interfaces

if78 spring 2009

Keeping it real

Interaction in the real world

BCS

Originally a textile designer, *Stephen Boyd Davis* has worked and taught in digital media since 1984. He runs the Lansdown Centre for Electronic Arts at Middlesex University, dedicated to interdisciplinary work in digital media. He shares the Centre's commitment to continuous innovation, but also sets new media practices in wider historical contexts. His aim is to inquire radically into the possibilities of media and technologies, exploiting their special properties to the full.

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Daniel Harris works with the Digital Service Design agency, Fjord, in their London office as a Senior Interaction Designer. After a number of years in the renowned User Experience Architecture department at LBi, he brings a wealth of experience from working with clients such as Orange, 3 Mobile, Multimap, HMV, and London 2012. Daniel has a broad background in digital design, and since 1998 has traversed the digital art & design disciplines from marketing, digital environment design, 3D design, motion graphics, and mobile experience design.

Azlan Raj is the Digital Director for Sticky Panda, a digital strategy and user experience agency that focuses on business performance and customer behaviour. He holds an MA in Computer Arts and has over ten years' experience in the digital industry. Azlan has been involved in large-scale online retail and social media interaction and has worked with many high street names, blue chip companies and new media ventures, enabling him to investigate the commercial side of interface design.

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Janet C Read has a degree in mathematics and currently works at the University of Central Lancashire, teaching HCI, interaction design, and child–computer interaction. She also leads the lively Child–Computer Interaction (ChiCI) group. She researches text input technologies, children's use of tangible technologies, and the design and evaluation of children's technology.

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Page 2 Elina Halonen-Knight

BCS membership

To receive your own copy of Interfaces, join the BCS and gain access to BCS Interaction and four other Specialist Groups (see page 26).

PDFs of Interfaces issues 35–77 can be found on the Interaction website www.bcs-hci.org.uk/about/interfaces/archive/

About Interfaces

Interfaces welcomes submissions on any HCI-related topic, including articles, opinion pieces, book reviews and conference reports.

Forthcoming themes

Interfaces 79, Summer 2009: Education, Education, Education. Deadline 1 May 2009
Interfaces 80, Autumn 2009: Now that's what I call HCI – Remixes, reflections and greatest hits of British HCI
Interfaces 81, Winter 2009: Anywhere, anytime, anyplace – Globalised, localised and repackaged – challenges for the future

Submission guidelines

Articles should be MS Word or plain text. Send images as separate files: these must be high resolution digital originals suitable for commercial printing, cropped if desired but not resized, and if edited, saved as tiff or highest quality jpeg. Please supply photographers' credits as appropriate.

Authors should please provide a 70-word biography and a high resolution head and shoulders original digital photo. Photographers' credits will be printed if provided.

Send to John Knight, John.Knight@intiuo.com; 34a Hackford Road, London, SW9 0RF.

interfaces

Welcome to Interfaces issue 78, which heralds a big change in the magazine and the group's communication work in general. First we streamlined the group name, then we got the neat new logo and now we have redesigned Interfaces. That is not the end of all this activity and in some ways the more difficult and fundamental stuff is still pending, like aligning our websites, but let's just focus on the magazine first.

We had a bit of a struggle to get what we wanted but I think we have a good balance in the new design; allowing our intellectual depth to shine through and also presenting an engaging and contemporary face to our audience. And of course we have tried to embody our ideals of accessibility and usability in the design too. That is why there is more white space and also why we have something akin to a vision statement that sets out the publication's values for our core audience of practitioners.

In order to deliver on our values we need to engage more directly with you. So, whether it is surveying your opinions on our current work or inviting you to get involved directly – watch this space...

John Knight

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View from the chair

Communication made easy?

Russell Beale

One of the wonderful benefits of modern computing technology is the infrastructure it provides for communication. I have recently given in and joined Facebook, and it has had the effect I predicted. I now spend time on there altering my status, commenting on others, and generally ~~procrastinating~~ engaging in meaningful social interaction. Sure, it is excellent at keeping you in touch with the ongoing activities, desires, and thoughts of your friends – and already I know a lot more than I did about what my colleagues and acquaintances are up to.

In some cases, far too much information comes out, but that's the thing with social networking sites, you're not the only one who shares information about you. My wife created a Facebook account a few years ago but did nothing with it – I was astonished to see more than a dozen pictures of her in her profile, none of which she'd added.

Facebook, as we all know, is not perfect. For me, it's the random nature of the news feed, filtering my information without telling me how. It's the binary notion of friendship – either you're my friend and can see everything, or you're not, and can see nothing. Sure, it's possible to sort out groups and permissions but that's a real hack – I would prefer 'friends' and 'acquaintances', though we've just done some research that shows most people don't like to put their social contacts into categories like this. Interestingly, this research also shows that most people use Facebook to keep up to date with their current friends' lives, and are most interested in news about the people they physically encounter more often – social networking complementing physical presence.

My biggest problem is that I now have even more ways of communicating with people. I have text messages, email, blogs, wikis, MSN, AIM, and Facebook to monitor. All these provide subtly different communication styles and relationships: one to one, synchronous, broadcast, one to many, and so on. Which makes me wonder – how long before we integrate these systems into one, selecting the appropriate style of communication as we go along. I don't want to spend all my time twittering and facebooking and emailing. Integration mashups are possible – colleagues tweet (if that's what you do when you send a message via Twitter), which alters their MSN status, updates their Facebook status, and is followed by their twits (if that's what followers are called). But that leaves email out of the loop, and for one to one it's still a good medium.

Speaking of communication, one issue for the group is effective communication with you, its members. We can email you all, but will you see it among the millions of emails you get, especially if it is for information only? Interfaces fulfils this role, but sometimes we'd like more rapid dissemination or input. We have the collaborative Interaction website (www.bcs-hci.org.uk), to which you can all add stuff – yet it remains an under-used resource. It could become a decent repository of material, but that can only happen via user-generated content, rather than relying on the efforts of a few people. If you want it to grow, do get a login and get to work!

One of the communication problems currently besetting the group is with the central administration people in the BCS. As they get more structured, our processes need to align with theirs, and when they don't tell us this can cause all sorts of problems. Clearly there are benefits for us in being with the BCS – in contacts and weight and funding and structure – but the overhead of dealing with a somewhat cumbersome organisation is becoming apparent. One of the key issues on the agenda for the COG is evaluating the relationship, to determine how we best gain maximum value from it, and how we manage a committed group of volunteers in working with a paid bureaucracy. If you have thoughts about this, please communicate them to me.

On a final note of communication, please welcome Matt Jones to the post of Research Chair: he's recently joined the COG with the remit to review and revise our activities to support HCI research in the UK and beyond, to understand the needs, support requirements and activities of academics, professional researchers and all involved in furthering the field. I'm sure he'd be delighted to hear from you if you have suggestions.

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.

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Advanced Interaction Group,
University of Birmingham

1–5 September, in Cambridge, UK

Preparations for HCI 2009

Alan Blackwell

As this issue goes to press, conference submissions to HCI 2009 are now complete. We have seen a substantial increase, including many submissions from researchers in other countries. We expect a sell-out for the conference this year, so we encourage early registration.

Registration will open in May. BCS member price, including all meals for three days, is expected to be only £350. On-site accommodation will be available, with budget B&B at £200 for three nights, and hotel-style premium accommodation £300. Student discounts will be available on all prices. If you would like to be personally notified when online registration sales start, please pre-register at www.hci2009.org.

The venue – an international technology centre

HCI 2009 provides an opportunity to bring HCI and user-centred design perspectives to the leading European centre of new technology development. When the conference was last in Cambridge (1990), the city was still a university town, hosting two small but influential HCI Labs (Xerox EuroPARC and the MRC Applied Psychology Unit). Since then, Cambridge has attracted the R&D facilities of many global technology corporations (Microsoft, Nokia, Sony, Toshiba, Philips, Hitachi and many others), as well as hundreds of start-up companies and a competitive venture capital community. Recent local inventions such as organic displays and flexible transistors are about to produce a boom in new interactive devices with flexible and low power displays; chip manufacturers ARM and CSR are the world's largest manufacturers of CPUs and Bluetooth chips for mobile phones and personal electronics; and major studios have established Cambridge as a leading digital production centre, for example as the source of Runescape, currently the world's most popular online role-playing game.

At HCI 2009, conference delegates, technology developers, corporate researchers and local entrepreneurs will mix at an evening open house festival of interactive technologies. Live hands-on demos, entertainment, open air festival food and digital arts performances will be hosted at the West Cambridge campus, where new facilities include Microsoft Research Cambridge, new centres for Photonics, Electronics, and Nanotechnology, and the University's Computer Laboratory, as well as start-up incubators and an entrepreneurship centre.

Other conference sessions will take place five minutes' walk from the West Cambridge site, in Churchill College, one of the modern architectural highlights of Cambridge. The college will provide on-site accommodation, with a choice between economical student-style rooms, or the hotel comforts of an executive conference centre on the same site.

Despite the status of Cambridge as the Silicon Valley of Europe, it is still best known to tourists as a scenic and historic university town. This year the University celebrates its 800th anniversary, and the conference is one of many international events sharing in those festivities. The conference gala dinner will take place in the spectacular dining hall of King's College, allowing delegates to experience the historic ambience of one of the world's oldest universities.

Sponsorship opportunities

There are a number of opportunities open for company sponsorship. We particularly encourage sponsorship of student places, of conference publications, and of events associated with the open house festival.

In addition, there are a small number of spaces available for promotion of products, services or recruitment publicity of interest to conference delegates. Please contact hci2009-chairs@cl.cam.ac.uk for more details.

Preparations for HCI 2009

1–5 September 2009
Cambridge, UK

Find out more at
www.hci2009.org

International research quality at a national conference

HCI 2009 continues the trend of attracting increasing numbers of international paper submissions and delegates. As one of the longest-established events in the field, the HCI series must respond to quality standards that discriminate between national and international research, providing a means to benchmark the standard of internationally leading research in the UK. Frequent international travel is increasingly unsustainable as the sole identifier of high-quality research, so it is important that the quality of the best research at our national conference can be assessed against that of larger international events.

We have two mechanisms to do this. The first, pioneered at HCI 2008, is that top quality UK research presented at conferences abroad will also be selected for presentation at our national conference, through international excellence awards. These awards take the best research from more special-interest conferences that move around the world, and make it accessible to our national community. The second is to ensure that the 'archival' quality standard, typically reserved for a subset of papers at large international conferences, is at least matched in the evaluation criteria applied to our own publications. Archival status must increasingly anticipate demand for citation and influence metrics.

At HCI 2009 we are therefore pioneering the 'archival highlights' publication status, which will reflect the highest quality conference presentations in the world. A subset of papers submitted to HCI 2009 will be selected for archival highlights status. Selections will be made by the conference co-chairs with support from peer reviewers and an advisory council of senior international HCI researchers. Archival highlights papers will not only appear in the ACM Digital Library with the other conference papers, but will be distributed to all conference delegates, and will be directly promoted for the attention of other researchers in the months following the conference. The goal is to promote the quality of UK research, and to ensure that international audiences for the HCI series continue to appreciate the status of this venue.

Interacting with Computers

Dianne Murray

The latest volume of Interacting with Computers is now available, in print and online. We have an exciting issue with papers on myriad aspects of physical interaction and virtuality, as the listing shows. Look at the journal website for information on how to submit a manuscript or to become a reviewer (http://ees.elsevier.com/iwc/) and at Elsevier Science Direct (http://www.sciencedirect.com/science/journal/09535438) for journal contents and to download articles, including those in the pipeline ('in press').

A forthcoming volume of the journal will be dedicated to the memory of the late Brian Shackel and to an appreciation of his work with critical commentaries and reprints of his original articles. Other special topics will be publicised shortly but take note of the Call for a Festschrift to that stalwart of British HCI, John Long. Contact either of the Special Editors, Alistair Sutcliffe (Alistair.Sutcliffe@mbs.ac.uk) or Ann Blandford (a.blandford@cs.ucl.ac.uk) to register your interest.

In the meantime, changes to the journal's editorial boards, online documentation, cover design and topics of interest are all under way so expect to see some changes to the journal of the Interaction group. I would encourage all members to become involved with IwC and to actively support our international journal.

One way in which to participate is to become a referee. Such activity can be very beneficial to academic and commercial careers and is formally acknowledged in print each year.

This is an extract from the 'Reviewer Thanks' as published at the end of 2008.

> A journal's reputation stands or falls on the quality of its peer review and I am pleased to be able to say once again that we have continued to benefit from the expertise and professionalism of many individuals worldwide who provide extensive and detailed feedback in their quality reviews. This has led again to an increased impact factor for the journal and so I thank all reviewers, the Deputy Editor, the two Special Issues Editors and all Editorial Board members for their hard work and commitment to Interacting with Computers.
>
> In particular I would like to express my gratitude to Professor Jan Noyes of Bristol University who has served as helpmeet and supporter for more years than we all care to count, and who is resigning as Special Issues Editor to become our first Editor Emerita.

Please contact me to discuss any aspects of the journal.

Dianne Murray
General Editor
Interacting with Computers
dianne@city.ac.uk

Top reviewers for 2008

Simone Barbosa
Effie Law
Paulus Vossen
Ling Chen
Joely Gardner

Special mentions

Lynne Baillie
Ann Blandford
Stephanie Buisine
Noelle Carbonell
Jesper Kjeldskov
John Knight
Catherine Weir
Martina Ziefle
Juergen Ziegler

Completing the Circle

Creativity meets HCI?

Stephen Boyd Davis

Interactive digital technologies offer an increasing range of opportunities for artists, designers and other creative workers to find out how their work is experienced. The days when they could work solely from personal conviction, regardless of the reception of their work, are gone. The intelligent artist or designer is now deeply interested in discovering the audience's or the user's response, and keen to use the many techniques and approaches now available for doing so.

With these deliberately provocative words we invited the creative and HCI communities to exchange ideas and information in a symposium supported by the BCS Computer Arts Society and the Design Research Society, held at British Computer Society, London, on 19 January 2009.

Of course to say 'creative and HCI communities' immediately begs the question. Nevertheless, it still seems broadly that HCI is evaluative after the fact, its insights not necessarily embedded into the creative practice that produces new designs. How much has really changed since John Carroll wrote in 1991 that HCI's role was 'essentially reactive' and that human factors evaluation was often seen by designers as a hurdle, not a resource (Carroll 1991:9)? Whereas Carroll's motivation was to critique HCI, ours was also to interrogate art and design practice, examining how the role of evaluation in creative work may have been altered by digital interactive technologies.

The papers dealt with specific innovative techniques, new applications of techniques taken from other disciplines, and the key issues that arise in monitoring, describing, measuring, analysing and evaluating the use and reception of creative work. The papers were reviewed by a distinguished international panel.

Whereas it is a premise of HCI that evaluation is a necessary part of the design process, things are not the same in the design community. In 2005 I conducted a small questionnaire survey of the staff in my own University concerned with teaching art or design to undergraduates. My aim was to find out how students are helped to discover whether their projects are successful. I was particularly interested to know how (if at all) staff invite students to 'test' the things they make on intended users or audiences.

From 77 staff, most of them practising artists and designers, 16 replied, so these results cannot bear any statistical weight. Nevertheless interesting patterns emerged. The commonest answers occupied two extremes: 'always' and 'never'. Addition of the null responses, since these were accompanied by comments such as 'I don't understand the question' and 'Not appropriate in our subject,' made the negative peak of the distribution even more striking. These practitioners were convinced that testing was not appropriate to their subject.

By contrast, their opponents saw testing as fundamental. Comments included 'In our subject public feedback is inherent', and 'It is part of our subject'. One respondent summarised: 'Design is about real issues, real problems and real users'. It might seem that artists would work from personal conviction and designers would rely on evaluation with users. But the divide between those who advocated testing and those opposed did *not* match this pattern. Among the artists I found the same opposed views as among designers, one for example describing testing as irrelevant, and another seeing it as fundamental. It seems it is less a matter of the discipline involved, than of the attitude of each practitioner.

Though we invited counter-arguments, most of our symposium authors of course shared an advocacy for evaluation. Ernest Edmonds, in a paper on the changing relation between artist, curator and audience brought about by interactivity, written with Zafer Bilda and Lizzie Muller, quoted the late Brian Shackel: designing without evaluation is like a pilot flying an aircraft with his eyes closed (Shackel, 1994). Richard Stevens and Tony Renshaw, presenting a project combining eye-tracking and creative film-making written with Paul Marchant and David Raybould (Figure 1), warned us against any belief that responses to films can be adequately discovered through introspection or speculation about viewing behaviour: research into what the film-viewer actually looks at is necessary.

For those happily unfamiliar with existing film theory, this view might seem unremarkable. But not only has there been little empirical work until recently on how films are perceived and cognised, the very idea of studying what appears on the screen has proved inimical to most film theorists, who would far rather discuss the social, political, sexual, ethical and other issues raised by the making, content and consumption of the film than say anything about how the film actually looks or is seen.

Despite the enthusiasm for evaluative processes of many kinds, our authors' advocacy was by no means uncritical, and several were wary of the damage they may do. Yarmo Laaksolahti, presenting a joint paper with Katherine Isbister and Kristina Höök (Figure 2), was keen to avoid the dangers of reductionism, and of destroying through observation

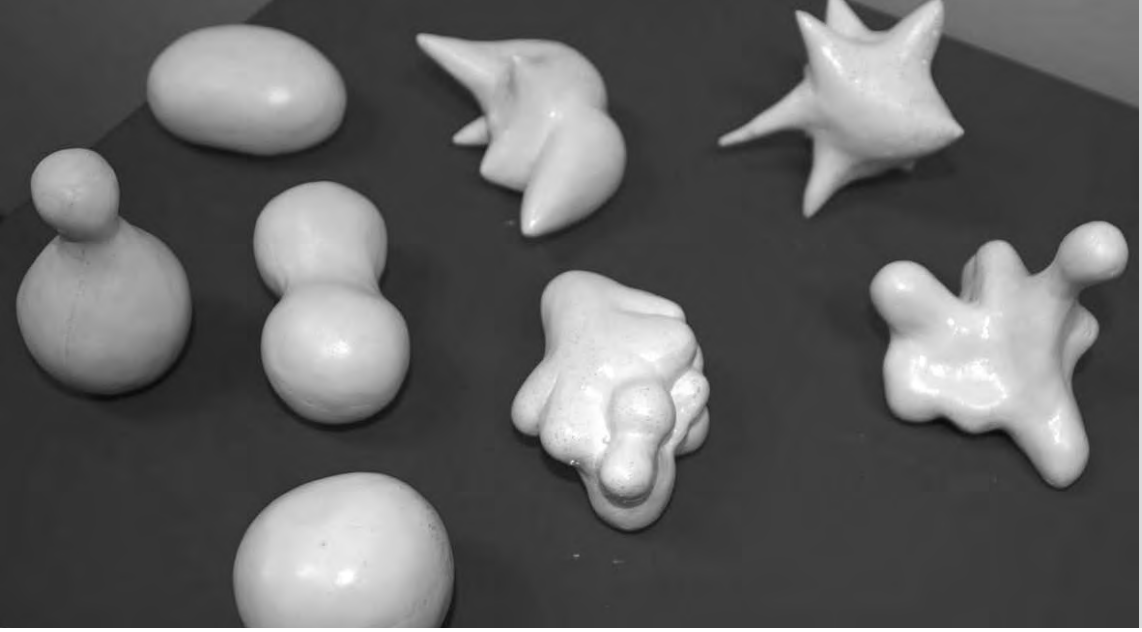

Figure 1 (far left) Parts of the image of a Hitchcock film are resized according to how long the participant's gaze, measured with an eye-tracker, stayed in that location. From 'Are you seeing what I'm seeing?' by Paul Marchant, David Raybould, Tony Renshaw, and Richard Stevens.

Figure 2 (left) Jarmo Laaksolahti, Katherine Isbister and Kristina Höök described their use of the Sensual Evaluation Instrument, a series of physical correlates for aspects of user experience.

the very thing they are studying – the pleasure of a good story (in this case, in an interactive narrative). How, if at all, can the nuanced and complex response within the user be manifested in terms of the measurable – or at least the perceptible and describable. Can we investigate the strands of a rope without destroying its ropeness?

The internal, personal and arguably inaccessible character of our individual responses was similarly perceived as crucial by Robin Hawes (Figure 3). However, in his case this was not a problem, but an opportunity. In some ways inverting the theme of the day, he is motivated not so much by how others perceive the maker's work, but how each of us perceives differently, whether maker or user. Like several presenters, he emphasised how the work is not complete when it leaves the maker's hand: it is to a significant extent created by its observer.

This is a commonplace of much cultural theory, but unfortunately in that sphere its corollary is seldom examined. But as Michael Hohl (Figure 4) succinctly put it: if the audience makes the work, we seem to need techniques that allow the artist or designer to discover what work the user has made!

Ironically, the speaker with perhaps the most sceptical assessment of what can, and cannot, be captured from the user's internal experience, was the only speaker from a mainstream computing science department, Mark Springett, who outlined his concerns with emergent long-term user reactions. Significantly, he was concerned with functional systems such as those of e-banking, making a clear case that the difficulties for evaluation here are quite as profound as those in more obviously 'art-like' systems, now that the agenda for human–computer interaction includes long-term experience as much as the completion of tasks. He gave us salutary warnings on the difficulties of operationalising the intangible, such as capturing a user's sense of trust or mistrust – qualities that the user is not easily able to identify, specify or attribute causes for within the system under evaluation.

Of the many important issues raised by the day's papers, for me one of the most striking was the increasing use of layered evaluation, in which users are given an opportunity to reflect on and analyse their own responses, which have been recorded in some other form.

Several papers used variants of this approach, using video-recordings and other representations of users' transactions as a source of data for the designer, and as a stimulus for further discussion with the user who recalls what they were thinking, attempting or feeling during the experience.

Hawes' work is inherently recursive in this way, with users looking at images representing their own looking; and in Marchant et al.'s work too, visualised patterns of viewing allow the user to examine and reflect on their own experience of the film and compare it with that of other participants. This kind of second-order cybernetics both creates new works and allows deeper, richer forms of evaluation.

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"How much has really changed since John Carroll wrote in 1991 that HCI's role was 'essentially reactive' and that human factors evaluation was often seen by designers as a hurdle, not a resource?"

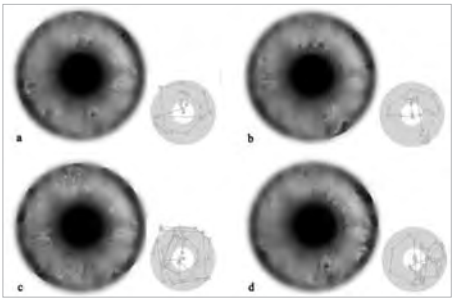

Figure 3 Four of the final artworks from Private View by Robin Hawes. a: Iris (After Andrew Currie), 2007; b: Iris (After Paul Ridout), 2007; c: Iris (After Kate Southworth), 2007; d: Iris (After Ravi Bains), 2007. The diagrams beside each artwork are maps of the 'point of focus' recorded by the eye-tracker.

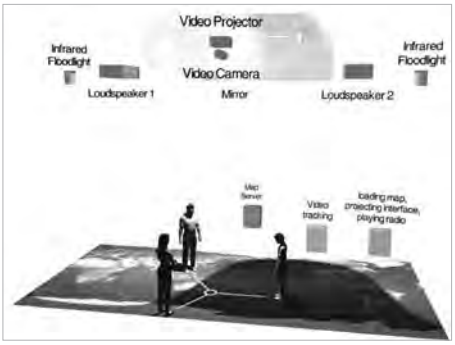

Figure 4 Michael Hohl used grounded theory to get a better understanding of visitors' experience of Radiomap, which allowed individuals to listen to live radio stations from all over the world by walking over a map. Radiomap application by Michael Hohl (UK) and Stephan Huber (DE). Map image by © www.livingearth.com and Hari Nair's Xplanet.

Becoming simpler and smarter

Azlan Raj

The wheel system made navigation through hundreds of songs not just easy, but almost enjoyable. The wheel is not purely functional either but is in some way the product's face and signature. At a deeper level the wheel resonates with our inherited musical memory of reels and rounds.

Richard Sedley (2009) of cScape defines customer engagement as

> **Repeated interactions that strengthen the emotional, psychological or physical investment a customer has in a brand.**

Sedley goes on to suggest that simplicity is a key factor in fostering engagement as effortless interaction quickens and deepens bonds between brands and consumers.

Similarly, John Maeda (2006) argues that simplicity is an important aspect of design as it reduces cognitive overload, the feeling of being overwhelmed by technology and the complexity of interacting with companies in general. Maeda comments on how businesses should adhere to the Laws of Simplicity in order to maximise engagement, and counters what we might call featuritis with a plea for ease of use.

> Simplicity is a quality that not only invokes passionate loyalty for a product design, but has also become a key strategic tool for businesses to confront their own intrinsic complexities.
>
> John Maeda, Laws of Simplicity, 2006

Music players are good examples of a product type where simplicity of engagement is critical to user acceptance and sales. And there is perhaps nothing more simple or engaging than an iPod: stripped of superfluous functions this product is utilitarian to its core and exemplifies the old adage that form follows function. Certainly some design elements of the iPod have become, or exemplify, the archetype of music players from wind-up gramophones onward to DRM free digital downloads.

Now iPods and phonographs have a common genealogy, but miniaturisation and networked technology are surely a step change in the evolution between the two. Generally music players have mutated through time to become more robust, smaller, lighter, more colourful and more technologically advanced than their forbears: that's progress! From old cassette players with separate media, today's Mp3 players are not just a replacement technology for what went before but a disruptive one too. In particular, the introduction of music downloads has changed the industry, how we consume and store music and even the survival of shops on the High Street.

The ease and practicality of downloading songs or albums to one place was a key factor in this shift but it doesn't end there. Playback is a function that has been available since the earliest phonograph, but what the successful players have done is to integrate purchasing music, archiving it and of course playing tunes. With greater numbers of tracks to play, the ability to navigate through those songs was an important aide for customers beyond fast forwarding and rewind. Consumers needed to be able to browse, discover, search and listen to those songs easily from one place for the next stage of evolution to take root.

To some extent Mp3 players were always likely to take over from analogue, but the introduction of Apple's iPod was a disruptive

Weave the experience into every relevant part of the design so it's memorable, unambiguous and pure – like the wheel!

technology over and above digitised music. While the ability to access any track without the limitations of bulky storage was liberating, the iPod's innovative design has secured its iconic status and longevity. It does this by capitalising on what I call the aesthetic-usability effect: where the simplicity of the interface becomes an integral part of the product or service itself.

The value of the iPod is more than the sum of its elegant lines and perceived usability. It is emblematic of the Laws of Simplicity: rather than lots of features and functions, the iPod focuses on core use cases and repetitive needs of the user. In addition, the integration of the iTunes services makes it incredibly easy to download and synchronise as well as being a potent discovery and marketing tool.

The iPod's larger hard drive allowed for a small device that could be used while on the move, without the need to change disks or memory cards. And mobility has supported new forms of behaviour including Silent Disco and of course those annoying kids at the back of the bus, because playing music in this way is possible and simple to do.

The additional feature of the innovative 'wheel' navigation system made it marketable for consumers by being cutting edge and distinctive. The wheel system also made navigation through hundreds of songs not just easy, but almost enjoyable. The wheel is not purely functional either but is in some way the product's face and signature. At a deeper level the wheel resonates with our inherited musical memory of reels and rounds, thus reinforcing the perceived simplicity of what is quite an advanced piece of technology. All these things were massive selling points to the iPod combining style and innovation to create an easy to use system. Remember, when the iPod was first released it was just an Mp3 player, a very attractive and usable one but nothing particularly different except the aesthetic-usability effect.

This appeal made the financial cost to consumers less of an issue during the purchase and maximised the opportunity for sale. And despite being a relative latecomer in an already crowded market Apple built on the loyalty of its core customers and exponentially extended its market share.

Part of the reason for this success is the intuitive familiarity of its interface using such basic components such as wheels and curves. Cleverly, Apple also patented this interface element and the seeds of later product evolutions including the iPhone were set. Taking a lead from Maeda, the iPod is a useful sanity check on the Laws of Simplicity. Doing this reveals a more substantive set of laws that resonates with definitions of usability and engagement.

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Maeda, J. (2006). The Laws of Simplicity. (http://lawsofsimplicity.com/)

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Thanks to John Knight for helping put this together.

The Laws of Simplicity Revisited for the iPod

(Raj and Knight, 2009)

1 Minimal
Strip functionality and aesthetics down to the core essence of the product or service, e.g. the iPod shuffle.

2 Archetypal
Use commonly understood elements and features and only deviate where there is none to follow, e.g. play, rewind, etc.

3 Iconic
Weave the experience into every relevant part of the design so it's memorable, unambiguous and pure – like the wheel!

4 Whole
Provide an end-to-end service without breaks. For example, to discover, buy, play from one access point, e.g. iTunes

5 Immediate
Remove all barriers to first time use, e.g. plug and play

6 Magic
Make sure there is something that makes you go wow, e.g. iTunes' Genius toolbar

Timely interfaces to the real world

Daniel Harris

Mobiles are some of the most personal devices that we use. We're twitchy when we've forgotten them. They help us make plans and contain some of our most private data. We have come to rely on them as prostheses of our bodies and brains.

Microblogging is enjoying a growth spurt and will soon become mass market. Twitter is leading this evolution in how we express ourselves. A large proportion of these microblog posts come from mobile phone users.

It's convenient because the small message size asks for very little effort from the user, but the major reason that mobile is a good medium for microblogging is the content of the messages and posts: the vast majority of microblog posts are about our experiences in the real world. We want to talk about the places we go. And we want to know what our friends are doing, right now.

So if mobile, as a condition, and as a device, is so appropriate for our need to share our view of the real world, why has it been a failure so far as a means of interacting with the others in the real world? On paper, the promise of mobile social networks and in particular the Friend Finder feature, was meant to be the pinnacle of the location aware experience. And they are being funded by venture capitalists in their dozens.

Yet wide adoption of these services seems a while off. Perhaps the start-ups haven't quite managed to tune in to how a particular market or culture wants to work with their service. In Europe, for example, services that could pose a privacy risk are not even considered by many people. Or perhaps the user experience doesn't fit with how we wish to interact with others through our mobiles. However, these reasons are symptomatic of a wider misunderstanding of how to design digital services that operate in a physical social space.

Researching time

Looking at the design process for mobile social networks, it's easy to see how the research phase could employ the same templates used for researching desktop social networks, which may use interviews, eye tracking, and analytics to reveal specific behaviours. But researching for mobile requires a different approach. For example, developing a more complete understanding of a user through shadowing techniques or even an ethnographic study becomes much more important, as behaviours that are not consistent from day to day, or location to location, can easily be missed if time is not invested at this stage.

To create a true picture of a mobile user, there has to be an understanding of timing – which underpins everything we do in the real world. Who we're with, where we are, and what we're doing is inextricably linked to a point in time. And if time and activity patterns can be learned, the resulting services can begin to present themselves in a timelier manner.

A system architecture fit for the mobile

If we continue through the design process, we can see how developing mobile social networks to meet mobile users' needs has suffered from a legacy of user experience and system architecture approaches that derive from designing and building desktop software.

Current practice dictates that mobile services have to be integrated on devices with

Shizzow is among a growing number of location aware friend finders
http://www.shizzow.com

their own operating systems. This 'platform' paradigm is a hangover from the Era of Computing, which required a task manager, multiple applications that had to be opened and closed, and a user who was expected to be responsible for the management and health of the system. Paul Golding wonders why mobiles still take on this desktop system model

> ... This is possibly an architectural problem or something more systemic. It comes about because our idea – or frame – of what a mobile phone should become, as in a shrunk version of a computer, is informed by an outdated and ill-fitting concept of software that comes from the desktop. We still obsess with these things that we call applications. We also get excited about mobile operating systems – Linux this and Android that. We get all fired up whenever anyone talks about native versus web, or the Java fragmentation problem.
>
> All of these things continue to inform how we think of mobiles and it is my view that we are severely limiting the future potential for mobiles. I mean, what exactly is an application anyway? Apps are things that are invoked. We still invoke applications and we still quit them. Why?

Paul Golding, October 20th 2008: Meme-based architectures for mobiles
http://wirelesswanders.com/BlogRetrieve.aspx?BlogID=1677&PostID=28974

And in terms of user experience, the landscape in which users interact with their mobile devices is often not recognised as being different to the interaction models of desktop computing. As an input device, the mouse is king on the desktop, and even though this has been recognised on a ergonomic level, the same thinking that goes into the mouse-driven layout, interaction density, and page-based architecture of the desktop experience continues to be transferred to the mouseless mobile experience.

Rachel Hinman of Adaptive Path asks if the task-based approach used for designing desktop software is appropriate for designing for the mobile condition

> ... One mobile user experience trend I've been tracking is the slow erosion of a task-based interaction model. Most software, web sites and web-based products we use today have evolved around the task-based model, and it has served us well. PCs are great tools for efficiency and "getting stuff done". Designers are well armed with a vast set of tools and processes that support this approach – use cases, task flows, task analysis – just to name a few.
>
> The thing is... mobile isn't a great platform for accomplishing tasks. The small screen and variability of the mobile context leaves most users feeling lost in a labyrinth of menus.
>
> If PCs are great for getting stuff done, mobiles are good at exposing possibilities. More and more, I've been thinking that to create great mobile experiences, designers need to say goodbye to tasks, say goodbye to done... and explore new or different interaction models that leverage the things that mobile is good at. Exposing possibilities..."

Rachel Hinman, January 16, 2009, Say Goodbye to Done
http://www.adaptivepath.com/blog/2009/01/18/say-goodbye-to-done/

Timely, personal service

Mobiles are some of the most personal devices that we use. We're twitchy when we've forgotten them. We have come to rely on them as prostheses of our bodies and brains. Yet the mobile social networks that are being developed continue to ask us to interact with them as dumb interfaces, rather than personal concierges that mediate our immediate environments according to our contexts.

Like a concierge, these kinds of mobile services should learn from our behaviour, and offer pertinent and informed opinions. A concierge would learn when to ask you relevant questions – based on who you are, where you are and who you're with. They'd ask questions that required very little decision making. They would certainly offer you a menu – that would only be appropriate and timely when seated in a restaurant.

Timely interfaces to the real world

Daniel Harris

My mood changes from hour to hour, so I can't imagine I'd be happy with a service that constantly figures me out wrong.

Jan Chipchase is a Urban computing/mobile design researcher, who travels the world to discover how people operate within their cultures. Much of his output is what you see here – photographic evidence of behaviour in the real world. This is the type of investment I think is required to research for mobile service design.

http://www.janchipchase.com/

What if we could sell what has been learned about us by our mobile? Instead of being fearful for the privacy of our data, the data, owned by ourselves, becomes a commodity, and available to the highest cash bidder.

Of course, there is such a long way to go to creating an infrastructure that is able to predict what we need at any point in time. My mood changes from hour to hour, so I can't imagine I'd be happy with a service that constantly figures me out wrong. But if mobiles could start learning about us, then the idea of timely interfaces can surely start to ripple out into the design process.

This challenge isn't 'just a case of technology advancement'. Privacy concerns are fueled whenever the phrases 'Location aware', 'context aware' or 'well timed' are used. But if we were given a guarantee by operators and device manufacturers that we get to keep our data local to ourselves and our devices, a new attitude to our personal data could emerge.

For example, in the future, our mobile concierge could know which location aware adverts are appropriate for our context and preferences. The local data used for these decisions could then present a valuable proposition to the user. What if we could then sell what has been learned about us by our mobile? Instead of being fearful for the privacy of our data, the data, owned by ourselves, becomes a commodity, and available to the highest cash bidder.

Tuning in to the mobile user

For real world social facilitators and Friend Finder services to be widely adopted, designers have to place more importance on learning about their users from the research phase, through to the mobile service that adapts to context. Mobile interfaces should ease users into different parts of the service by presenting them at the most appropriate moment in time.

For users to be comfortable with this experience from their mobiles, the mobile systems themselves should also function in a way that's more aligned with how people operate in the real world. And this requires a new approach to their system architecture – one that breaks away from the desktop paradigm which works so well for seated users and large displays, and into one that's as polite, social, humane, trusted, in-tune and well timed as the people that will use it.

Visioning workshops

John Knight

Fulton Suri (2004) proposes including in the design process both users and other perhaps traditionally marginal stakeholders such as customer support. She suggests that design must make stakeholders' values explicit and establish "mutual respect for each other's perspectives" (2004: 016). Following this aspiration a number of researchers and practitioners have proposed "value-sensitive design" approaches (e.g. Friedman and Nissenbaum, 1996) as a way of establishing consensus and non-functional requirements in projects. In addition, a growing number of design methods, including visioning workshops, enable teams to explicate, understand and build on stakeholders' values (Jefsiuotine and Knight, 2004).

Introduction

Visioning workshops should be multi-disciplinary and include representatives of key stakeholders, including users if appropriate, to fix a vision for the project. They should take place at the earliest opportunity and aim to create an understanding of the underlying values of stakeholders, rather than detailing project management issues such as milestones or requirements gathering, which should be investigated separately. The workshop should take roughly half a day and is structured around four activities that aim to surface underlying values that could affect the project, namely the values of the team, project, process and deliverable.

Introduction by achievements

This is a short exercise where participants introduce themselves and briefly describe an event that symbolises what they do and the values they represent, as well as the barriers and misunderstandings they have faced in their work. The facilitator summarises the points raised as positive and negative statements for the group as a whole, negotiating where there may be conflicts and identifying where further discussion and agreement is needed. Both the agreed statements and any unresolved ones become the first workshop deliverable, entitled "Team Values".

Agreeing a vision

This exercise aims to help individual team members understand each others' values. Participants bring a positive and negative example of a product, service or artefact that is similar in some way to the project's deliverables. In pairs, the groups generate descriptive words and phrases for the good and bad examples, using notes and if necessary the reasons for the choice of examples. The facilitator then posts each item on a relevant scale. For example, the notes could be ascribed on good to bad (x) and easy to hard (y) axes by polling the audience. Each extreme value is summarised on a whiteboard in a phrase or set of words which becomes the "Vision statement".

Idealised process design

This part of the workshop is strictly timed to include preparation and presentation. It aims to explicate the values and focus of the design process itself, such as innovation, change or knowledge. The participants form cross-functional groups and design a process for completing the deliverable as if they were starting from scratch at another organisation or on a similar project. A useful variation on this is to consider different areas of work or deliverables, especially for bigger projects.

To begin, the facilitator summarises the deliverable, the scope of the exercise and a brief description of the organisation for which each group will be designing. The scope should include teams, roles, communication, decision-points, etc. Having proposed a process and represented it in words and/or pictures, each group presents the process and pertinent points for improvement. Then the facilitator summarises the approaches and notes the differences and overlaps as a "Process statement".

Pre-post project review

The final part of the workshop is more slowly paced to foster reflection and discussion. The aim is to understand the potential impact of different team members and other stakeholders on the project. Individuals first brainstorm and then discuss with the team how the project deliverable will affect end users in the short, mid and long-term. Each participant takes a turn at being an advocate of the user and provides feedback on the candidate impact list, which is used by the facilitator as input to an "Impact statement". Focusing on aligning goals, this exercise should also verify the need for the project deliverable in some way.

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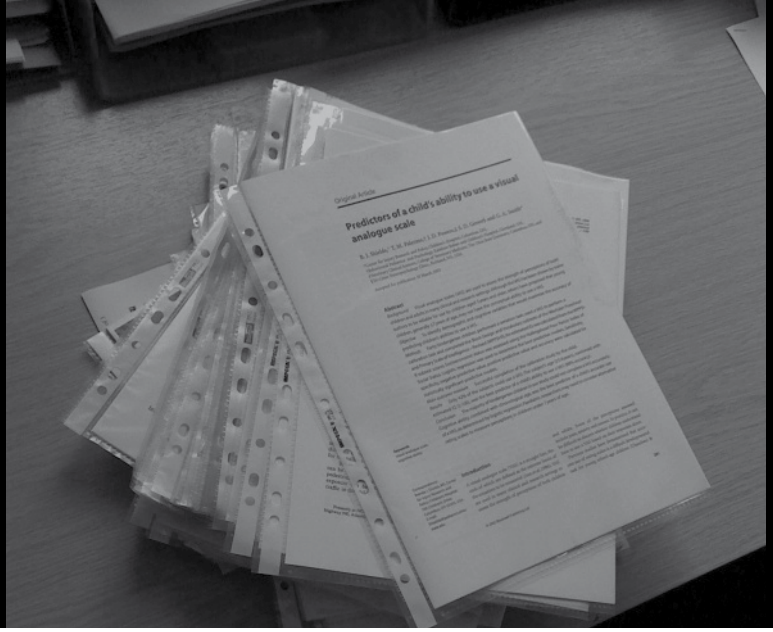


A sprinkling of usability and a dash of HCI

Janet C Read, Brendan Cassidy, Lorna McKnight, Pirkko Paananen

The carriage of ideas is rather like crossing a rope bridge; the point at which the bridge will get too old or too tired to transmit any more information is unknown and therefore there is a need to prioritise and get the most important aspects across first.

As HCI academics we spend much of our time in the semi-safe environment of a teaching system which, so long as the BCS accreditation panels are satisfied, can be messed about with and played with to such an extent that almost anything goes. One thing at risk in many computing courses is HCI. In one institution known to the authors, the standard HCI course (which represents 1/18th of a university degree) is now only taken by those who don't really program. As a result, the software developers and the software engineers get only a smattering of usability and a smidgen of HCI.

As these changes take place, and the instructors of the software-oriented students cry 'we can teach them usability in a week', it is easy to become overly defensive of HCI as a key piece of the curriculum, and it is also easy to simply rant 'but they need HCI' without really grasping which bits of HCI it is that are universally needed. On the one hand, the HCI academic is perhaps not best placed to discern the needs of the future software developer; on the other, the software engineering academic is equally not best placed to know whether or not a couple of hours of usability is enough.

Participation in real projects is a great way to explore the myths and legends associated with the necessity for HCI in the computing toolkit. The UMSIC project is an EU project with six partners – it can be argued of course that EU projects are not real! That is a debate for another paper, but there are realities in these sorts of projects that are created when different people come together to create and develop a single artefact with pressures of time and money. In UMSIC, three of the partners are highly technical and bring expertise in programming, architecture and connectivity, two partners bring contextual knowledge in the form of music learning and music technology, and our role, together with one other partner, is usability and HCI (Child Computer Interaction to be precise).

As the lead usability partner our main tasks are to advise on usability and to contribute to the understanding of a child usability module that will layer on top of the base architecture to ensure the product is usable for the children who will play with it.

Actions of HCI usability experts

Our actions to date, then, have been to advise on security, privacy and trust in systems for children (you could say this was 'outside' usability but that depends on the definition of usability taken), to carry out a usability test of an early prototype and report on our findings, to walkthrough early 'screen designs' that have been provided by the music specialists and to carry out specific targeted experiments and investigations to answer small and large questions that have been sent along to us. Thus we have been required to be experts, evaluators and researchers.

As experts – our task has been to comment, review the literature and discover what is known about this area. It is very easy for the average academic to wade through published material and create an academic paper; it is another thing entirely to synthesise what is found in a way that makes it useful to the development teams. In this project, our key message to the development

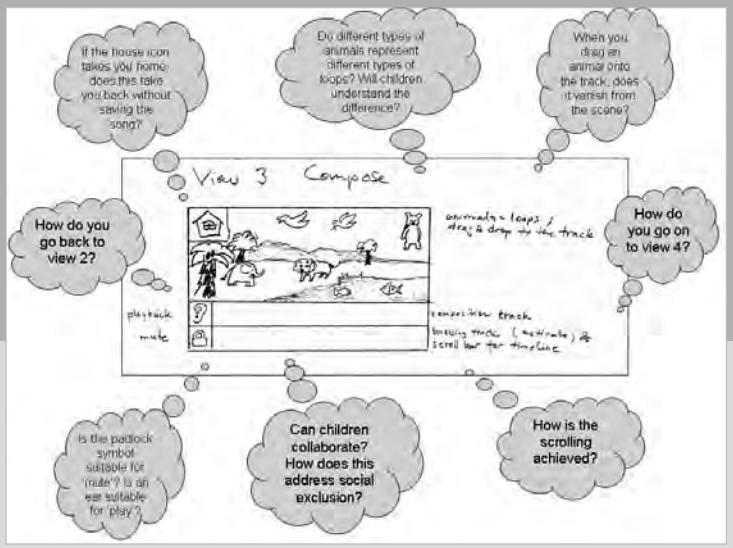


Figure 1 Commented design sketch

team has been to take account of security issues, but we have been able to pass on some interesting findings about how children make and use passwords.

As evaluators we have looked at some of the ideas that our other team members have had and we have commented on these, taking the view that we are experts in usability and therefore know something that can be of use to the technical team. An example of a commented design sketch can be seen in Figure 1. In this instance, our expertise in usability is used to ask the right questions, which we would expect to be answered either by the software developers or by the designers of the sketches.

Finally, as researchers, we are charged to discover specifics that will eventually be used to inform the design. These specifics can be the result of requests from the technical team or can emerge from the evaluations. As an example, from the scenario shown in Figure 1 we were asked to see if children could drag images from the scene to the play bars at the bottom of the screen. This was unknown to us, there was literature on children doing pointing and dragging with mouse-based and full sized interfaces, but no work on their abilities with small devices and stylus interaction. To answer this question it was necessary for us to carry out an experiment.

Making an experiment is not always trivial, the HCI practitioner often needs to be able to code an interface, deal with the logging of data from that interface and design a robust experiment that takes account of learning effects and other confounds.

To test the usability of drag and drop in this interface we designed a game for children (shown in Figure 2) in which children had to drag items to large, medium and small sized targets using different distances (what is, in actual fact, a classic Fitts' law study). Other experiments we have used in this work have included studies to determine the memorability of and understanding of icons.

Getting the information across

All the efforts of the usability team are wasted if the knowledge gained cannot be passed across to the development team. This carriage of ideas is rather like crossing a rope bridge; the point at which the bridge will get too old or too tired to transmit any more information is unknown and therefore there is a need to prioritise and get the most important aspects across first. At any one time, only a limited amount of information can be guaranteed to be carried across and the 'parcels' of information need to be small enough not to overburden the carriage nor the recipients.

In our project we take a double view that

(a) everything we discover is valuable so needs to be made available but

(b) only the most important aspects should be selected out for specific treatment (i.e. carriage across). We have dealt with this by producing full reports as well as truncated reports, academic papers as well as summaries; it is the latter of these dyads on which we would expect the software developers to focus their efforts.

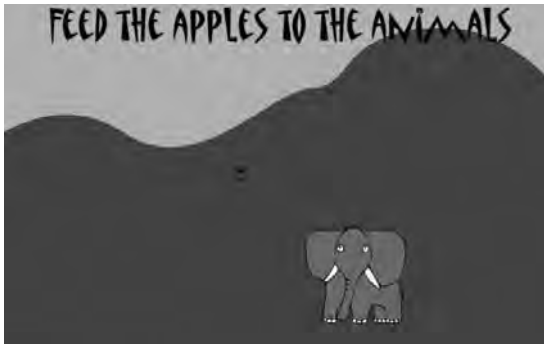


Figure 2 Designing interfaces and activities to discover specifics

So what do our students need to know?

It seems that the key things our students should be equipped with, if they are to be able to advise in real projects in areas of usability and HCI, are the skills to

- know where to find an answer if one already exists,
- understand how to evaluate ideas and interfaces for usability,
- design and carry out a simple experiment and
- know how to prioritise and how to communicate usability requirements.

If we chose to focus on these things in our designs for HCI courses this might cause a significant transformation of the HCI component of many undergraduate courses. The smattering of usability and a smidgen of HCI that was previously advocated could well turn out to be a sprinkling of usability and a dash of HCI that give real flavour.

Masters at work

Gesture navigation in contextual menus

Dennis Middeke and Thomas Hirt

Masters at work is Interfaces' regular platform for young designers and researchers. In this issue Dennis Middeke presents a novel mobile phone interface developed as part of his studies at the University of Applied Sciences in Düsseldorf. This is work from the final project part of the course, which focuses on concept design. Here students investigate opportunities for innovation in mobile interaction design as well as the potential for developing applications that are relevant to the device and context of use.

Like all students on the course, Dennis' project was a collaboration with an industry partner and mirrored a commercial design process, including everything from market analysis right thorough to final design concepts.

The project partner in this case was LG Mobile and was supported by Markus Lüdemann (Head of User Experience) who acted as sounding board and mentor for the students. The aim of the project was to develop innovative interaction designs in the context of the mobile phone industry's attempt to counter the challenge of the iPhone. In order to achieve this Dennis investigated current industry trends as a starting point for exploring new design concepts.

Mobile phone trends

Interface design has been relatively static for a number of years with few innovations in interface design for either fixed or mobile devices. To some extent phones had reached a plateau in which the commercial advantages of standardisation seemed to halt serious attempts to do anything new. There are a few exceptions such as Nokia's game-centric phones, but generally mobile phone interaction design had settled into one or two archetypes such as the twelve key clam and the QWERTY smart phone, and the only design opportunity was incremental and slight improvements and tweaking.

The iPhone certainly disrupted this relatively comfortable stasis. The release of Apple's iPhone finally established touch-screens as a desirable and usable interaction method. Of course touch-screens are nothing new in themselves, but Apple succeeded where PDAs and Smartphone manufacturers in the past had failed. Commercially available touch-screens in the past were not very usable partly because of the imprecise nature of touch displays and mainly because no one had put resources into developing a touch-oriented operating system. In contrast to the clunky touch interfaces of the past, the iPhone is fun; menus scroll smoothly and even bounce, content can be explored playfully by paging through album covers instead of simple lists, for example.

While the iPhone is good, touch-screen interaction has some drawbacks, especially when used on mobile phones. With the lack of haptic feedback, the handling is more complicated in comparison to conventional input methods with buttons and keys. Text entry is also negatively impacted by touch-screens and it is almost impossible to write a message while walking. Most people need both hands for typing; one holding the phone and the other one inputting the text!

The increasing number of functions available on current mobile phones also affects usability in a detrimental way. The latest generation of Smartphones provide functions comparable to desktop PCs, including word processing and web browsing. Despite the functional power of such phones, surveys show that a significant number of users just stick to the basic functions of their mobile devices rather than discover and use the more advanced (and potentially useful) ones. This means that adding new features complicates currently used functions and is a barrier to adopting new ones.

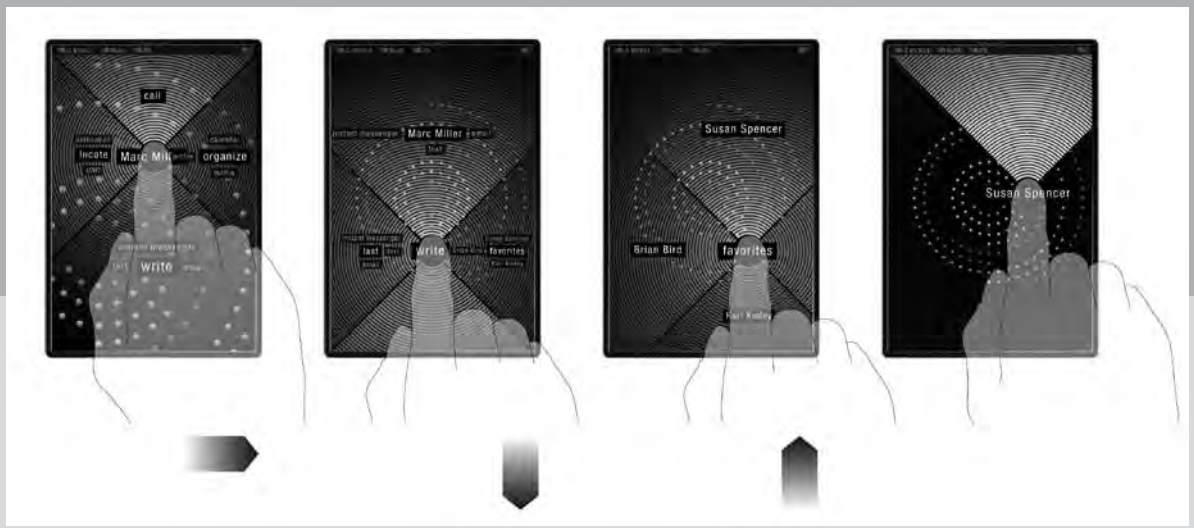
To summarise, touch-screen interfaces have disrupted the mobile phone world but have yet to fully achieve their potential in satisfying all use cases. As well as the potential for optimising touch-screens there is also a design opportunity to enhance navigation on devices that include a growing number of features.

Design concept

This is the initial point of my design. The goal was to focus on the actual purpose of phones as primarily communication tools. Therefore I questioned the basic structure of common mobile operating systems and explored new approaches to navigation by using and reviewing a number of touch-screen interfaces.

My concept 'Basic Communication' is a mobile interface substantially different from its peers even to the level of its information architecture. All data and functions are assigned to contacts in the address book rather than dispersed through the interface. This means that the central element of the interface is something very familiar and in constant use. The contacts can be displayed in different ways: graphically sorted by contact groups, e.g. friends or work, on a map showing their location, and in a common list view for quick access.

Clicking on a contact opens a contextual menu. The menu is divided into quarters each containing one option and its submenus. Each



commands can be accessed by a touch in its direction. As soon as the finger reaches the menu item, submenu items appear. This way of navigation provides some advantages over the ordinary point-and-click method as the position of the finger is relative rather than exact. The touch-screen interface, even though having no tangible buttons, can be used without visual cues, to some extent, as only the direction of the finger gesture is relevant, not the absolute position. Once the menu structure has been learned users are able to access commands by a few gestures that are strung together, and do not have to look at the display.

For less experienced users the contextual menu can be navigated like a map. By scrolling to the centre the user enlarges parts of the menu to reveal the submenu items. The menu can be explored in a playful way and the user can skip long navigation paths by accessing a subordinate command directly.

The structure of this mobile interface differs dramatically from existing interfaces. To keep the barriers as low as possible, I removed any cryptic terms or icons from the interface. Instead of that the functions are simply named after the action they provide. GPS and route planning are called 'locate' while messages and email are merged into a single 'write' option.

In addition I reduced the features to the very basics a mobile device should offer centring on a few core use cases: making a call, writing messages, locating and route planning as well as organising media files and calendar. The principle of gesture navigation can also be transferred to the keyboard for text input. Tapping a letter and dragging the finger up writes capitals. By dragging the finger to the right special characters like umlauts can be entered.

Conclusion

Navigating through gestures in contextual menus is a very fast way to reach certain commands. There is no space wasted for toolboxes or other navigation elements, which is an important advantage on small mobile displays. In many cases gesture is not intuitive on first use and this is one of the major challenges that still needs to be solved in future work. While designing the concept for the menu structure the limitations of the contextual menus became clear: it is quite difficult to build up a menu with only four entries per level. On submenu levels there are actually three items remaining because the second direction of a finger gesture has to differ from the previous one, otherwise the system would not recognise it. Menu entries have to be reorganised and merged on the fly and in complex applications it is impractical to replace lists and buttons completely. Despite some of these challenges this concept has many advantages over current touch-interfaces and it is an innovative and speedy way to reach a manageable number of commands.

Dennis Middeke has been working for six years in the field of corporate interaction design for companies and agencies in Germany. His focus is on conceptual design and specifically developing websites, mobile applications, exhibitions and signage systems. Currently he studies communication design at the University of Applied Sciences Düsseldorf.
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My PhD

Design for sustainable behaviour

Dan Lockton

Dan Lockton is a research student in Brunel University's Cleaner Electronics Research Group. His background is in design engineering, including work for Sinclair Research on lightweight vehicles, but his current research combines HCI and ecodesign to improve the use efficiency of consumer products. Dan has a BSc (Hons) in Industrial Design Engineering from Brunel and an MPhil in Technology Policy from Cambridge; he blogs at 'Design with Intent' (http://danlockton.co.uk)

Figure 1 A student using the DwI method to generate concepts for improving home lighting use efficiency, in a recent workshop session.

Motivation for my research

As technological advances make everyday consumer products more efficient, it's often human behaviour that's the 'weak link'. We buy 'energy-saving' lights and then leave them on all night. We boil a kettle-full of water even though we only need a mug-full. We stick with the default setting on the washing machine, afraid of investigating the others.

Behavioural decisions (or the lack of them) can be responsible for 26–36% of household energy use [5][8] – this is a big issue, and while governments often favour social marketing campaigns to 'solve' it, in many ways it's really an HCI problem. It's about people interacting with technology: how and why they do it, and how that interaction might be influenced (if indeed it should).

Lots of disciplines involve influencing people's behaviour, with varying degrees of 'strength' - from urban planning to advertising. I'd been researching the idea of 'architectures of control', how the design of the systems around us influences what we do, subtly or not, but while a lot of this stuff was fairly negative, often shaping public behaviour for someone else's benefit (political or commercial), I could see there was potential for helping people. Energy conservation seemed a good place to start, since it would save consumers money and help society in general. So in September 2007 I returned to Brunel to try and apply some of the ideas to 'Design for Sustainable Behaviour' [3].

The 'Design with Intent' method

I started by collecting examples of intentional behaviour change through design – 'Design with Intent' – from different fields [4], and trying to draw out common themes. My thinking was that if certain techniques have effects on user behaviour unintentionally, they could also be applied intentionally. (Equally, there's nothing innately 'special' about more environmentally friendly user behaviour: it's often simply about using a system effectively – thus largely a usability problem.)

Despite differences in design approach between environments, products (hardware/software) and services, many techniques or their analogues recur across the board. It ought to be possible to abstract certain techniques from one field, and apply them in others – e.g. forcing functions, popularised in HCI by Don Norman [6], recur in medical and industrial contexts with safety interlocks, but also in manufacturing engineering as part of Shigeo Shingo's poka-yoke quality methodology [7]. Russell Beale's idea of slanty design [1] (a great way of visualising the idea) can be seen as intentional manipulation of affordances (perceived or actual) to make certain 'desired' behaviours easier than others.

From various kinds of energy feedback user interfaces to physical techniques such as segmentation (and interface analogues of these), I've so far identified around 50 design patterns/techniques for influencing user behaviour, grouped into five 'lenses' (Architectural, Error-proofing, Persuasive, Cognitive and Security) representing different approaches (e.g. the Persuasive lens draws on B.J. Fogg's work [2]). The patterns are mapped to particular 'target behaviours' via a series of diagrams, so a design team briefed with influencing a particular kind of user behaviour can use this 'Design with Intent' method to be presented with a range of relevant design patterns, along

Example Concepts generated using the DwI method to encourage closing curtains at night to conserve heat

Concept for new or redesigned interface or product	Patterns/techniques
Curtains/windows/ heating system that can inform user about their state. Use potential benefit compared with past behaviour, etc. Could use windows/curtains as interface, e.g. projecting information / graphics	Interface capabilities Self-monitoring
Reducing hassle/effort required by users to close curtains – e.g. a weighted system or combined mechanism closing multiple curtains	Reduction
Suggest/simulate closing curtains at exactly right moment – when users about to go to bed, or when they enter room and switch lights on, or if significant heat outflow detected	Simulation Kairos Condition detection
Rewarding user for closing curtains by providing praise, 'delight' reward, or explicit display of money saved	Operant conditioning
Helping user develop habit of closing curtains by association with another event, e.g. going to bed; embedding 'trigger' in environment	Respondent conditioning
Interface which gets users to commit to a goal of a particular energy use improvement	Commitment & consistency
Interface which points out how well user doing (e.g. "Your insulation is only 65% effective because curtains are still open in three rooms.")	Self-monitoring
Interface which points out energy/financial waste of not closing curtains	Scarcity Self-monitoring
Demonstrate to users 'precious warmth' and how they'll feel warmer if they close curtains	Scarcity, Self-monitoring

with pros/cons, and example implementations, for each.

The method's been developed and refined through a series of workshop sessions, evolving from a tree structure ('too prescriptive' as a service design consultancy to whom I demonstrated it said) through more visual 'idea space' diagrams, to the stage where I hope to be able to produce an online 'Design with Intent handbook', which can be used as a guide and reference for inspiration in this area in the near future.

Next step: Applying the method

The second stage of the project will involve building functional prototypes of concepts suggested by the method in response to a particular home energy use brief (probably something like a kettle where user behaviour is a major determinant of the amount of electricity used) and running comparative user trials over, say, a month, to find out which techniques actually have the biggest effects on behaviour in practice (energy use is easy to measure!). It might turn out that a networked kettle with a clever social interface, comparing your overfilling habits with your friends', is more effective than one which continually asks "Are you sure?" every time you fill it, but that a simple more prominent cups/mugs scale is better still.

The results of the trials – which techniques work best, in what situations, and why (both technologically and in human factors terms) – will be fed back into the method to refine it further and, I hope, produce a useful tool for designers involved in influencing user behaviour, especially to reduce environmental impact.

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My PhD

If you are a PhD student just itching to tell the world about your research or if you've enjoyed reading about some of the emerging areas of research that the My Phd column has recently discussed then we would like to hear from you. We are currently accepting one to two page summaries from PhD students in the UK and across Europe with a focus on being open and accessible to everyone in the HCI community.

If you would like to submit or would just like more information please contact either Stephen Hassard or Eduardo Calvillo using the contact information contained below.

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and

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Interfaces reviews

Shailey Minocha

We have two book reviews for you in this edition. A number of our colleagues in the Interaction group have recently contributed to the book: *Research Methods for Human–Computer Interaction*, edited by Paul Cairns and Anna Cox. George Buchanan of City University, London has reviewed this book for us and we thank him for his insights and comments. With the conference season approaching, I would recommend a great book that could help in making powerful and inspiring presentations: *Presentation Zen* by Garr Reynolds. Capturing simple ideas on presentation design and delivery and discussing visual communication principles for effective presentations, this book was ranked third in Amazon's Business Books of the Year 2008 (http://tinyurl.com/dgqv39).

I hope you enjoy the reviews and find them useful. Please contact me if you want to review a book, or have come across a book and you think should be reviewed, or if you have published a book yourself recently. I very much look forward to your comments, ideas and contributions. In case, you would like us to present review of books on a particular theme or domain, please let us know. Many thanks.

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Research Methods for Human–Computer Interaction

There has been a long-standing need for a quality book on research methods in human–computer interaction. Popular textbooks have tended to emphasise the insights HCI has had into practical problems, and noted the general types of method used in the discipline. However, in these popular works there has been a serious lack of depth in discussing how to undertake experiments.

For those teaching specialist HCI students, at both senior undergraduate and postgraduate level, this deficiency has been a running sore. A book titled *Research Methods in Human–Computer Interaction* is in principle most welcome. The question is, does it meet the pent-up expectations of the HCI community? Indeed, would that ever be possible!

An initial glance at the table of contents should encourage any UK-based HCI researcher. This is not a book produced by the two editors alone. Rather, Cairns and Cox have successfully recruited a roll call of respected researchers. Alongside the editors, we see names such as Blandford, Dix, Harrison and Thimbleby. When the author list includes such names, our expectations may rise even further.

Any book with the ambition of this one faces one critical dilemma: breadth versus depth. Whether to include all research methods available, or to focus in depth on only a few? Naturally, the 'sweet spot' lies at neither extreme, but in a careful balance. Again, the table of contents is encouraging: in a little over 200 pages there are 11 chapters covering a spread of approaches, from formal, through controlled experiments, to questionnaires and focus groups. No doubt many readers will criticise one or other part of such a spectrum, but there is something for everyone and it is reassuring to see each method taken seriously.

A review could focus on each chapter, deciding the merits of each in turn. Let me say that all the chapters have significant value, and bear not only a first reading, but subsequent readings too. The book will be a lasting resource for any HCI researcher and Cairns' and Cox's own chapter on statistical methods ought to be compulsory reading for any serious student of HCI. As Cairns' recent BCS-HCI paper addressed, this is an area where we ought, as a community, to be becoming more rigorous. The intense motivation of the two authors shines through this chapter, and on its own it would, frankly, justify the modest price of the book.

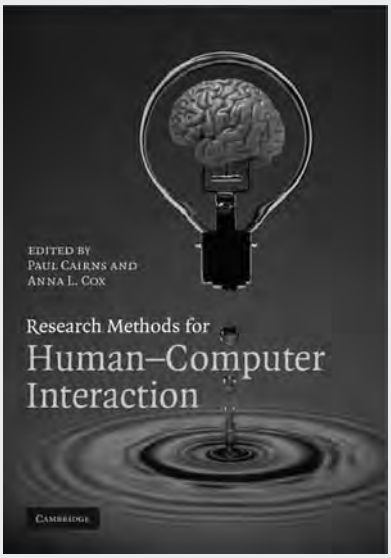
Similar quality can be seen throughout the volume. Certain chapters, e.g. Thimbleby's on writing, take an unusual angle; while others, e.g. Blandford and Green on methodological development, target significant and often neglected areas. The chapters on more 'soft' methods are a potent antidote to the misconception that qualitative methods or questionnaires are 'easy'. They may even frighten off students who think they can use such techniques to avoid doing too much work!

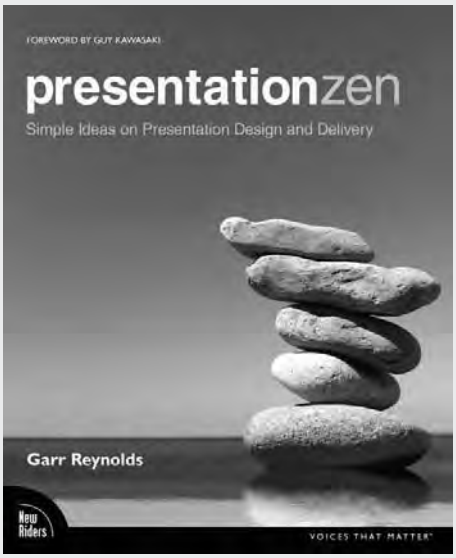
Needless to say, there are some omissions and shortcomings in the book. While there is a (predictably excellent) chapter on eye tracking, there is a lack of discussion of methods in log analysis – a method of critical benefit to Web researchers. The tortuous but important issue of hidden variables and dependencies is not fully discussed. Similarly, fieldwork and diary study methods would have benefitted from as thorough a coverage as experimental design and questionnaires. Let me be clear: this is essentially an inevitable problem, but in an ideal world 100 more pages and four more chapters would have added much. Unfortunately, that would have meant a longer wait, and a higher price.

However wonderful the volume is to an academic, how does it work in practice? The book arrived in perfect time for me to use it on a module taught to MSc and MRes students at Swansea's Future Interaction Technology Laboratory. The lack of a good foundational text has made the module rather onerous to deliver in the past. Cairns and Cox's book proved itself in use. Students were able to learn much more independently, and it was in common use in preparing experimental designs. Its modest price no doubt contributed to its popularity. Two PhD students have also gained a lot from its concise, focussed content, so it works at many levels of interest and knowledge.

So, what is the final verdict? The individual chapters are excellent, even if certain areas are sadly overlooked. It is well produced, and the price is very reasonable. It is an excellent teaching tool, and beneficial for active postgraduate researchers. It is one of those texts where we may all 'know' the facts, yet our quality of understanding is changed by reading it.

I can only hope that at some point the authors may be coaxed into another foray (a





Research Methods for Human-Computer Interaction
edited by Paul Cairns and Anna Cox
Cambridge University Press
ISBN-10: 0521870127
ISBN-13: 978-0521870122
August 2008

Reviewed by Dr. George Buchanan
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Presentation Zen: Simple ideas on presentation design and delivery
Garr Reynolds
New Riders
ISBN 10: 0-321-52565-5
ISBN 13: 978-0-321-52565-9
2008

Reviewed by Shailey Minocha
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second edition or companion volume) that closes some of the gaps with work of equal quality. I would also like to see this text recognised for its real worth, and endorsed not only in the UK but worldwide. The chapter authors and Cairns and Cox deserve the hearty thanks of the HCI community, and if we all take the lessons of the book to heart, the future of HCI research will be in extremely rude health indeed.

Presentation Zen

This may be the first book that has a foreword as a slide presentation. The book is about how to design effective presentations by applying simple principles, most of which we have come across in our HCI teaching and research, but probably don't apply to our PowerPoint or Keynote presentations. The slides in the foreword (by Guy Kawasaki) capture the ethos of this book and why it is important for learning how to communicate with your audience during presentations.

The book is divided into five sections that have a logical flow: Introduction, Preparation, Design, Delivery and the Next Step. The introductory chapter discusses the evolution of the book and sets the focus of what is to follow: why it is important to communicate with your audience with passion and emotion. The key principles discussed in this chapter and later elaborated are: make slides that reinforce your words, not repeat them; don't use cheesy images; keep it simple; create a written document – a leave behind – and tell the audience they will get a handout at the end of the presentation, not a printout of the slides but a detailed account of the ideas that you will be presenting. The author suggests creating three parts for any presentation: the slides, notes (for the speaker) and the handout (for the audience).

The second part, on preparation, emphasises how critical it is to plan and prepare for presentations well ahead of the event rather than the night before, or on the train to the event. The author encourages the reader to be creative and plan the presentation away from the computer to see the big picture and the core idea, the key messages that need to be communicated. He suggests the use of post-it notes, writing pads, coloured plans and solitude, to work on ideas for a presentation and to answer the questions: 'what is my absolutely central point?', 'if the audience could remember only one thing, what would it be?' and 'why does it matter?'. The next step is to create a story through storyboards, first on paper and then with slides, and to iterate through this process so that all the slides relate to the core message.

The book reiterates the notion that live talks are a form of storytelling, and how important it is to present a narrative enhanced by imagery and other forms of multimedia. Part three discusses principles for designing presentations: simplicity, subtlety, elegance, suggestion rather than description, naturalness, empty space, stillness and eliminating the non-essential. Each is discussed with examples and some case studies, and by referring to various HCI principles along with some fantastic pictures.

The fourth part of the book, Delivery, encourages the reader to consider how to 'be there' for an effective presentation: ways to connect with the audience and be fully present at that time and place, without thoughts of past or future, 'winning' or 'losing'. The final part encourages the reader to 'change' from creating stereotypical bulleted slides, to design 'creative' presentations that follow the principles of restraint, simplicity and naturalness.

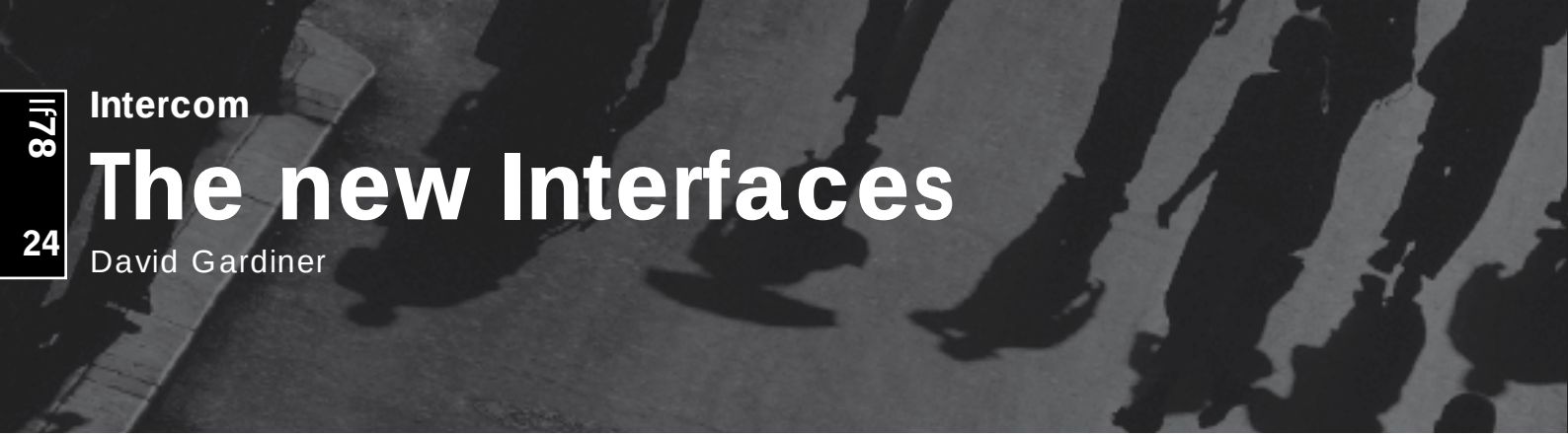
Presentation Zen is very beautiful, a pleasure to hold and read, with wonderful pictures and artwork. It is also inspiring, with a number of quotes, personal anecdotes of the author, and comments by experts in the area. Although it claims to advocate an approach rather than a prescriptive method, I would still have liked more examples from domains other than business and marketing. For example, how does an academic make effective presentations in seminars or lectures? How does one design the visual aspects: the choice of colours, fonts, pictures, and so on? The book starts well, but does not follow its own logic, and concludes with a discussion on self-development rather than bringing together the key aspects.

Nonetheless, it is a very useful read as it makes you aware that an effective presentation is not about 'you' or 'your research' but about meeting the audience's expectations, communicating the core idea and understanding why that idea matters to the audience – a very user-centred design perspective, which even we HCI researchers and practitioners frequently ignore.

http://www.garrreynolds.com/Presentation/pdf/presentation_tips.pdf

http://www.presentationzen.com/

http://twitter.com/presentationzen



Intercom

The new Interfaces

David Gardiner

There is no 'Holy Grail' to introducing a change of style for a magazine. The job of a designer is to improve on what already exists, but not to over promise and under deliver. No set of preordained style sheets will cope with every situation; text editing and article selection have a big part to play in creating design opportunities.

At the original briefing it was decided to reduce the word count to enable a less crammed style to be used. I was also aware of all the work that had previously been done in producing editions of the magazine before my arrival.

The enthusiasm of everyone involved is a valuable resource and I was keen to follow up how the magazine would progress after my 'visual' stage. Basically, 'visuals' are the designer's way of showing what could be achieved. My approach with Interfaces was to present several visuals using old or positional copy to show the weight of text to pictures that would work best.

As I got to know the brief I found myself being drawn into the many specialist areas that this magazine covers. Often, though, the illustrative content was limited to small squared up pictures and diagrams – very scientific in style. I decided early on that the best way to cover the ground was to handle these images as groups or if quality or space allowed, expanded to fill the top of the page.

Design doesn't stop with the original concept. It should evolve and adapt to handle whatever is asked of it. With Interfaces I knew that what was required was a set of 'containers' to make a magazine that looked ordered without too much 'intervention'. However, a selection of style sheets will only do so much and whoever is working on Interfaces must be able to adapt the words and pictures to make a design that works well.

Using the Adobe InDesign template, I think the small production team has taken the work forward well.

Unlike publications produced by newspapers and bigger publishers, specialist magazines do not have huge picture libraries to tap into. Neither do they have teams of people to create complex montages of pictures and edit text. For this reason I decided on a layout that would not rely on 'cut-out' shots or large shots.

To handle the range of smaller images I allocated space at the top of each page. These could be butted together to make a strip with captions beneath. If text ran short then pictures could be placed within the text area. This was to avoid too many word edits and would allow a choice of ways to finish a spread – always useful when time and resources are under pressure. If a spread has insufficient visual interest then I suggested pulling out a quote and running copy around that.

The finished result is quite ordered and reflects the discipline required in this subject. I think that by taking a simpler approach any layout 'trick' can stand out more. This a good thing as many publications are like demos for 'special effects'. No doubt some elaboration will be added from issue to issue.

It is very hard to hit the ground running with a magazine revamp with a small team. Interfaces is designed to be run by a small team using less than 10 style sheets with a range of possibilities that should contain most articles. It is not intended to be a 'precious' design and should be owned by whoever works on it. The prime intention was to make something that cleanly presents words and pictures. In many cases the word count has been dropped considerably to allow this without losing sight of the topic.

As in any good publication, design alone cannot solve everything. The final result is a blend of good content and good typography. Print and stock quality also add to an experience that an e-publication can never quite achieve. There is of course room for both and Interfaces acts as a pointer to many web resources in this area.

There is no 'Holy Grail' to introducing a change of style for a magazine. The job of a designer is to improve on what already exists, but not to over promise and under deliver.

UPA Events

April 23rd 2009
Understanding Contexts of Use
Miles Rochford

May 21st 2009
*Peep: Why You NEED Eyetracking for Usability Testing Website*s
Rob Stevens (Bunnyfoot) and Kara Pernice (NNg)

6.30pm at LBi

LBi International AB
London
146 Brick Lane
London E1 6RU
United Kingdom

Calls and communications

Interacting with Computers Special Edition: Festschrift for John Long

Festschrift: "a volume of writings by different authors presented as a tribute or memorial especially to a scholar"

John Long, Emeritus Professor at UCL, has made a substantial contribution as one of the founding fathers of British HCI.

This Special Edition of Interacting with Computers will celebrate John's contributions to HCI and showcase strengths of UK HCI research. The intention is that the Special Edition will include articles from both senior authorities in the field and also the next generation of HCI researchers. The Festschrift will include:

- Review articles on HCI areas which have built on, clearly relate to, or explicitly contrast with, John's work.
- Capstone articles summarising significant UK HCI contributions and relating them to the research angles that emerged in John's work.
- Forward looking articles proposing new theoretical views, research agendas, etc. - again, relating them to elements of John's work (e.g. his conception of HCI or his focus on work and domain representations).

Submissions may report or summarise specific research, or review the HCI discipline, frameworks and theories more generally. While we do not expect John's conceptions of HCI to be adopted in all submissions, it is essential that all articles relate their contribution to John's research. In particular we welcome articles which review and extend frameworks of the HCI discipline that build on John's foundations. All submissions will be refereed, taking into account both standard reviewing criteria and fit to the SI theme.

Dates

- Deadline for submissions - 1st May 2009
- Authors notified of decisions- 12th June 2009
- Special Edition published- January 2010

Manuscripts should be formatted according to IwC guidelines http://www.elsevier.com/wps/find/journaldescription.cws_home/525445/authorinstructions, and all submitted to the online Elsevier Editorial system via the Author Gateway (http://ees.elsevier.com/iwc/).

Topics

- user interface design
- HCI tools, techniques and methodologies
- new research paradigms
- design theory, process and methodology

Authors who wish to discuss possible contributions prior to submission are encouraged to contact either of the editors, Alistair Sutcliffe or Ann Blandford.

ACM Creativity and Cognition 2009

Everyday Creativity: Shared Languages and Collective Action

Increasingly, academics and practitioners, makers and scientists, artists and theoreticians are embracing the new forms of creativity that are emerging in everyday life. Yet what do we really know about the creative process? How we are enabling the creative potential in everyone? How do our creative activities differ?

The 7th Creativity and Cognition conference offers a forum for those exploring the methods and tools to support creativity at the intersection of Art and Technology.

Join us on October 27–30th, 2009, at the Berkeley Art Museum and UC Berkeley for lively interdisciplinary debate around the broad theme of Everyday Creativity.

Leading thinkers and practitioners in the fields of creativity, art and science will contribute to the debate, including Mihály Csíkszentmihályi, Professor of Psychology & Management Claremont Graduate University, who brings with him his extensive work on understanding creativity and flow experience.

JoAnn Kuchera-Morin, Director of the Allosphere Research Laboratory, Nanosystems Institute and Jane Prophet, Professor of Interdisciplinary Computing Goldsmiths University of London bring their extensive practice-based experience and arts-science collaborations to the mixing pot.

An art exhibition, live performances, workshops and posters will turn the ordinary into the extraordinary. Expect the unexpected...

The submission deadline is 24th April 2008 with further information available at:

http://www.creativityandcognition09.org/

TAMODIA 2009

The 8th International workshop on TAsk MOdels and DIAgrams (TAMODIA) allows researchers to focus on formal aspects of User Interface Design.

This year the keynote speakers are

Professor Andrew Howes
University of Manchester
'Rational adaptation to task and processing constraints'

Professor Gilbert Cockton
University of Sunderland
'Beyond Tasks: User Experiences as the Achievement of Worth'

The submission deadline is 27th April 2009 with further information available at

http://ihcs.irit.fr/tamodia2009/

Intercom

Calls and communications

Irish Research into Human–Computer Interaction

December 2008 saw the launch of the Irish chapter of the ACM SIGCHI.

This event was marked by an inaugural lecture by Prof. Alan Dix of Lancaster University on "Human–Computer Interaction in the early 21st century: a stable discipline, a nascent science, and the growth of the long tail". The Irish chapter of SIGCHI brings together people working on the design, evaluation, implementation, and study of interactive computing systems for human use. It also connects researchers and designers from across the Irish third level and commercial sectors. Ever increasing technology in our cars, mobile phones, workplace and private lives brings a huge challenge in designing systems that meet the needs of people in the real world.

Prof. Liam Bannon, Chair of the Irish SIGCHI, and Director of the Interaction Design Centre at the University of Limerick, welcomed the launch of this chapter, noting "While research has been done over many years in Irish Universities that fits under the umbrella of HCI, until relatively recently there have been few fora for researchers and practitioners to come together to share their experiences and discuss developments in this increasingly important interdisciplinary field. With the launch of an annual Irish HCI Conference series in 2007, and now the establishment of this ACM SIGCHI Chapter in Ireland, we are well on the way to creating a thriving and successful professional infrastructure to promote all aspects of HCI within Ireland, and provide a clear identity for the field in Ireland at the EU and international level."

Events will be held throughout 2009, with the third I-HCI conference on the 17th and 18th of September in Trinity College Dublin. Sponsored by the School of Computer Science and Statistics, Trinity College Dublin and the School of Computer Science and Informatics, University College Dublin, this two-day event welcomes submissions from researchers, students and practitioners. By augmenting human activity and enriching our life experiences HCI research and development can improve our experience with computing and alter our expectations of what constitutes a computer. Join us in Dublin for I-HCI 2009.

http://www.i-hci.org/

The British HCI Group is served by Sub-groups comprising representatives from a broad range of academic and industrial centres of HCI interest. The Sub-groups are committed to promoting the education and practice of HCI and to supporting HCI people in industry and academia. For contact details of the persons in each Sub-group, please select from the following:

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SR: student representative

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Reviews Editor *Shailey Minocha*
Production Editor *Fiona Dix*

Editor Interacting with Computers

Dianne Murray

Relevant URLs

British HCI Group: *www.bcs-hci.org.uk*
UsabilityNews: *www.usabilitynews.com*
IWC: *search for Interacting with Computers*
HCI2009: *www.hci2009.org*

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Interfaces magazine is published on a not-for-profit basis by volunteers for the good of the international HCI community. As such we aim to promote our community of practices, represent its diversity and exemplify its professional values by promoting knowledge, understanding and awareness to the benefit of all and harm to none.

Profile

Alan Blackwell

talks to Jennefer Hart

Alan Blackwell is Reader in Interdisciplinary Design at the University of Cambridge Computer Laboratory, where he developed and teaches the syllabus in design and HCI. He spent 12 years designing products and automation systems in New Zealand and the UK, before starting a PhD at the MRC Applied Psychology Unit with Thomas Green. An advantage of the late start was that he had given his first keynote address before starting his PhD, thus escaping the worst terrors of the podium!

Together with Ken Wood of Microsoft Research, he will be hosting HCI 2009, the conference of the Interaction group, in Cambridge from 1–5 September.

What is your idea of happiness?
Discussing new ideas – on paper, or in company

What is your greatest fear?
I try not to think about bad futures unless I can change them

With which well known or historical figure do you most identify with?
Horace Darwin (see Design Research Quarterly 3(4))

Which living person do you most admire?
Dizzee Rascal, Jonathan Ive and Brian Eno

What is the trait you most deplore in yourself?
Procrastination

What is the trait you most deplore in others?
Lack of commitment

What vehicles do you own?
A Dawes touring bicycle, an old Saab, and a pair of Doc Martens

What was your favourite childhood toy?
Sharp knives and electricity

What is your most treasured possession?
A real treasure can't belong to just one person

What is your greatest extravagance?
Good wine or beer every day

What makes you feel most depressed?
Having agreed to do too many things

What really motivates you?
Finding a new approach to a problem

What do you most dislike about your appearance?
Too much hair

What is your most unappealing habit?
Always doing several things at once

What is your favourite smell?
Sandalwood

What is your favourite word?
Design

What is your favourite building?
My house. I refactored it. The project took three years.

What is your favourite journey?
Probably a bicycle ride. Perhaps my ride to work, on days when there isn't any sleet.

What has been the most innovative book you have read lately?
I prefer provocative to innovative – to squirm, laugh and be shocked, not just nod, smile and admire. Nigel Thrift's recent work on design and capitalism will provoke HCI researchers. Susanna Clarke's novel *Jonathan Strange & Mr Norrell* tells us what HCI might get like if reality followed the rhetoric.

What or who is the greatest love of your life?
My wife Helen, a logician and committed feminist. She was only able to marry me after undergoing 'an axiomatic shift'. Since then, I've thought that 'yes' might have been a more propitious answer.

Who would you invite to dinner if you could invite anyone?
Richard Rorty

What or who annoys you the most?
People who won't even discuss an alternative

Which words or phrases do you over-use?
Interdisciplinary (but it's my job)

What is your greatest regret?
Not looking far enough for opportunities.

What is the strangest thing you ever did?
According to the check-in desk at Auckland airport, it's unusual to buy a one-way ticket to Istanbul. But that was 20 years ago – a return ticket would have been wasted.

When and where were you happiest?
On a beach, making sandcastles. Or possibly just before a bicycle accident in which I broke some ribs. It's a bit hard to compare the two.

How do you relax?
Playing double bass in bands and orchestras. But strangely, it doesn't seem relaxing while I'm doing it.

Where in the world is your idea of paradise?
A tropical beach with a library, a cinema, an opera house, a restaurant, a workshop, a café, a jazz club and a seminar series. If it doesn't have those things, then I can do without the beach. In fact, kind of like where I live right now.

What single thing would improve the quality of your life?
Two hours for every one that I expected. I think that's recursive.

What keeps you awake at night?
Writing things in my head until I need to get out of bed

What is your favourite possession?
I'm still infatuated with my Macbook Air. Steve Benford told me that carrying his Air attracted as much attention from women as carrying a baby in a sling.