guidance on what is expected, and often opening up unexpected avenues, they become keener to use the focus groups. They provide direction, and, as we always say to clients, they can use as much of the findings as they wish. They can also direct us to take the discussion in other directions if they wish to explore the unexpected avenues further.

Mid-term stages of development

Wireframes

These are usually presented as Flash walkthroughs, to give users an idea of what works, and what they don't understand. They can also be presented as storyboards. Wireframes are often presented to individual participants in a usability test situation, with each participant talking with a facilitator, who probes to understand the participant's thoughts and comprehension of the details. This is often instead of a focus group setting, although the focus groups allow for greater discussion and development of the ideas where the wireframes are in early stages of development.

Wireframes are typically used to gain an understanding of the screen layout, inventory, and general appearance. We can ensure that the objects on the screen make sense to the user, probe to understand what the icons do, and how noticeable they are – or if they take up too much of the screen.



Microsoft product screen shot reprinted with permission from Microsoft Corporation.



Control developments, character creation and movement & level development

These three sections are often interlinked: character creation and its responses are based on the control mechanism, and the ease with which participants can move the character has a bearing on how the game level needs to be laid out. If the level is too hard for participants to navigate, the options are to alter the level layout, make the controls easier to use, or develop the character to be more responsive (or move in a slightly different way).

Often we test with developer consoles to run the latest builds of the software. As with all of the work we do, we are driven by the desires of the client and what they need to discover about the game. They will put together the sections of the game that they feel are in need of user feedback, and we decide in collaboration how best to construct the test protocol. Often this form of feedback runs from short snippets of prototype code, so that the user is not playing a whole level, or playing for a long period of time. We obtain quick feedback to short segments of the game.

At this point it is the mechanism of the game and the game engine that is under scrutiny. For that reason, we can use a test protocol that is similar to that of normal user testing: following a guide which we have designed in collaboration with the client, we use non-directional questioning and obtain some quantitative feedback where required, often by the use of a questionnaire to give us some indicative statistics of trends. Clients find this an excellent cost-effective way of gaining information on a range of mechanistic issues.

Late stages of development

Menu structure

Most games tend to have a menu structure within them that allow the user to select what they want to do with the game, the number of players, the difficulty level, etc. Often these menus are the first interaction the user has with the game, and so they need to work well from the start. They also need to provide the options users require.

This part of games testing is most similar to traditional usability testing. It is a case of asking users to perform a scenario that requires them to access certain areas of the menu system, and observing their behaviour, questioning where necessary.

Gameplay

There are several areas of a game that this phase of research can examine, but as in other user testing fields, alterations at this stage tend to cost more in terms of development, and sometimes are impossible to make due to time and budget constraints.

Gameplay is usually evaluated with something very closely approximating the final product. This means that users often have a fair amount of the game that they can play through without stopping. Gameplay is one of the areas of user testing where the normal protocol of usability testing is unsuited. The main reason is that the process of discovering how well the game performs needs to be done without interrupting the participant. The participant doesn't want us asking them what they think of it as they try and master the final corner of the course, or as they slay the last zombie. The facilitator needs to take a back seat while the participant plays, and often at Serco the facilitator will leave the room, to observe the participant remotely through a one-way mirror and video feed. Remote observation allows us to note where the participant



Image courtesy of Serco Usability Services; used by permission



Microsoft Game Studios and Bizarre Creations. Microsoft product screen shot reprinted with permission from Microsoft Corporation.

looks confused or uncertain without drawing the participant's attention to our notetaking. It also allows the participant space to 'get into' the product. By recording the participant's interactions, and marking the times where they seemed confused or uncertain, we can then revisit particular places in the game, and discuss them with the participant after they have played.

Some important areas of gameplay examination are:

- 1 *Getting the ramp right.* As mentioned earlier, one of the main factors that differentiate a game from a labour-saving product is that the game needs to be challenging. However, it needs to be challenging to play, but not to use, and the level at which the game becomes challenging needs to ramp up at the right rate. If it's too easy to play, users get bored and/or finish it too quickly. If it's too difficult, people don't want to play it, as they get little reward for their efforts. We need to make sure that the initial stages of the game are at the right level. It is relatively straightforward to judge if the ramp is at the right angle. This issue is often addressed through the technique above. Remote observation allows us to note where participants either start to become confused, or have issues. For example, they may become lost early in the first level (outside of the intentional challenge of the game) and require directions. On the other hand, if they



have ploughed through a level or scenario with no apparent difficulties at all, we understand that the game may need to be slightly more challenging. They may also declare after they play that it wasn't actually as much fun as they wanted, especially if it was too easy. We can probe to understand why that is, and what they suggest would change this. Again, it depends on the game and the wishes of the client.

- 2 *Controls*. The controls are another area of the game that it is essential to get right. If the controls don't do what the participant expects, the participant becomes frustrated and loses interest in the game. Users are often very quick to tell us when the controls don't behave as they expect them to, as often this leads to frustrating errors, and this frustration makes them vocal (it also allows them to blame something else when they get something wrong in the game, so we need to watch out for some false positives here!).

Console game controls are also becoming more and more complicated, and console controllers themselves are gaining increasing amounts of buttons (although Nintendo's new Wii controller, which reacts to the actual movements of the user, looks as if it will take the genre in a whole new direction). We need to make sure that the basic moves and controls are in the simplest, and expected, locations on the controller, with more advanced moves requiring the right level of button combinations and presses. This relates to 'getting the ramp right'.

- 3 *Immersion*. One of the key elements that has been researched recently is that of immersion. The theory is that the more immersed a user is in a game, the better the game should be (all other things being equal). One quick and useful way of measuring immersion is to ask the user to estimate the length of time they have been playing the game, and compare it to the length of time the user has actually spent playing. As mentioned above, often we will leave them for a certain period while we observe their behaviour. If their estimation is less than the actual time they spent playing, we infer that the user has been immersed in the game, and from that, that they have been enjoying it. Of course, we ask them how they feel about the game

as well. This measure forms more of a comparative benchmark than an absolute measure of game quality, but it works well to compare games along this dimension initially, and then again after the developers have made any alterations.

- 4 *Understanding of the general concept and story*. Often the overriding theme of the game is important for the user to grasp, both in terms of increasing their immersion in it, and understanding what it is they are actually trying to do. Often the large-budget epic games are essentially making the user do pretty much the same actions throughout a series of levels, but by adding in a narrative, and gradually developing the story as the user progresses, the users are drawn into the game to a greater level and can often feel morally obliged to get as far into it as they can. Whether the user understands the general concept and story is another area of questioning that clients often want to know. We often use this as a general series of questions to discuss towards the end of a user session.

Conclusions

As with other forms of user research, the earlier the user feedback is gathered, the greater the uses to which it can be put within the design process. Some feedback is essential throughout the process, to ensure the game is on track with the users, and that it is meeting the requirements of not only the users, but also the production team and, importantly, the hardware for which it is designed. For example, a game designed to run on a portable device, such as a Nintendo DS or Sony PSP, needs to be able to work well when the user is on the move or waiting for a bus. To meet that need, it may need to have a quick option to pause the game (when the bus is coming), it may have controls that quickly allow the user to adjust the sound so as to not annoy people on the bus, and, increasingly these days, it may need a simple Wi-Fi setting to allow the user to play others online if they find a wireless network.

Throughout all of these stages, and throughout game development in general, the key is to test little and often. As with other forms of user testing, the earlier the bugs are picked up, the cheaper and easier it is to fix them. I hope this article has helped to describe the process in a little more detail. As you can see, there are similarities, but there are differences too.

Ben Weedon
Serco Usability Services
ben.weedon@serco.com

Call for Participation

User Centered Design and International Development

A workshop at CHI 2007

Saturday, April 28, 2007 • San Jose, California USA

This workshop aims to begin a dialogue between the international economic and community development, user centered design (UCD) and interaction design communities to find ways of designing more appropriate and effective solutions that truly meet local needs.

Specifically, we hope to extend the boundaries of the field of HCI by spurring a discussion on how existing UCD practices can be adapted and modified, and how new practices be developed, to deal with the unique challenges posed by the context of international community and economic development. We call this User Centered Design for Development or UCD4D.

Submission deadline: 12 January 2007

<http://www-static.cc.gatech.edu/~mikeb/UCDandIDWorkshop/>
<http://www.chi2007.org/welcome/>



Profile

Tom Ormerod and Corina Sas

Alan Dix: Tom and Corina are co-chairing HCI 2007 next September in Lancaster, so I thought it a good idea to let them do a double act here in the Profile section ... with the odd comment of my own ;-)



Tom Ormerod was born tall and has devoted much of his life to attempting to shrink, mostly unsuccessfully. His interests in studying expert problem-solving are in no way relevant to this ambition, but have nonetheless blighted much of an otherwise promising

career. His PhD research on cognitive processes in logic programming led him to explore how to support expert design performance via computer-based systems. He now spends his dotage worrying about how computer systems mess up criminal investigations, while maintaining a strong enthusiasm for designing things that encourage people to be more creative or make them laugh. He is currently associate editor of the Quarterly Journal of Experimental Psychology, Head of the Department of Psychology at Lancaster University, and teaches on the extraordinary M.Res in Design & Evaluation of Advanced Interactive Systems funded by EPSRC CTA bursaries. In his innocence, he thought that being co-chair of HCI 2007 would be a little light relief.



After spending most of her life climbing the Transylvanian academic ladder which provided her with background in Psychology, Computer Science and Chiropractorology, Corina looked for further challenges. Thus,

she decided to sample druidic culture so spent a couple of years in Ireland (also completing her PhD at University College Dublin). Her early interest in HCI was shaped during her years in Romania, when she used to read Alan Dix's textbook and only dreamt that she might meet him one day. Life exceeded her dreams, so that she currently researches and teaches with Alan. Her interests lie in the area of user modelling, connectionist modelling, user studies, interaction design and spatial behaviour in physical and virtual environments (and CAVES...). Since this year she has been appointed as Course Director of the same extraordinary MRes programme in Designing and Evaluating Advanced Interactive Systems.

What is your idea of happiness?

T: Anything moist
C: Everybody's inner peace

What is your greatest fear?

T: Drought
C: Not contributing

With which historical figure do you most identify?

T: William Gladstone – attractive range of hobbies
C: Nobody really, except Bugs Bunny

Which living person do you most admire?

T: I tend to spread admiration widely, plus I'm a bad judge of character, so I'd rather not be specific
C: Faith and strength of character are qualities that I admire most

A: Happily Corina's a bad judge of character too, that's why we get along so well

What is the trait you most deplore in yourself?

T: Gullibility
A: If you believe that...
C: Self-centredness

What is the trait you most deplore in others?

T: Hang on; I'm not falling for that old trick...
C: Self-centredness

What vehicles do you own?

T: Two Audis, mean age 8.5 years, mean mileage 165,000
C: One Ford Fiesta Burgundy, easy to manoeuvre, reduced petrol consumption and insurance cost
A: Both flippin' cheap skates (don't expect good wine at the conference dinner)

What is your greatest extravagance?

T: Ducks
C: Shoes
A: Note for Christmas pressie lists...

What makes you feel most depressed?

T: Nylon, beige and line management
C: Either losing touch with my inner child or babysitting my friend's crying child
A: With the conference coming Tom is in tears a lot

What objects do you always carry with you?

T: My wife's keys - it drives her nuts
C: My passport – in case I forget my immigrant status



talk to Alan Dix

What do you most dislike about your appearance?

T: It's always there, gently throbbing and emitting sweat

C: Not being able to say NO

A: Yes... I didn't understand that answer either... evidently it is because appearances are more than skin deep or something ... do you believe that woman?

What is your most unappealing hab.....

T: Interrupting people before they have finished speaking

C: Saying YES too often

What is your favourite smell?

T: Prawns in garlic

C: Freshly baked croissants and brewed ground coffee

A: So you know who it's safe to talk to in the morning

What is your favourite word?

T: Bolus

C: Serendipity

What is your favourite building?

T: Le Phonographique discotheque, Leeds

C: The Leaning Tower of Pisa – obeying and defying gravity

What is your favourite journey?

T: Over Frostrow Fell to the Sun Inn, Dent

C: Coming home

What or who is the greatest love of your life?

T: My family, followed by my knees (speak nicely to them and they may keep working)

C: Always the latest

A: Hoping that Corina's latest knee op is her last

Which living person do you most despise?

T: There is someone called Keith, but its petty really (no, not that Keith, another one). I don't go in for despising much.

C: None – they all suffered painful deaths

A: Don't get on the wrong side of Corina

On what occasions do you lie?

T: Throughout budget reviews, conference submissions, end-of-award reports and journal editing processes

C: Only when I have the time to prepare the lie beforehand

Which words or phrases do you over-use?

T: "It has to be said that..." which means it does not need saying at all

C: N/A

What is your greatest regret?

T: Oh there are so many to choose from (long period of reminiscence follows in which regrettable moments are relived and a dark silence descends...)

C: Letting fear prevent me from trying new things

When and where were you happiest?

T: In bed, almost anywhere

C: When I am in love

How do you relax?

T: In bed, almost anywhere

C: I breathe deeply

What single thing would improve the quality of your life?

T: A moustache. Never been able to grow one. If I could, I probably wouldn't want one, but it is the not knowing that hurts.

C: A pair of dancing shoes

A: More for the Christmas pressie list, must make sure to give to the right one

Which talent would you most like to have?

T: Microsurgery

C: The craft of wheel throwing clay

What would your motto be?

T: Confidence before competence

C: Competence before confidence

What keeps you awake at night?

T: A creeping realisation that I made a fool of myself earlier in the day (I suspect tonight may be sleepless)

C: If I am tired, I sleep practically everywhere and in every position (but standing)

How would you like to die?

T: In a culinary disaster

C: It doesn't matter as long as I die healthy

A: That took a while to sink in



We have three great books reviewed in this edition. Two of them are on mobile interaction and one is on speech interfaces. I concur with the reviewers' recommendations. In particular, I was reluctant to pass Richard Ling's excellent book on to the reviewers. I wanted to keep it myself! Anyway, I have no shortage of reading matter. Recently, I have got hold of *Personal, Portable, Pedestrian: Mobile Phones in Japanese Life* by Mizuko Ito et al. and *Designing Interactions* by Bill Moggridge

You may have noticed that I have started working as Content Editor for *Interfaces* and this means that I am handing on the Reviewing Editorship to Shailey Minocha. This will take effect in the New Year and this is my penultimate edition. I wish Shailey luck in this role and her contact details are given below. Thanks to everyone who has helped me with the reviews and especially to Laura and Fiona.

As with *Interfaces* as a whole, we rely on the participation of the community and I would encourage all of you to get involved. Please contact Shailey if you want to review a book, have seen an interesting one you think should be reviewed or if you have published one yourself recently.

Dr. Shailey Minocha
Senior Lecturer of Human-Computer Interaction
Faculty of Maths & Computing, Department of Computing
The Open University
Walton Hall
Milton Keynes
MK7 6AA
S.Minocha@open.ac.uk

The Mobile Connection: The Cell Phone's Impact on Society

Rich Ling
Morgan Kaufmann Publishers,
San Francisco, 2004
Paperback, 244 pp, illus. b & w
ISBN 1-558-60936-9
List price £25.99

This book was published in 2004 and focuses on the everyday usage of this relatively new technology. The author points out that only a decade ago it was a technology for 'yuppies' and business people. Now it is being used all over the world and by all sections of society. Indeed, the mobile phone has provided people with new possibilities for communication, often in unforeseeable ways.

Rich Ling is one of the most important contributors to the social study of the mobile phone. An American sociologist working for many years for Telenor Research in Norway, he brings two perspectives to the subject. Firstly, that of his native North America, where the mobile phone has still not really caught on, for various socio-economical reasons that Ling touches upon, and secondly the Scandinavian perspective, where the mobile is now omnipresent.

The book examines how the mobile phone features in everyday life. The author discusses how the mobile phone is used to coordinate activities, to provide a sense of safety and accessibility. On the other hand the technology 'disrupts' the public sphere, according to Ling. Furthermore, he focuses on

the use of the mobile phone by young people, discussing it in terms of emancipation. He also devotes a chapter to texting and argues that asynchronous mobile text-based communication, in some technological form or other, is here to stay.

Rich Ling discusses a number of useful terms that he has presented in publications over the years. For instance, he has introduced the term 'micro-coordination', connoting the mobile phone's ability to help coordinate our meetings while we are moving, redirect trips that have already started, and call and say that we will arrive late. In this way, the mobile phone allows for 'midcourse adjustments', 'iterative coordination', and 'softening of schedules'. With the use of the mobile phone, 'time-based coordination' is no longer necessary to the same extent as before. Ling argues that we can now rely on what he calls 'mobile-based coordination', with the advantage of renegotiating plans on the go. The disadvantage is that it can be difficult to coordinate large numbers of people with current devices.

The book is based on research findings from a large number of interviews that Ling and his colleagues have carried out over recent years. It is quite rare in a study of a technology that is so new to have such a large amount of data to draw on. From a research perspective, however, it would have been valuable to know more about the methodology involved. The methodology section is placed in an appendix,

probably in an attempt to make the book more accessible to non-academic readers. However, the book would have benefited from a discussion on the use of interviewing, how the authors analysed the results and the efficacy of their approach.

The Mobile Connection is based on accounts of use, rather than descriptions and analysis of naturally occurring interaction. It is questionable to what extent 'responses to interview and survey questions reflect or represent the daily actions of a collectivity' (Cicourel, 1982, p.16). Furthermore, 'People are not very accurate in describing their own behaviour when asked to respond to direct questions' (ibid. p.19). In conclusion, a more situated research method would seem more suitable to the subject than the one used.

In fact, in one of the chapters, describing studies of attitudes to mobile phones in public, Ling uses data from both interviews and observations, which is a strength that could have been emphasised and expanded upon. In the chapter on the intrusive nature of mobile telephony, Ling presents interesting observations, inspired by Goffman, on how people manage the local situation around them while talking on the phone. He shows how co-present people are put on hold during the call. However, he argues that 'while the ability to immerse oneself in a mobile phone conversation is quite strong, it is not impermeable' (p.137). This is also a topic that particularly lends itself to a comparison of



the differences between what people do and what they say that they do; as Ling's interviews show, many people strongly dislike overhearing public mobile phone conversations but take part in their own.

Things go very quickly in the mobile world. Statistics on user uptake quickly get outdated and people's opinions change as well. Technology changes and people come to use it in new ways. Therefore, when a book such as this is published, society, in a way, has already moved on. However, this makes the book no less relevant; many of the social phenomena are and will remain the same, as the technology and adoption evolves. As Brown notes 'We might dismiss mobile phones as trivial little devices – but it can be argued that these devices have something wider to say about society, and even changes in society itself.' (Brown, 2002, p.4).

In the final chapter of *The Mobile Connection*, Ling discusses the sociological trends associated with new technologies. We have yet to see what social consequences the mobile phone will have in society in the long term. This book is an important description from the time we are experiencing just now – a major innovation in our possibilities of communication.

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Reviewed by

Alexandra Weilenmann

alexandra.weilenmann@ituniv.se

Mobile Interaction Design

Matt Jones and Gary Marsden
Wiley, 2005

Paperback, 398 pp, illus. b & w
ISBN 0-470-09089-8

List price £29.99

Recent years have seen a shift from interacting with a computer to interacting through a computer. Furthermore, there is a recognition that human-computer interaction is more than a single user sitting at a single computer but about people using computers to collaborate, cooperate and communicate,

whether that be at work or for leisure, in the office, the home or on the move. The range of technologies with which users interact has grown apace – as the authors of *Mobile Interaction Design* say, computers are now 'anytime, anyplace'. Indeed mobile HCI is emerging as a field or specialism in its own right, with its own conference series (<http://www.all.mobilehci.org/>) now entering into its ninth year. The time then has come for a textbook that focuses on this important area. Matt Jones and Gary Marsden argue that '[mobile] systems are becoming so important there's a need for a book that speaks directly about them. Mobiles also present new human-factor challenges, and we draw these out...'

How do the authors approach the task they have set themselves? The book is divided into three sections: 'Introduction', 'Developing Effective Mobile Applications' and 'Design Gallery – Directions and Guidelines'. The opening section sets the scene through first exploring what 'mobile' means in this context (and how it means more than just phones). As well as surveying the range of existing devices and applications, the authors also explore emerging technologies, including those moving beyond sight and sound to include touch and gestures and indeed smell. In doing so they start to explore some of the challenges faced by designers of mobile devices, including marrying acceptance with usability and coping with 'impoverished interfaces'. They argue that it is not the interface *per se* that is impoverished, but the designs and the design process. The authors approach this through posing a series of questions, which I found thought-provoking. The importance of putting users and their needs at the centre of the design process is highlighted and indeed this is the focus of the second chapter with its themes of useful, usable and user experience. The opening section concludes with a more detailed exploration of the technologies and the interactive innovations they offer.

Having set the scene and firmly put across the point that good mobile interaction design, like any good interaction design, is about supporting the user and using the technology to help in appropriate ways (rather than being the driver of development), the authors go on to explore the design process in the second section of the book. This covers all the key elements

that you would expect in any good textbook on HCI or Interaction Design – understanding users, involving them, prototyping design, and evaluation. An iterative approach is proposed: Chapter 4 provides an overview and Chapters 5 to 7 explore different aspects of design in more depth. Although the focus here is on designing for mobile applications these chapters would serve as a useful introduction on more general HCI courses. Their introduction to personas and scenarios brings this subject to life in an easily understandable way through sketches by Leonardo Da Vinci and excerpts from Little Red Riding Hood – using experiences that their readers are likely to be familiar with to help explain concepts that they are less likely to be familiar with.

The book concludes with a design gallery – essentially a series of case studies that explore different aspects of design – and describes how some designs have evolved, including WAP interfaces. This section ends by examining how to design for browsing on mobile devices, and exploring how audio and images can be incorporated into the interface, ending with a call to arms that looks at the global context through asking the reader/designer to become active in designing mobile devices for the developing world as a way of helping close the digital divide.

The book is aimed primarily at students and their lecturers. Learning is an active process – understanding is best promoted through doing, discussion and reflection. How then have the authors succeeded in meeting the needs of learners in writing this book? The use of familiar experiences to help the reader/learner relate to new concepts has already been touched upon. However, Matt Jones and Gary Marsden go beyond this. Each chapter is well thought out pedagogically with a range of activities to engage learners, including exercises that are integrated into the chapters and workshop activities that give suggestions on follow-up activities, some of which can be used as classroom exercises. The authors also make extensive use of 'side-bars' that explore specific issues of relevance. Each chapter ends with a set of designer tips, which give suggestions on how to leverage the theory (as discussed in the book) into practice.

The book is a valuable resource for lecturers to draw upon and certainly serves as a supplementary text book



to complement more general introductions to HCI at the early stages. *Mobile Interaction Design* would also serve as a core text for students who have had some previous experience of HCI. The theme is one which in my experience captures the interest of students and this book can serve both as a means of exploring key issues to do with this growing area of HCI, and more general principles. All in all, *Mobile Interaction Design* is a worthwhile addition to the library of key HCI text books.

Reviewed by

Dr Sandra Cairncross

S.Cairncross@napier.ac.uk

Wired for Speech

Clifford Nass and Scott Brave

The MIT Press, Cambridge, Mass., 2005

Paperback, 269 pp, illus. b & w

ISBN 0-262-14092-6

List price £20.95

People like to talk; some even like to listen. We talk to ourselves, each other, to plants, shout at the radio and bemoan the state of the world to our cats, who generally don't care. More and more we are talking and listening to computers of one form or another; personal computers, call centres, cars, and even toys. In *Wired for Speech*, Clifford Nass and Scott Brave explore how we engage with these voice technologies and how human psychology can be used to enhance the interaction. In short, usability, but with voices. In some respects this is like saying that *War and Peace* is a book about Russia.

While *Wired for Speech* comes in significantly lighter than Tolstoy, it manages to pack in a considerable amount of information and yet provides a light and accessible read. When considering the use of voice in a user interface one would probably be forgiven for not looking beyond aspects such as gender and whether the voice should be recorded or artificially generated. The introduction outlines just how marvellously well designed humans are for engaging with the spoken word and that speech is more than just a means of transmitting words; it is a social vehicle. This seems to be the theme of the book, that regardless of the non-human origin of the speech it is still treated as a social vehicle. As such, speech in interface design becomes more than a simple choice of which voice should be used.

The structure follows a similar format for each chapter, first presenting the outline of a social aspect of a speech interface. This is followed by the presentation of the results from one or two studies carried out by Nass and colleagues. The studies were designed to explore aspects of speech, but generally replace the human voice with either a generated voice or a recorded one. While the studies were often artificial in nature their presentation is followed by discussion or solid advice on interpretation and/or application to real problems. The text is also peppered with real-world illustrations, including an example of the problems associated with the gender choice of the voice for an in-car navigation system from BMW to the comparison (thankfully unfounded) between humans and Tinbergen's oystercatchers in suggesting that humans will attribute humanness to anything that even remotely sounds like a human.

The chapters begin innocently enough with an exploration of voice gender choice, plunging quickly into gender of the content of the speech and noting how inconsistencies can serve as a source of dissonance for the user. The personality of voice is also explored, particularly whether we respond more favourably to voices with a similar perceived personality or if the 'opposites attract' maxim holds true. This is one of the points where future possibilities are touched on by suggesting that systems that can match the personality of the voice with that of the user can influence the user, for example to buy more or trust the system more. The book goes on to explore incongruence between the personality of voice and its content, accents and origins, emotion, groups of non-human voices, the use of 'T', the integration of synthetic voices and faces, and even provides examples, experiments and commentary on the use of humour.

Wired for Speech benefits from an extensive notes section comprising references, results data and, well, notes. This makes up almost 30% of the book and serves as an excellent source for further reading not only on the core topics but also on the underlying psychological principles that form the basis of many of the experiments. This sizeable section does not interfere with the main text, allowing the casual reader to enjoy a wealth of insight while the serious student has

everything at their fingertips to contemplate the wider picture.

I thoroughly enjoyed this book. I did, however, have two criticisms, or one and a suggestion. The suggestion would be for an accompanying website with samples of the generated speech and such like. The criticism is minor and relates more to the structure of the book. This would make for a superb reference manual as well as an excellent read and as such would benefit from a more 'resource' type layout with chapter topics and quick summaries of the key issues. Having said that, as an academic text, *Wired for Speech* is well presented, well referenced, indexed and is written in an engaging manner.

Overall, I would have no qualms in recommending this book to any usability practitioner regardless of whether or not they are working with speech-based interfaces. It is not only an excellent read and expands on a field that is not necessarily well represented in the core usability literature but it also serves as an excellent tour of many of the core psychological principles of interface design, and is a wonderful example of research-driven practical advice.

Reviewed by

Kevin White

kevin@dewoolery.co.uk

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British HCI Group committee members (alphabetical listing)

Jesmond Allen • tel 01179 020301 • mob 09731 731757 • jesmond@jesmondo.co.uk

Russell Beale • University of Birmingham • tel 0121 414 3729 • fax 0121 414 4281 • R.Beale@cs.bham.ac.uk

Ian Benest • University of York • tel 01904 432736 • fax 01904 432767 • ian.benest@cs.york.ac.uk

Gerred Blyth • Amberlight Ltd • tel 0870 7399900 • gerred@amber-light.co.uk

Nick Bryan-Kinns • Queen Mary University • tel 020 7882 7845 • nickbk@dcs.qmul.ac.uk

Catriona Campbell • Foviance • tel 0207 843 6700 • fax 0207 843 6701

catriona@theusabilitycompany.com

Jarinee Chattratchart • London Metropolitan University • j.chattratchart@londonmet.ac.uk

Gilbert Cockton • University of Sunderland • tel 0191 515 3394 • fax 0191 515 2781

Gilbert.Cockton@sunderland.ac.uk

Laura Cowen • IBM United Kingdom Ltd., Hursley • laurajcowen@yahoo.co.uk

Fintan Culwin • South Bank University • tel 020 7815 7434 • fax 020 7815 7499 • fintan@sbu.ac.uk

Daniel Cunliffe • University of Glamorgan • tel 01443 483694 • fax 01443 482715 • djcunlif@glam.ac.uk

Andy Dearden • Sheffield Hallam University • tel 0114 225 2916 • fax 0114 225 3161

a.m.dearden@shu.ac.uk

Alan Dix • Lancaster University • tel 07887 743446 • fax 01524 510492 • alan@hcibook.com

Jonathan Earthy • Lloyd's Register • tel 020 7423 1422 • fax 020 7423 2304 • jonathan.earthy@lr.org

Dave England • Liverpool John Moores University • tel 0151 231 2271 • fax 0151 207 4594

d.england@livjm.ac.uk

Martha Hause • m.l.hause@dsl.pipex.com

Kate Ho • University of Edinburgh • tel 0131 650 4412 • K.L.Ho@sms.ed.ac.uk

John Knight • John.Knight@intiuo.com

Ann Light • tel 07947 072300 • fax 020 8241 5677 • annl@cogs.susx.ac.uk

Rod McCall • Fraunhofer FIT • rodmc@acm.org

Tom McEwan • Napier University • tel 0131 455 2793 • fax 0131 455 2727 • t.mcewan@napier.ac.uk

Barbara McManus • University of Central Lancashire • tel 01772 893288 • fax 01772 892913

bmcmanus@uclan.ac.uk

Dianne Murray • tel 0208 943 3784 • fax 0208 943 3377 • dianne@soi.city.ac.uk

Amir M Naghsh • Sheffield Hallam University • tel 0114 225 3195 • A.Naghsh@shu.ac.uk

Dale Richards • QinetiQ Ltd, FST • tel 01252 393896 • fax 01252 392720 • drichards@qinetiq.com

Janet Read • University of Central Lancashire • 01772 893285 • jcread@uclan.co.uk

Anxo Cejeiro Roibás • University of Brighton • tel 01273 642458 • fax 01273 642405

a.c.roibas@bton.ac.uk

Fausto J. Sainz Salces • Liverpool John Moores University • tel 0151 231 2082 • fax 0151207 4594

cmsfsain@livjm.ac.uk

Andy Smith • Thames Valley University • tel 01753 697565 • fax 01753 697750 • andy.smith@tvu.ac.uk

Colin Venters • University of Manchester • tel 0161 275 1384 • c.venters@ncess.ac.uk

Robert Ward • r.d.ward@hud.ac.uk

Adrian Williamson • Graham Technology plc • tel 0141 533 4000

Adrian.Williamson@GrahamTechnology.com

William Wong • Middlesex University • tel 0208 411 5000 • fax 0208 411 5215 • w.wong@mdx.ac.uk

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Editor Interacting with Computers

Dianne Murray

BCS Contacts

Sue Tueton (Membership) hci@bcs.org.uk,
+44(0) 1793 417416

The British Computer Society
1 Sanford Street, Swindon SN1 1HJ, UK
Tel: +44(0) 1793 417417
Fax: +44(0) 1793 480270
Email: hci@bcs.org.uk

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