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Editorial

John Knight

Being an editor is sometimes scary. Like a conductor (bus or orchestra) you never really know if you are going to reach the terminus on time and produce a harmonious concert of individual performances.

Sometimes being an editor is amazing. You have ideas and vision for a publication and your ideas chime with your audience, and suddenly there is all this synergy and even though you receive articles from disparate (geographically and ideologically) individuals they actually hang together as if they were designed.

I am happy to say that putting this issue together was mostly amazing and only a little bit scary. Somehow there is a clear path running through this issue that touches on real-world problems and forward-looking innovations. So let's look forward to developing these ideas through *Interfaces* and of course HCI 2008, which features heavily in this issue. Thanks to all contributors and of course Fiona for putting on a great show.

Today is my last day in Germany. I am getting married in July and will be working with Vodafone in London from Monday. Working in another country has taught me so much. In particular communicating HCI ideas within multinational teams has been an essential skill to learn and working on real product development has been very rewarding.

Moving back to the UK does mean I will be around more and will hopefully get to meet with the community more often, which should mean we can make deeper links between you and *Interfaces*.



John Knight is a User Experience Manager at Vodafone and works on mobile phone and applications UI. He was formerly Director of User-Lab at Birmingham Institute of Art and Design and has worked as a freelance designer and researcher. John is also chair of IDEC4, which will be at NordiCHI 2008.

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Contribute to *Interfaces*

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

The deadline for issue 75 is **1 May 2008**

Forthcoming themes

Interfaces 76, Autumn 2008: **Gaming and HCI**. Deadline 1 July 2008.

Interfaces 77, Winter 2008: **Social Networks**. Deadline 1 November 2008.

Articles should be MS Word or plain text. Send image 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.

A page of text only is about 950 words, please aim to fit articles to multiples of whole pages, allowing for any images, references, etc.

Authors to 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; 16 Combermere Road, Brixton SW9 9QG

This issue's guest columnists



Cristóbal Rivera was born in 1979 in Laciana, northern Spain. Playing with computers since he was 9 years old, he got his degree in Computer Science in 2003. He joined the HCI-RG research group in the University of Oviedo (Spain) two years before, developing several tools and being the author of many technical reports. Cristóbal has participated as invited lecturer in several Human-Computer Interaction courses. At the moment, Cristóbal is developing Web projects at the SATEC company in Asturias (Spain).



Mónica Vázquez Goyarzu is a MSE student in the Master of Web Engineering at Oviedo University (Spain). She is a member of the HCI-RG research group at the same university. Her research work is focused on software development for mobile devices. She has a BS Computer Systems Engineering degree from ITESM University in Mexico.



Dr Gonzalez-Rodriguez is a researcher and consultant on Web design strategy and Usability Engineering. He is associated professor for the Department of Computer Science of the University of Oviedo and Head of the Human Communication and Interaction Research Group. Founder of the International Conference on Web Engineering (2001) and eMinds: International Journal on Human-Computer Interaction (2002), he is the author of over 100 publications, mainly focused on agent-based adaptive systems and context-aware interfaces.



Janet Read has a degree in mathematics and currently works at the University of Central Lancashire, teaching HCI, interaction design, and child-computer interaction. She 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. She has led two projects delivering technical products for children and has more than 80 refereed publications.



Emanuela Mazzone has been a research assistant at the University of Central Lancashire since 2003. Her background is in Interaction Design and HCI with a Masters degree in Communication Science from the University of Siena, Italy. As a member of the Child Computer Interaction research group she has been specialising in the design and evaluation of technologies for children and her PhD focuses on design methods and creative techniques for young users to contribute to the design process.



Eduardo H. Calvillo Gámez is a research student at UCL Interaction Centre, where he is supervised by Dr. Paul Cairns (now at York University) and Prof. Ann Blandford. His PhD thesis is about assessing user experience while playing videogames. His research interests are user experience, videogames and new interaction techniques. Eduardo is a faculty member, on leave, of Universidad Politécnica de San Luis Potosí, México and his PhD studies are sponsored by SEP-PROMEP.



Rachel Jones founded Instrata 7 years ago, a specialist consultancy in people-centred design. She has been working in HCI for over 20 years; she has mentored organisations and teams in user experience, and managed international research and design projects. Before starting Instrata, Rachel was employed by Xerox EuroPARC and Sapient (formerly E-lab). Rachel has a PhD in Computer Studies, over 40 international publications and has authored 10 patents.



Joannes Vandermeulen is a practitioner and teacher of Interaction Design. In 1987, he founded Namahn, a design consultancy for user-centred design of digital products, based in Brussels. He directs a team of 15 interaction designers and leads the development of Namahn's business towards a higher ground. He is an international lecturer and speaker whose ideas are inspired by arts and sciences. His current interests lie in mental models, safety-critical systems, futurology, and design management.

With thanks to commissioning editors:

InterfACES Reviews: Shailey Minocha, S.Minocha@open.ac.uk

Photo credits. Cover and page 18 Dan Williams; page 9 Emanuela Mazzone and Diana Xu; page 19 David England. Page 8 MESS logo designed by Emanuela Mazzone.

To receive your own copy of *InterfACES*, join the British HCI Group by filling in the form on page 27 and sending it to the address given. PDFs of *InterfACES* issues 35–73 can be found on the British HCI Group website, <http://www.bcs-hci.org.uk/about/interfACES/archive/>

Deflections

Forming-Storming-Norming-Performing and the HCI Team

Gilbert Cockton

Bruce Tuckman published his Forming Storming Norming Performing model of team behaviour in 1965. The HCI Team have formed, stormed, and renormed several times. The storming and renorming has been covered in a wide range of publications (go Google 'Third Wave HCI' with/out quotes). In between, we have performed much more than we often give ourselves credit for; plus, we may be too eager to see new waves rather than new wakes from extra boats. It's just more of the same waves, which overlap to create much interference. In some ways, these are the waves of a succession of storms that have led to no renorming.

All the new boats have been 'science' boats in that each new disciplinary boat has flown the flag of objective research. After computing came ergonomics, then cognitive psychology, then ethnography and social psychology, then affective psychology, and later phenomenology (an epistemology rather than a discipline, and, as such, the biggest boat ever in the HCI fleet). These have had little impact on norms, whatever the claims of the phenomenology crew. With the exception of computing, each boat is concerned with describing the world to some level of objective accuracy, with psychology and some sociology also trying to explain it (much to ethnomethodological scorn). Computing though has mostly been about *making new things*, and not about *describing* existing natural or social worlds. Computing's norms were squashed as psychologists took over HCI in the 1980s.

If the Third Wave really involves reforming *and* renorming, not just more storming, then what could the new norms be? Naïve empiricist and positivist norms have been steadily eroded since ethnomethodology and other phenomenological approaches took hold within the CSCW subfield. User experience perspectives have mainstreamed phenomenology, and moved it to the forefront of Third Wave HCI, but it's still all about 'interpreting the world, in various ways; the point is to change it' (Marx 1845). HCI waves lap the top of Aristotle's epistemic iceberg (Barnes 2001) that has shaped over two millennia of Western intellectual values (with Marx an early proponent of praxis over theory). We are mostly in the airy realms of theory (*theoria*), of knowing-that for its own sake, with less of the submarine realms of production (*techné*), the art of making (*poesis*), aimed at knowing-how, and relatively little of the base of *praxis*, prudent practice (*phronesis*) aimed at doing well. In this sense, trainspotting remains HCI's highest virtue: knowing that technology is used in some way, noted faithfully by time and place, then shelved with epistemic trophies. Making things is secondary, and doing something the least valued of all. But *doing to make* is what Interaction Design is all about, and surely HCI should focus on it? Otherwise, there is no psychology *in* or *for* HCI, just psychology *of* HCI. So too for sociology, and soon also for business, management, arts and humanities disciplines, supposedly being applied in and for HCI, but really just dumping more trainspotters on HCI platforms to scribble down discoveries and return to their home disciplines. These are the norms of *theoria*, not of *techné* or *praxis*.

So what norms could we adopt that are better suited to the design partnership of prudent *praxis* and productive *techné*?

HCI waves lap the top of Aristotle's epistemic iceberg

The two are hard to separate: prudence must be demonstrated in constructive deeds, and making is best guided by prudent intent. Prudence is Schön's (1983) *Reflection in Action*, whereas his *Reflection on Action* informs future prudence (including design iterations). For me, there are four norms of doing-to-make.

Commitment to design purpose is the overarching norm. At some point, designing must explicitly state a purpose, and thereafter act only to advance this. The next two norms separately address purpose and acts. The norm of *explicit beneficiaries* requires designing to explicitly include specific stakeholders and to identify what would make a design worthwhile for them. The norm of *explicit choice* requires designing to explicitly select between alternative design options. Together, these three norms require a credible selection of means capable of meeting the ends of design purpose. The fourth norm moves us from *praxis-techné* to *theoria*. The norm of *demonstration* requires designing to move from knowing-how to knowing-that it has really done well. Since the dawn of HCI, objective scientists have insisted that they must get in 'before design'. In reality, they must wait until late in a design iteration before their kingdom can come. Until then, we are inescapably in the realms of subjectivity and creativity. Our commitment to design purpose brings insurmountably subjective judgements, as does inclusion of some beneficiaries but not others. Available design options expand through creativity. This does not mean choice or invention without any influence from objective knowledge, but it does mean that subjectivity will have the final say.

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Knowledge Exchange. Gilbert has recently completed a NESTA fellowship, developing worth-centred approaches to interaction design, on which he will present at CHI 2008's alt.chi, Design Theatre and a panel.

View from the Chair

Thoughts on activities

Russell Beale

I'm late submitting this copy – and I was wondering why. Firstly, there's an element of procrastination; this is a common human trait, but I've been wondering about that too (maybe it's because procrastination means you always have something to look forward to).

Sometimes it's simple laziness, but, especially for academics, not often – we know we have to do these things at some stage, so why not now? Sometimes it's a misplaced search for perfection – I know that I don't have time to write a perfect piece now, so I'll wait until later when I will have – unfortunately, that time never arrives and I end up rushing it and not doing it perfectly anyway. As a newspaper editor once said to me “perfect copy two minutes late is useless – give me good copy on time”.

Supporting human frailties and disabilities is a thriving area of HCI, and rightly so, but there is less attention given to supporting the imperfections of normal people in everyday life

Realising this has helped me in some areas of work – I often produce a draft (it has to be a draft, so I'm not mentally committed to it) very early on, and then if I have time I can extend, rework and improve it, and if I don't, well, the draft gets promoted. Some systems support this well – Word allows me to edit, move, and change material much more easily than the old typewriter that I do still have tucked away in a cupboard somewhere. But it also produces perfectly formatted, neatly arranged, perfect-looking results when I type in garbage, and I do get a bit attached to sentences I've written, not wanting to change them too much ...

I find this search for perfection causes problems elsewhere too – I don't submit a travel claim for a conference visit because I can't find that one receipt for a morning coffee that I had – and so hundreds of pounds are unclaimed for the sake of 99p. It sounds daft – it *is* daft – but I bet I'm not alone in this. It can catch you out – some places have a time limit on claims, and I spent much of the early part of this month desperately doing claims for an EU project whose budget was about to close. I found some unclaimed receipts as well – the oldest goes back to 2004 ... On the other hand, it's a sort of savings scheme – bits go unclaimed for a year or two, and then suddenly, one month, I get it all at once and it's a major amount.

Supporting human frailties and disabilities is a thriving area of HCI, and rightly so, but there is less attention given to supporting the imperfections of normal people in everyday life. For example, it would be much better if we could find a simple way of doing expense claims – a dedicated credit card which sorted purchases into the categories that finance offices like (travel by train, by car, subsistence, hotel, late

night 'movie', etc.), and was accepted as evidence of purchase, would be great – if I used just that, I could send in the bill and it would be paid and my claim would be done, all at once. But finance people like a differing range of paper receipts to look through (I don't understand why), and credit card companies don't provide such clusterings of expenditure. I can see a role for tagging card purchases using the keyboard of the chip and pin terminals, so we add notes to our purchases – even better would be an electronic facsimile of the standard receipt so that we could keep finance departments happy.

But back to why this is late – I've also been trying to deal with all my email, and did a calculation – I got approximately seven emails every working hour of every working day last year. That's quite a load – and again, because of human (or, at least, my) frailties, I felt that for most of them I had to reply – sometimes because it needed a response, sometimes because it was polite, but sometimes just to show that I was there and willing to participate.

It would be great to be able to show people that I had read their message, had paid them attention, and so on, without having to actually send something back. And whilst it doesn't take too long to send the reply, when multiplied by the number of messages, it's ages. It also has an invidious effect – the original sender feels the need to reply as well, and so on it goes. It's not quite as bad as two lovers not wanting to stop chatting on the phone – “bye, you” “bye” “see you soon” “love you” “bye” etc., but you get my drift ...

Now, how to solve that? Actually, one semi-solution is already in place – I'm currently on sabbatical, and have an auto-reply on my email that says, politely, “Your email has been deleted – please resend after the summer if it's still relevant”. But the main aim is that I now don't feel obliged to respond to the messages – people know I'm not likely to deal with it so they get on without me – and if I do do something, then it's a bonus.

Maybe we all need autoreplies (though I do remember setting up autoreplies ages ago, when you had to code them, and forgetting to check what I was replying to, so that my colleague's autoreply replied to mine, which replied ... that one took a plug-out-of-the-wall reset to fix).



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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Adapting reality through Virtual Synaesthesia

Making reality more usable

The promise of virtual reality (VR) has failed to live up to expectations, perhaps because of technological deficiency or a lack of 'realistic designs'. Augmented Reality (AR) seems to be a step forward in immersive technology and has reopened the door to the virtual world. AR mixes reality with a 'synthetic' component that provides a technologically mediated add-on to reality; as a result it offers an experience above what our senses can perceive.

Thanks to the increase of information about reality provided by AR, we have a very challenging goal within reach: making reality more usable. When we take care of usability in a computer system we want the user to have a more intuitive, easier, and more effective interaction with the system. One of the fundamental goals of AR is to make reality more usable, increasing the information that the user perceives with any sense, so they can 'use' reality in a more intuitive way and be more effective in their acts.

However, when implementing AR systems that achieve these goals, a fundamental condition for increasing the usability of reality is not taken into account, the fact that the extra information provided by AR must be useful to the actual user at the moment of interacting in order to increase effectiveness. For example, in ARVIKA [1], the steps to follow are shown to the user, through an HMD device, in order to repair the industrial breakdown he is watching, but they do not take into account whether the worker has enough experience to understand the process, is receiving more information than he needs or whether that particular worker needs a more detailed description of one part of the repairs. This also happens commonly in museum visits: AR projects such as ARCHEOGUIDE [2] or LIFEPLUS [3], where the user receives extra information through an HMD device and geolocation, ignore the user's previous knowledge, whether the user is a child and/or has particular interests.

Another common failure in AR systems construction is the lack of attention to the system's accessibility. We can find a museum visit system like Guggenheim Bilbao [4], which consists of a sound device that describes the museum piece in different languages (which is not interesting for the hundreds of visitors with hearing disabilities that the museum receives yearly). We can also find very specific and expensive AR systems devoted to only one kind of disability, for example the walking stick for visually impaired people, TéléTact [5], which complements limited vision with vibrations and sounds according to the surrounding objects and their distance.

Adapted reality: user Knowledge Management + Augmented Reality

Knowledge Management (KM) is a recent trend in the business world that aims to strengthen the knowledge of an organisation and use it as if it were an economic asset. Furthermore, KM involves constant information feedback and refinement by its use; in other words, maintaining related information stored in the system and increasing it with new data related to each other, and to the data previously stored, to form new information and facilitate knowledge generation by users.

In this way, if we apply KM principles to a computer system we will achieve two important objectives. The user can be more effective in his task because the system will be supported

by the user's previous experiences of doing that task. Besides, by studying the user's behaviour we can gather more data for the system and even recognise his behaviour pattern, adapting the system to his concrete situation.

We could then talk about the way the system adapts to the user, or in other words a personalised version of usability that identifies my behaviour profile, and is based on my preferences, needs and working methods, would make it easier for me to use the system to increase my effectiveness during that task. To achieve this adaptability for each person and enhance usability, we will need to gather as much information as possible about the user so the system may be able to identify the current user or at least identify his profile.

The device and the software must be a data source for KM implicitly or explicitly. Implicitly, an automatic data input will be performed which shows, for example, the interaction time between the user and the different program parts, or the different ways of use. Explicitly, the user could be asked directly for information, for example, through polls, tests, etc.

Applying the theory described above, it is possible to develop an AR for tourists by giving them a 'virtual visiting device' capable of showing the city regions we want to visit, in other words, capable of adapting the city reality to my preferences and needs.

The system will have, on one hand, automatic data gathering (the time that the user spends visiting a city, the means of transport used, or the extra information the user looks up about the visited places) and, on the other hand, explicit data gathering in a brief form to fill in at the beginning of the visit (with such data as age, cultural level, interests, ...) and in some simple tests to answer at the end of the visit about each place in the itinerary (checking which places the user remembers the most). In this way the system detects the profile of the current user, and according to this (for example '75% walking transport, 60% interest in Romanesque art, 80% advanced knowledge, ...') will evaluate possible user interest in nearby places to visit and will suggest the next place of interest in the itinerary (in the previous example, to walk to the Romanesque church nearby instead of going by bus to an important park). Moreover, to take these decisions, thanks to KM, the system will be able to make recommendations like 'most of the users previously interested in Romanesque art are also interested in baroque art', based on the experience of previous users and obtaining feedback from each use, making itself more adaptive each time (identifying the user profile earlier and adapting itself better to the user).

Regarding accessibility, the system can decide, through the tests done after each visit, and also through explicit questions, the kind of interface that the user perceives to be better, according to the data that he remembers most (whether he remembers the visual or the audible information better, for example). In this way, when the same user next visits, the system can decide to show advanced audible data because the current user is a subject expert with a visual disability, or to show simple graphical data because the current user is a child, for example.

Thanks to the adapted reality achieved by the KM + AR convergence, we get the city visit that the user wants and therefore user satisfaction that will have a more effective, usable and accessible system.

Making reality more accessible:

Virtual Synaesthesia

Until now, achieving accessibility (including offering an accessible version) has to a greater or lesser extent sacrificed some of the information given to users without disabilities. A step forward in the AR system will enable interaction via Virtual Synaesthesia.

Synaesthesia [6] is a neurological condition some people have whereby a number of senses overlap. We all perceive flavours very close to smells (for example, a strawberry yogurt does not really have a strawberry flavour, even if we perceive it to; it really just smells like strawberry), or the different warm or cold feelings that colours give us. But synaesthetic individuals have stronger perceptions of these and also other coupled senses. The most usual cases of synaesthesia are colour associations with sounds or letters, and the flavour sensation related to touch, so there are individuals who see colours and shapes while listening to certain sounds or who feel certain flavours while touching some surfaces.

The use of Virtual Synaesthesia in our virtual visit system described previously will consist of imitating in a digital way through AR this characteristic of coupled senses. In the first place a physical disability, like deafness or blindness, will be detected (through a direct question or through the study of user behaviour). Next, to widen the reality received by the user (make it more accessible through AR), the system uses the appropriate user senses depending on the user profile detected. As a result, for example, if the user is deaf the system could draw the sounds of the birds in the park or of the orchestra that is being visited during the itinerary. Or, with a blind user, besides the corresponding audible description, the system could place appropriate background music to each one of the monuments visited in the itinerary, representing their character and aspect.

Virtual Synaesthesia aims to enable users to perceive the same quantity of information regardless of the sensory channel they use to receive it (through all the senses or just the functional ones). So even if the information shown is not exactly the same it will be enough to comprehend the full amount of information. For example, one user will listen to orchestral music directly, another will listen to it amplified, and another will listen to it through a graphical representation of the sounds in their 3D glasses, but they will all listen to the same music.

Therefore, the use of Virtual Synaesthesia would allow disabled users to achieve similar rates of accuracy to non-disabled users when performing the same kind of tasks, since the former would perceive the same amount of information with the same quality as the latter. Through the use of augmented reality techniques, disabled users would receive information at a sensory level, so they would not require extra cognitive effort to process information that they do not usually perceive.

E-learning is another interesting application of Virtual Synaesthesia. There is a theory that explains that all human beings are born synaesthetics [7] so all our sensory organs produce information that affects other organs, since they are strongly related to each other. So, for example, babies are not only able to hear sounds but also to see and taste them. When babies grow up, each sensory organ begins to use its own neuronal connection, gaining independence from other organs. (Adults

whose neural connections are shared by different organs become synaesthetics).

This phenomenon, produced during childhood, would explain why babies learn so fast. For example, the information retrieved by babies from a single sound is much richer than the information gathered by adults, since it is completed by and combined with information from other sensory organs as well as the aural system. Synaesthesia improves long-term memory too, since it is easier to remember a past event when the key that we can use to recall it from the deepest place of our mind is related to more than one information channel (sensory organ). For instance, one can think about a past event, recalling it by its taste, colour, etc. That is just the case with little babies who are able to recognise their mothers, their visual representation, taste, voice, etc.

Virtual Synaesthesia may also be used as a way to encourage users to learn the different features of an interface, since it increases both the amount of data perceived by the user in a single interactive session and the chances of including that information in long-term memory. For example, a user might remember elements perceived during a visit to a Gothic cathedral, recalling visual data from his long-term memory (typical pointed arcs and other decorative elements of Gothic style) and also aural data (Gothic organ music played during his visit).

Good application of this technology will enrich people's perception of the world, providing more keys to facilitate future access to information stored in the past. As a result, users will more easily learn how to store information in bigger data packets that include more keywords and context-aware clues in order to replay it later.

Conclusion

The use of adapted reality (AR + KM) allows the improvement of current AR systems, powering them with a wider set of adaptive tools and targeting them individually to a person. The use of Virtual Synaesthesia improves the accuracy of the adaptive algorithms, thanks to its sensorial component, as well as their accessibility features, allowing a similar usability level by users with different kinds of disabilities, avoiding the use of specific hardware to comply with the interaction requirements of specific users.

The use of Virtual Synaesthesia techniques would not only change the way we perceive reality, but it would also help us to adapt it to our needs, making our reality more usable and our interaction with it more effective.

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MESS – Mad Evaluation Sessions with Schoolchildren

Evaluating products with children is known to be useful but it is also known to be fraught with several difficulties [1]. Some reported problems include access to children, best use of time, recruiting adult assistants, finding appropriate rooms, and ensuring enough children are available to create a representative sample [2]. The Child Computer Interaction (ChiCI) Group at UCLan has a history of doing work with children, including carrying out evaluations of interactive products.

Our earliest evaluations took place in schools with lone, or pairs of, researchers, going to local high schools and junior schools and carrying out evaluation activities with children taken turn by turn from their regular school lessons. These evaluations in schools were found to be difficult to plan for: the children in the class become excited by the activity, meaning that the class teacher has to be very supportive of the disruptive element of the work being done. In general, the lead researcher in this sort of activity has a lot riding on this type of activity. It is often the only possibility for the work to be done, and there is a great need, especially where results will later be reported in academic journals, for the work to be rigorous and well planned. Given these problems, we devised MESS days.

MESS – Mad Evaluation Session with Schoolchildren

MESS days (see the logo in Figure 1) are events that are characterised in the following ways:

- Children come, as a class, to our labs at the University
- Children are accompanied by teachers who know them
- Children are randomly assigned to several different activities
- Children are given a fun experience
- Children spend half a day in the lab



Figure 1 The MESS logo

Our first MESS day was held in January 2005. In this first instance, we had 30 primary school children (aged 7/8) in the morning, and 30 secondary school children (aged 12/13) in the afternoon. This proved to be very tiring for the researchers involved and so all future events have been half days with many MESS days being two half days, one for each of two age groups. Subsequent MESS days have tended to focus on the two age groups (5/6) and (8/9) and this has allowed us to evaluate applications with children from these two age groups. The selection of children for MESS days is generally predicted by the needs of the researchers and the availability of children.

We have held a MESS day each year since 2005; in our definition a MESS day is invariably a pair of half days (with each sub part being a MESS event)! In this respect, a MESS day is characterised as a day by virtue of both half days taking place in a short time span and the activities at both days being connected.

Planning a MESS day

The first requirement in setting up a MESS day is to locate a suitable room(s). If at all possible, especially where the children are young, a large room with several locations is preferred to several disconnected rooms. With older children, having them move around is less of a problem but we tend to warn other adults in the building that children are coming along and may get lost! Having found a location, that location is then made as age-appropriate as possible.

The next stage is to contact the school(s) and fix dates and times, according to the school timetable and considering transport time. Transport will need to be arranged at this point; on one occasion we had to ensure that we had a mini-bus driver and a mini-bus car parking space booked three weeks before the event. When the school is at a walking distance, arrangements are made to guarantee an appropriate number of accompanying adults to escort the children on the way.

The third stage is to arrange the activities. With our MESS events generally spanning two hours, we tend to work on providing around eight 15-minute activities, where each activity accommodates four children (Figure 2). In some cases we have had to change this and have either had larger activities that last longer (especially when we are short of personnel), or have collected two activities into one slot (particularly where an activity is very quick to do, or when an activity can only be done by two). We appoint one individual to co-ordinate this – one of her most important tasks is to twist the arms of researchers and volunteers to ensure that the children have plenty to do on the day.

Detailed planning follows. The rooms are allocated to activities; laptops, video projectors, equipment, tables, chairs and so on are all designated to activities; and personnel are given roles. Negotiation is generally needed here as it is unusual for there to be quite enough kit to go round and so compromises have to be made. Priority during these compromises is given to research students wanting to pilot their evaluations, and to MSc students who use the MESS days to evaluate their Interactive Products. Towards the end of this stage, the school is contacted again, consent forms are given out and collected in and final arrangements are made for the children to get to the lab.

The day before the MESS day, each researcher is expected to be preparing his or her own evaluation materials (Figure 3). During this day, any rooms are laid out, the electrical appliances charged up, name badges are created for the adults (and sticky name badges set aside for the children) and thank you certificates are made for the children.

On the day there is always a calm moment, just before the children arrive, when the rooms are all set up and a sense of anticipation prevails. Then, the children come in!



Figure 2 Children at a MESS day

A typical MESS day

The first thing we do with the children is to sit them down and introduce ourselves, outline the fire drill, and tell them about restroom procedures. We also tell the children when and how they can get a drink of water. The children's coats are collected and then, generally with the help of the class teacher (who will keep known troublemakers apart) we arrange the children into groups of four.

Each group goes to their start location where they fill in sticky labels (that they stick on their jumpers) and then start on the first activity. A timekeeper warns everyone when there are about two minutes left and then, at change-over time, each group moves to the next activity.

At the end of the event, the children are again sat down, they are thanked for their participation, they receive their certificates for taking part, and they are given back their coats. Then they leave!

What we know about MESS days

When we first coined the phrase MESS day, we were very aware, having worked in schools, that children cannot be 'organised' in a traditional sense and there will be mess! Having 30 children in the same room creates a quite chaotic and noisy environment that is hard to manage, no matter how thoroughly the day is planned. On the other hand, over the years MESS



Figure 3 Children completing evaluation sheets after an activity

days are proven to be useful in many ways. That the benefits outweigh the limitations is evidenced by our continuing to hold MESS days over so many years!

MESS days provide different value for the different stakeholders. For the University, they provide a great possibility for knowledge transfer into the community, for photo shoots and for public engagement. For the research team, the value varies according to their participation.

MSc students are 'amazed', to find their so well-thought-out designs don't work and report that they 'learn more in two hours with children than anything taught in class'. PhD students tend to use the time either piloting methods or equipment or doing more complete/thorough studies. Indeed, work from MESS days had been written up and presented at many major conferences. For a sample see [3], [4], [5], [6], [7], [8]. Researchers who are currently less engaged with children find MESS days invaluable for understanding how children do things. These individuals often arrive with some trepidation, hoping to find themselves with an easy to manage activity, but generally leave looking several years younger and with a spring in their steps.

Teachers are a stakeholder group that we initially did not consider as being central to MESS days. Initially we saw them as merely 'bringers of children'. We have since found that the teachers gain tremendous knowledge, both by having the luxury of being just observers of their class for a couple of hours, and from the possibilities to talk with the researchers about their work. The teachers also contribute to the evaluations; we have had some great feedback and insights from teachers over the years and it is hard to see where else these insights would have come from.

The greatest value, we would argue, in a MESS day is the experience of the children. The children love MESS days! They arrive with great excitement and leave desperate to stay! For these children, the possibilities to engage with interactive technology at the cutting edge, to spend time with our interested research team, and to carry out activities far removed from the strict curriculum is unique.

The future for MESS days

For the ChiCI group at UCLan, the annual MESS day is now a habit rather than a chore; however, each MESS day varies and when planning MESS days over the years there have been some changes.

The rooms used for MESS days are especially important. The ChiCI group is fortunate to have a specialist lab for these activities; if the lab were to be lost, the MESS days would have to be carefully timetabled to avoid those times when there are many undergraduate students in the building.

One natural extension of a MESS day, already in planning, is the SEAMLESS day which is to be a Series of Extended Almost Mad Linked Evaluation Sessions with Schoolchildren. This will allow us to carry out longitudinal evaluations over a series of weeks or days as suits the researcher.

In the meantime, we continue to look for improvements to MESS days to give the children and teachers optimum activities whilst we enjoy gathering insightful data.

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Where am I?

When evaluating user experiences in mixed reality (MR) environments we can learn quite a lot from similar tests within purely virtual worlds; however, recent experiences suggest that a few more questions need to be asked. In particular, understanding where users feel present; indeed, with users potentially being present in multiple parallel time periods and places there is potential for some confusion.

Considering where we are is often something we take for granted; for example, on frequent visits to the ALDI supermarket chain in Germany, I am often aware that I am in ALDI; most likely trying to squeeze my trolley through a seemingly impossibly narrow aisle between the soft drinks and this week's special offers. Now imagine the same situation where I am still in ALDI but instead suddenly the Harrods food hall experience is augmented in its full 3D glory complete with a believable selection of goods. Suddenly where exactly am I? I can hold, touch and see Harrods and also ALDI, and assuming the technology is really convincing I could feel like I am in both at the same time. Suddenly, however, my illusion is shattered when I am unable to find any run of the mill champagne such as Bollinger to accompany tonight's dinner – still, 10 Euros for the ALDI version does seem like a fair price.

Continuous experience or switches?

Using the earlier example, the question is, where do we want people to feel present? For example, in ALDI, Harrods or a new unified experience that seamlessly blends the two? However, there may be times when it is desirable to make it clear when there is a switch or break between different real and virtual places. A more serious example of these situations would be the MR time travel game discussed later; in it the users should feel that they are constantly in any given time period for the duration that they are within that time period, rather than only when they are near augmented elements [1]. However, they should also be aware of the switches between different time periods. This in many ways is similar to the idea of breaks in presence [2] that occur when people no longer

feel present in virtual environments, and instead feel as if they have returned to reality.

Whether the objective is to maintain a unified sense of presence, or to make switches clear, a number of important usability and related issues must be considered. At the most practical level it is impossible to augment an entire city with new buildings and people, therefore ways must be found not only to utilise existing real world spaces but also non-game participants. As noted in the study later it is the interplay between the real and virtual elements that becomes important; indeed, striving for reality (both in terms of interaction and graphical realism) when adding virtual elements is not always the solution. This view is echoed by Turner and Turner [3], who argue that understanding context is in many ways as important as realism – they were referring to simulations conducted in virtual environments. Tost [4] goes further by suggesting that many virtual experiences which attempt to immerse people in a culture are destined to fail, as simply presenting people with graphics cannot in itself make people feel present within a culture. Macintyre addresses similar themes and suggests that designers of MR experience need to specifically consider personal significances [5].

Experiment

During summer 2007 a study was conducted of the Time-Warp mixed reality game. The game takes place in the City of Cologne and the objective is to make people feel present in the past, present and future. The users are provided with a short story that explains the objective of the game and why they need to travel in time. The system uses a lightweight see-through visor, PDA and backpack, which contains a laptop and other equipment. In total 24 people took part using different versions of the system. The results presented here discuss observations made during the study along with data obtained from interviews and questionnaires.

In mixed reality games such as TimeWarp one main aspect is the connection that users feel with other virtual and real people (participants and non-game participants). Others play a vital

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Acknowledgements

MESS days need children! A special thanks therefore to the children and their teachers who have contributed to these events over the years. Also to the researchers and the volunteers who have engaged in the process.

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role in shaping sense of place [6] and aspects of social presence. While observing people in the game it was noted that they paid little if any attention to real people, notable exceptions being if other people asked them questions, gestured towards them or were about to walk into them. The latter aspects are not unexpected as the equipment and clothing used during the study made the participants stand out. This lack of interaction led to a substantial disconnection from the real environment, so users were potentially missing out on useful information that could be obtained from non-game participants.

Interview responses and observations led us to the conclusion that for the most part the user's attention was focused on the augmented elements of the experience, rather than the surrounding real environment. When observing users it appeared that they were involved and engaged in the scenario and their attention was focused first on locating the virtual elements, then walking towards or interacting with them. It was noticeable that when undertaking certain tasks people almost totally ignored the surrounding space; this also led to some strange reactions from passers-by. Although further work is required it appears that the participants would constantly re-enter the virtual experience, and would subsequently leave the game experience when there were insufficient elements. As a result there is a need to explore why people enter or leave the virtual experience, and what elements of the real and virtual experience can be blended so that they feel within one unified experience. If this can be achieved then it is likely also to strengthen the sense of temporal presence within any given time period, and reinforce the difference when moving between them.

As TimeWarp intends to make people feel present in different time periods, it is also important to consider not only the graphical realism and other elements but also the cultural

information presented to the user. Within TimeWarp it was clear that users did not alter their behaviour when entering different time periods, for example adopting different social conventions. Although it is difficult to know if providing such cultural information would have enhanced presence, it could provide a way to overcome one of the problems, namely the inability to augment entire locations. For example, if players are encouraged to behave in ways fitting particular time periods then they may be more aware of changes in time periods.

Conclusion

This article has really only explored the surface of the issues relating to sense of presence in mixed reality worlds; however, it has indicated that the focus is on the virtual elements, often at the expense of considering contextual issues. Although technical problems did exist, most of these are likely to be fixed during the remainder of the research project. However, even when this is the case there is a need to explore more clearly how to link the virtual and the real so that user attention, interest, engagement and involvement are focused on the correct elements, thus allowing users to feel continually present in one time period or to clearly notice differences when there are switches. Such issues extend across the full range of the gaming experience from the scenario itself, through to choosing appropriate locations (and paths through the environment), as well as the design of virtual objects.

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Ethnography: adding reality and penetrating insight, or past its heyday?



Anthropology demands the open-mindedness with which one must look and listen, record in astonishment and wonder that which one would not have been able to guess, *Margaret Mead*.

Introduction

Ethnography has been used in design contexts for over 20 years in ways that continue to evolve. How did a research method from anthropology take a foothold in high tech industry? What value does it bring to commercial organisations? Are skilled ethnographers necessary or is any HCI professional capable?

How it started

Ethnography was originally adopted in the design context as a result of two changes: the development of new technologies and a growing realisation that there was a need to understand the context in which products and technologies are used. The early 1980s saw the widespread adoption of computers and networks. Communication and information exchange became mediated through technology, leading interest from HCI to spread from understanding the single user at a desktop, to understanding social interaction and work organisation. At the same time, there was a need to move beyond the designer as subject to understanding the people who use a product or technology in their everyday lives. This arose partly because of the need to differentiate products, and partly because some design organisations recognised they needed to know more

about the users of products in order to create a better design.

Interest in ethnography in design was first explored at XeroxPARC in the 1980s, but other industrial research labs quickly showed interest. In the 1990s, design firms began to employ ethnographers, and in 1993 E-lab was founded, a research and design agency where research was given an equal role to design. Also in the early 1990s, researchers from Lancaster University and Xerox EuroPARC in Cambridge helped to shape the ethnographic research agenda within Computer Supported Cooperative Work (CSCW).

Interest in ethnography intensified in the internet boom in the late 1990s as technologies reached into the home and extended into areas of people's lives beyond the workplace. The last few years have seen particular interest in two areas: firstly, ubiquitous technologies in the home, such as home network services and support for elderly care, and secondly, understanding the cultural context for developing new products and business models in emerging countries, such as China and India.

Ethnography is now an accepted practice in product development: there are established groups in most industrial research centres; it is a given part of the design process in most design agencies; it provides a large revenue generator for market research companies; and boutique research and innovation agencies have sprung up offering insight, novel concepts and the ability to shape products and services around the customer experience.

Basic tenets

The historical roots of ethnography lie in anthropology. Its basic principle is the study of activities in their everyday settings, which is motivated by the following tenets:

- Only by understanding the context in which people live can we fully understand their activities and therefore their present and future needs and desires.
- People only have limited ability to describe what they do and how they do it without immediate access to the social and material aspects of their lives.
- Some aspects of people's experiences can only be understood through observation, such as navigating an airport, or evaluating a workshop.
- It frames a situation from an insider's view, which is often very different from an outsider's view.
- The outcome is a description of people's everyday realities; it does not in itself prescribe new practices, ways of working or new products or services.

The tools and techniques used in ethnography typically include: observation, interviews and self reporting, such as diary studies and visual stories. The use of online techniques is growing. By using these techniques, we gain a rich set of data, but 'making sense' of the data separates the best practitioners from those who have recently hopped on the bandwagon. Ethnography is not simply a set of data collection techniques

– it is a theoretically informed practice. Its value is gained by reflecting on a deep understanding of people: their cultural and symbolic frameworks, their activities and their values. It is critical to sift through the data and to analyse the findings in order to identify the insights that demonstrate its genuine value.

One organisation, E-lab, took the findings that emerged from ethnography a step further. E-lab developed structured techniques to move from deep understanding to opportunities, novel concepts and product mapping. Specific artefacts emerged as part of this process, namely experience models, opportunity maps and behavioural segmentations.

Experience models are visual representations depicting key relationships of the underlying experience of the behaviour for the people involved. Their purpose is to distil the important aspects of the experience into a form that aids the development of concepts, prioritises and evaluates design directions, and acts as a shared reference tool for a team of researchers and designers. Rick Robinson, a co-founder of E-lab, advises that experience models should be simple enough to draw on a whiteboard in a few seconds, and use memorable language that does not need elaborate explanation. An experience model not only tells a story, it is explanatory and developed in a way that has implications for strategic action.

Opportunity maps are derived from experience models and are a representation that identifies the intersection or application of an experience model to existing and potential products. They offer the prospect to reflect on the strategic direction of an organisation based on the customer experience and to identify new markets that would be beneficial to explore.

Behavioural segmentations are different from traditional market segmentations, which tend to be based on people's life stages: single, a couple, with family, etc. Though much technology development can be viewed effectively through a life stage lens, many traditional markets, such as the media sector, are becoming fragmented. Behavioural segmentations offer the potential for a new type of framework to understand and map these new segments.

An example of its value

At Instrata, a boutique research and design agency, we find ourselves asked to carry out ethnography in typically three contexts: firstly, to shape the design of a new product or service around the user experience, secondly, to evaluate a new concept or existing product or service that is being used or is on trial and to recommend requirements for re-design, and thirdly, to identify new opportunities in an emerging domain or where a sector is lacking innovation and needs a fresh eye and a new approach. Much of our work is strategic and highly confidential, but we try to illustrate its application by giving an example.

The client wanted to develop a travel portal for European holidaymakers, a highly competitive space. We carried out a study to understand 'the holiday experience' in terms of planning and preparing for a holiday and the ways a holiday is perceived and taken across different European countries. The fieldwork involved home visits and visual diaries, we interviewed travel agents and we shadowed people on their way

to the airport. We found that experienced holidaymakers had clear criteria for what makes a good holiday that had little to do with location, the common feature used to organise most travel information.

Dave and Kate are planning this year's summer holiday. They want somewhere warm but not too hot, they have to go during the school holidays, they would like a beach where the kids can play in the sand, they would like somewhere interesting nearby, such as an archaeological site or pretty town which they can visit for a day, they would like a shallow pool for the kids and an adult pool so they can catch up on some exercise while they are away, and the possibility of nanny facilities at the hotel so they can have an evening out for themselves. They went to Greece last year and would like to go somewhere different this year.

Although the way that Europeans travel varies considerably by country, we were able to identify common stages in the planning and preparation of a holiday. There were clear opportunities where the process could be supported and improved, thus making the user experience more fulfilling. By understanding the way people think about and identify with their holiday-making, we were able to re-frame the approach, structure the information differently and make the experience more visually appealing. A behavioural segmentation was used to develop scenarios which directly informed the information architecture and evaluation. The stress points in the process led to the development of brand values that were only revealed by the research.

We have been asked to explore many different areas, such as social networks, future opportunities for products and services in male grooming, and to identify opportunities to improve airport check-in, way-finding and lounge spaces, with the aim of making the experience more enjoyable and less stressful.

Current practice

Part of the value ethnography brings to any project is the richness of its data. Importantly, the data is also based on evidence – it is not what people have said they do but what they actually do, which are often very different things. This is partly because it is difficult to articulate exactly what you do in many situations. For instance, take a new mobile handset. When you first pick it up what do you try to do, what do you learn to do, what makes it easier? Now try to tell someone in detail. It takes careful observation to see the actions you take, the struggles you have and the workarounds you quickly and intuitively adopt. The trend over the last five years is to use an interview and diary based approach. Observational techniques are rarely valued by clients and often represent smaller sample sizes, longer time frames and ultimately a higher cost.

More and more, we see clients using ethnography in two contexts. Clients seek rich data to augment a pre-existing market segmentation, 'to bring personas to life and make them real'. Or, clients seek to evaluate a product in its real context to identify actual take up and usage of features, in order to obtain quantifiable data to justify further development. Rarely do we now see clients wanting to use ethnography to develop new opportunities, to shape products and services and to

understand people's behaviours at the present time. This may be because client organisations have become jaded with the descriptive findings produced by ethnography; clients need the data to be 'actionable', they need to have the 'so what' clearly articulated to their business. It may be that there are not the skills in the client organisations to take the research forward – to know how to sell it internally, to articulate its value and how it could be used. And so ethnography has become commoditised; it has become a form of data collection, often measured by sample size, number of locations and cost.

Future of ethnography

If ethnography is used to collect data to enrich a pre-existing market segmentation, do we actually need to use skilled ethnographers? The frameworks used to make sense of the data are not needed, nor are the design and innovation tools. It would be more effective to use the cheapest means of data collection and spend the cost on presenting the material in a highly visual form. For this, clients could use filmmakers or communications agencies who offer significant skills in communicating stories expressively. Controversially, we propose there is little value add in using skilled ethnographers.

We expect some organisations to continue to value ethnography for the new opportunities it reveals and its ability to re-frame problem spaces. These will require longer term engagements at a strategic level. They will need to see artifacts such as experience models become part of organisational and design processes, as is the case at BMW design works. They will require ethnographers to develop deliverables that fit better into client organisations, such as the ability to put together business cases and make the arguments.

Most organisations have difficulties taking up and developing new opportunities and innovative concepts. While ethnography can be part of the arsenal that organisations use to inspire new direction, we propose it also has a place sensitising employees and decision-makers to the realities of users. Developing techniques that help to sensitise employees is where the new research challenges lie for ethnographers. Microsoft takes executives out into the field, researchers blog their daily findings when doing fieldwork, decision-makers are asked to adopt a family. Other practitioners have developed walkabout tours in different parts of a city. The emphasis is on communicating the reality of people's lives. We expect more techniques to emerge over the next few years; the success of these techniques will partly depend on the organisational culture in which they are embedded.

EPIC, the international ethnography praxis conference, was established in 2005 to bring practicing ethnographers together. This year it comes to Europe and will be held in Copenhagen in mid-October. If you want to know more about ethnography, it will be the place to be in late summer.

EPIC2008

Being Seen: Paradoxes and Practices of (In)Visibility

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Where interaction design can



Namahn is a Brussels-based UCD consultancy. Mature, well established, the consultancy is poised on the cusp of its twenty-first year. Namahn's founder, **Joannes Vandermeulen**, finds inspiration for his business strategy in some unlikely quarters. He argues that interaction design must seek new role models to guarantee a healthy future for the profession and he takes us to the movies.

Namahn's focus is the design of digital products grounded in two disciplines: *Interaction Design* and *Information Architecture*. Both disciplines require conducting user-centred thinking to create added value, which is what Namahn sells to its clients.

Selling the market edge, not the product

Namahn typically works for companies that are market leaders. We often get assigned to high-risk projects that involve multiple stakeholders. We do 90% of our work directly for clients and not as sub-contractors to system integrators. We're usually called in when a product has a measure of success on the market place, in other words, when functionality is proven and finance is available to invest in usability. In our interaction design projects, we rarely work on first generation products; they are usually second or third generation.

User interfaces are an easy topic to opine on: everyone in a company can get involved. The vast majority of user interfaces are not designed by interaction designers but by developers, graphic designers, marketing people and even by committees. Namahn could come in when there is internal disagreement, when they say, "Let's ask the experts" and turn to us. Clients usually have a clear idea of what they want; we discuss with them how much they need it and how we can make it more efficient. We don't sell them a product, we sell them profitability and the market edge.

At present, our clients fall into two distinct groups: the first are typically based in Belgium and are Belgian companies serving the local market (corporate or consumer). They usually dominate the local market in the finance, industrial, healthcare, utilities, ICT or service sectors. The second are multinationals with headquarters in Brussels and active in the high tech industry serving niche markets and catering for a worldwide market.

Our sales are generated through reputation and word of mouth – no advertising, no hard sell and no cold calling. We invest a lot of time in keeping good clients happy and much less in selling to new clients. Our message to clients is we make them more profitable. This is high on their agenda and amongst their strategic goals. However, Namahn has little belief in speculative reasoning in this area. Rather, it puts more emphasis on achieving higher margins by Namahn delivering a speedy and efficient design process.

find inspiration

Joannes Vandermeulen

There is currently great demand for Information Architecture projects at Namahn. Four of our clients are requesting that we take both a broad and deep look at how they create, distribute and consume information within their enterprise. The human dimension, between workers and/or customers, has become more important and signals a more collaborative attitude linked to openness: learning networks, feedback loops, social networking, all borrowed from the internet for intranet interaction. Enterprise 2.0 signals a change of mindset in the internal functioning of companies.

What is the future role of the interaction designer?

Namahn has been around for two thirds of the interaction design profession's existence. In that time, awareness of the importance of end user experience has grown and brought greater acceptance of the profession. In 2007, *The Economist* reported that innovative products are those that 'combined clever technology with simplicity and ease of use' citing Apple as most consistent in achieving this. However, today the profession is facing major challenges that will require maturity and strategy to overcome.

I see the greatest threat as recuperation: suddenly everyone wants to reach the end user and the professional space is filling up. What's to stop anyone doing this? As more practitioners enter the field, the force of what we do is diluted. Everyone wants in and entry levels are low. This can lead to failure, so we have to be very careful to live up to our own and client expectations. To do this, we must refine how we view our profession and do this in a sophisticated way. As the world finally accepts that usability is a key factor to innovation and success, we must hold back from shouting victory! The secret to our future success as a profession is not to overstate our case.

I've been seeking role models to bring us inspiration at this crucial period in the development of our profession. I've looked in some obvious and less obvious places: science, architecture, the quality movement and the movies.

Architecture has obvious parallels with our profession. For example, we can look to the Roman architect Vitruvius, who, in his treatise *De Architectura*, asserted the three qualities of a building or structure as: strength, beauty and usefulness. He believed architecture was an imitation of nature. Vitruvian Man, famously drawn at the end of the 15th century by Leonardo Da Vinci, is based on suggestions made by Vitruvius that suggested a relationship between human proportion and geometry. Vitruvian Man takes man as the measure of all things. This is also central to what we do, but it does not portray our role.

Then there is science, grounded in numbers and evidence. The business world usually wants precise measurements, statistics, which is a challenge for us because at Namahn, we don't believe that science and statistics by themselves create better products. The relationship between causes and effects is often speculative. Therefore, rationality is not the way to go about user-centred design. In our practice, we conduct usability testing in laboratory conditions only if specifically requested. Instead we prefer to work directly with users in the

field and in their context of use. We rely on the expertise and experience of our people to arrive quickly at conclusions based on what they see users actually doing, *in situ*.

Which brings us to the movies. Not an obvious source of inspiration, perhaps, but everyone enjoys a good movie! The movie industry is three times older than the software industry. It comprises expert individuals and extremely disciplined and mature teams of people. Like software engineering, movie making involves risk, there's usually a lot of money at stake and success is far from guaranteed. There are many similarities between our two industries: interaction designers write scenarios of use (in the movies they use storyboards); we create personas (in the movies these are the characters). Movies are made through a process of collaboration; there are well-defined boundaries between roles. This reminds me of agile development: people working in close physical proximity in one location. So within a movie production team, is there a position that mirrors interaction designers?

Before deciding, I asked myself the question: do we want to be specialists or generalists? Generalists are rare; a few stand out in history (I've already cited one, Leonardo Da Vinci). Most of us are specialists. However, as interaction designers, we are not the stars of the movie, nor are we the director. I see us in the role of the cinematographer, the behind the scenes person, who doesn't show off, who in fact nobody knows but without whom the framing of shots, the lighting and atmosphere would not be achieved. The cinematographer comes up with interesting ways to get shots and, more importantly, helps the actors (in our case, the users) perform better. Yes, it's not the viewer of the movie who is the user in this sense. A movie happens when people work together; seeing the movie is not part of this. As interaction designers, we make sure the users (actors) do their best and shine. The job of the cinematographer is to put our heroes (the actors) in the best possible light, which is exactly what we should be doing in user-centred design. Of course analogies and metaphors are not watertight; but they can inspire us!

Developers & designers: a marriage made in heaven?

Certainly at Namahn there are things we do and do not do as an UCD consultancy. For example, we do no development work, no coding at all except for the occasional CSS. This often surprises clients but despite pressure to integrate this function in-house, we abstain. We've recently started doing more visual design particularly for consumer products, because likeability is paramount and visuals play a part from the outset. This decision is also driven by the fact that clients want results faster and faster.

Sub-contractors and developers are therefore extremely important to us. We work as a team. Returning to the movie making analogy: we as the cinematographers play a discreet background role, and not the starring role in any way. We love to work in a multi-disciplinary way, just like in the movie industry. Designers and developers are very different people with different mindsets: developers design for the machine whereas interactive designers design for humans and it's rare

to find someone who can do both (bringing us back to the generalist/specialist question). But being different should not prevent us from working together in an atmosphere where, whilst retaining our expertise, we also share and learn from each other.

This requires maturity and reaching deeper understanding and mutual appreciation. Once again, the movie making analogy can be extremely helpful to us because the software development profession urgently needs a collaborative model. Within this model we need formal recognition of the value of each player. So if interactive designers are the cinematographers, then who are the developers? They are the film's highly expert technical teams. They are not the gaffers, simply executing tasks given them by the director or for that matter, the cinematographer. In this spirit, I've come up with seven messages designers should tell developers, and vice-versa.

Developers should tell designers

- 1 We will take your concerns for the user seriously
- 2 You need to get involved early on, you are not window dressers, you are not just prettying up the interface, although you also do this very well
- 3 Please educate us about interaction design. However nifty our functionality is, a bad interface will kill it!
- 4 We will not follow your work with extreme scepticism in fear of having our technical architecture overhauled
- 5 However elegant our code, the user interface may get stuck
- 6 We will not think you're stupid if you can't read our code
- 7 We'll make regular cross checks.

Designers should tell developers

- 1 We will not throw the user interface specs over the wall and then wait to see what happens!
- 2 We will not police you, but we will work with you
- 3 We will give you more consideration than brick-layers
- 4 Please educate us about software engineering
- 5 We will take your ideas about the user interface to heart
- 6 We will not think you're stupid if you can't spell
- 7 We'll make regular cross checks

Our mission has changed over the years: today we not only deliver good designs, we're able to explain why we make particular design decisions. This is a move from the past, from a commonsense, reflex approach to one informed by conscious thinking and it has led us to embark on our first research project.

Putting research into practice

Maturity is not only leading us to seek new ways of collaboration but also to explore how we grow our consultancy. At Namahn, we have decided that deepening specialisation could be an engine for growth. We have identified one area where entry barriers remain high: safety critical systems (typically transportation control, plant management, medical application

and emergency response). To design for these types of systems, Namahn needs specialist knowledge, techniques, and expertise. These design decisions need to be traceable and rooted in research findings. Design risks in this field are not an option.

In 2007 we submitted a proposal for research into interaction design for critical systems to the Brussels regional government's research and innovation programme (IWOIB/IRSIB), which was accepted. This signifies an unusual step, leading us as a design consultancy to become a design and research consultancy. Our goal is acquiring knowledge about models, theories and frameworks that are useful in interaction design for critical systems, and translating that knowledge into practice-oriented and market-worthy methods. By focusing on this one very complex area and supported by its own valid and reliable research, Namahn aims to become the go-to company for critical-systems interaction design.

We were in a perfect position to leverage the relationships we've developed with the HCI academic community and practitioners over the years. However, integrating research into the practice of UCD is no easy matter. Our everyday concern is to quickly bring a product to market; therefore practice is rarely grounded in lengthy research methods. There is also a wide gap between theory and practice: researchers investigating HCI report interesting findings, but these are often complex and hard to grasp. More theory seldom leads to more business or higher profits.

The ongoing two-year research is being delivered whilst ensuring that Namahn clients are not short-changed, a major challenge in itself. Even so, we have deliberately opted for a distributed research approach among colleagues, to avoid creating a theory/practice gap within the company. A distributed effort implies communication mechanisms, so that knowledge is shared as broadly as possible. We use a wiki to this effect. Additionally, short plenary sessions are held to notify other designers of important updates to the wiki. Off-site sessions to focus on the project, to encourage collaboration and share knowledge are also part of the general approach.

We are fully aware of the challenges and risks involved in undertaking research as functioning practitioners. Indeed, the project experiences continuous pressure from day-to-day commercial projects. Designers need to free up time that would otherwise be spent solving the pressing needs of commercial projects.

Despite this, as practitioners, we've found the excursion into the world of research exciting and stimulating. Most of our designers propose that, if more resources were available, they would gladly further explore the research world. This investigation is broadening and deepening our view of the field in which we are working. Already a number of important new concepts and methodological hypotheses have come to light. These concepts are becoming part of Namahn's extended vocabulary, aimed at enhancing the company's internal communication about the design process. The outline of a new methodology is emerging and Namahn has learned a number of new concepts that broaden its view of HCI, such as situation awareness and abstraction hierarchy. As the project progresses, Namahn is exploring other issues and concerns that arise as a way forward to integrating research findings into the practice of UCD in general. We're confident that projects like ours will help advance the dialogue between researchers and practitioners.¹

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Experiencing design Recovery

Robert St Amant

Occasionally I stay up late at night watching bad movies, on television channels that run poorly produced commercials for gadgets promising to save me time (quite possibly) while adding clutter to my household (almost definitely). I'm struck by the number of products intended to repair flaws of one kind or another: a wax to remove scratches from my car, putty to repair my leaking pipes, a drill bit to remove the screws I've damaged, a padded 'snake' to eliminate air drafts under my doors. Sometimes these flaws are the result of everyday wear and tear, but sometimes they arise from poor design.

My old car, a 1988 Honda Accord, had a sunroof. It had a flaw that I discovered when I was leaving the hairdresser one afternoon during a rainstorm. I put the car in reverse, started moving backward, and a torrent of water came pouring through a leak in the sunroof onto my head. The repair shop told me later that this was a known problem, and all they could do was try to seal around the edges. My next car did not have the sunroof option.

One advantage that a physical device sometimes has over a computer system is that when it breaks or behaves unexpectedly, it's possible to see what went wrong and how to fix it. A pull tab might break off when I'm opening a can, and I realise that I need a can opener to empty the contents. A break in a pipe, or even an electrical wire, can be traced, isolated, and repaired. In contrast, digital devices are often less transparent:

In the cafeteria where I buy lunch, there's a microwave oven I use sometimes. It has a panel of numbers and buttons for low, medium, and high power – but there's no start button. If you're just looking at the panel, you think, "Okay, my food is in there. Now how do I turn this thing on?". The first time I used it I started to enter 90 seconds for my cup of coffee, but as soon as I pressed the 9 button, the machine started up, with the timer showing something like ten minutes. It turns out that the numbers 1 through 9 correspond to different amounts of time that the microwave will be turned on. It's easy to figure out once you start playing with the buttons, but even then it's not obvious exactly how much time each button will give you.

My father's computer has a CD burner that I sometimes use when I visit his house. I push a button and the tray opens. I put in a blank CD, close the tray, and transfer my music. When the CD is done, some time later, the tray opens automatically for me to take the CD out. There are a couple of problems, though. The computer has a swinging door that covers its front. If the door is closed, the CD tray bangs into it when it opens, and I wonder whether the jarring will eventually damage the tray mechanism. If the swinging door is open, then the tray comes out all the way. But if I'm doing other things on the computer, I'll sometimes forget that I'm burning a CD, and suddenly the tray is right there, open, ready for my knee to bump into

it and break it off. I've never figured out how to tell the computer not to automatically open the tray.

Theoretical HCI researchers sometimes model interactive systems as state machines, graphs with nodes corresponding to different states of the system and arcs between nodes corresponding to transitions that users can take between states. With such a model it's possible to analyse, in formal terms, the concepts of reachability and recoverability. If a system has complete reachability, then there exists a path from every state to every other state. Recoverability is a more restrictive concept that deals with the ability to leave undesirable states, such as those produced inadvertently or by error. Recovering from an error can happen in a forward direction (following new transitions from the current state to a desirable goal state) or a backward direction (retracing a path until a state is reached where a more appropriate transition can be taken).

A formal description of an interactive system can give us a concise way to describe general classes of usability problems. Remedies are equally concise and general: for example, 'To support recoverability, ensure that transitions from undesirable states are available.' But such general advice is inadequate; it must be fleshed out for specific situations. This is where design concepts come in.

In the case of the microwave oven, we might ask, Is there a cancel button? How can the user determine the correct button to press for a one-minute session? Fortunately, physical interaction with the microwave is enough to remedy some problems – the user can simply open the door and take the coffee out, even if the machine has not finished. The ideas of visibility and mapping, along with other design concepts, can improve the interface as well. For the overly helpful CD tray, recovery poses a more difficult problem. The behaviour of the system (we can treat a setting that governs default behaviour as part of the system's state) is not an immediate response to the user's actions, and the behaviour is just one of a myriad that might be managed in different ways, perhaps through a software control panel. We should go further than providing appropriate transitions (open control panel, select the correct behaviour); ideally, we should provide some way for the user to develop a good mental model of why the system behaves as it does, and the means to change that behaviour. Perhaps a physical metaphor? We seem to understand mechanical devices and machines fairly well ...



Robert St Amant
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Robert St Amant is an associate professor in the computer science department at North Carolina State University. The work in his lab is a blend of human-computer interaction and artificial intelligence, with an emphasis on planning concepts. He's interested in building intelligent tools to help users with complex tasks.



You are invited to participate in **HCI 2008: Culture, Creativity, Interaction**. The theme for this year's conference reflects the continuing spread of HCI concerns into almost all aspects of human (and machine/system) life. Researchers and practitioners are facing new challenges, such as how to balance competing demands of accessibility and security, how to add usability to novel forms of seemingly 'invisible' interfaces, and how to integrate physical and mental activity to best effect at the interface.

The expansion of the remit of HCI leads to increasing difficulty in specifying a 'core' HCI at a time when the discipline is in greater demand than ever before. This conference recognises the need to take an open look at HCI, embracing the opportunities delivered by new technologies while establishing the common ground of HCI across platforms and contexts. Under the theme of *Culture, Creativity, Interaction*, the HCI 2008 conference provides a forum for you to tackle these and many related issues. The conference includes an exciting range of presentations, panels, workshops, tutorials, interactive demonstrations and opportunities to interact with fellow researchers, practitioners, educators and users. Our keynote speakers this year include Professor Yvonne Rogers, Open University, UK. Watch www.hci2008.org for further announcements.

Conference theme

The conference theme of *Culture, Creativity, Interaction* reflects the fact that in 2008 Liverpool is the European Capital of Culture. Throughout the year there will be cultural events ranging from community arts to headline events such as the Turner Prize. In the week before the conference there will be the Annual Beatles Week and immediately afterwards Liverpool will host the British Academy Festival of Science. The Biennial Festival of Contemporary Art also begins in September. Our cultural theme reflects not just events in Liverpool but also recent developments in HCI where the arts and humanities offer us both new insights and new challenges. Though 'culture' is not the only theme for the conference we hope to reflect the cultural events happening in the rest of the city and on Merseyside. Our hope is that culture will be a unifying theme for the various strands that form the HCI family of disciplines.

Liverpool itself has undergone a renaissance in recent decades and many of the city's projects will have reached their culmination in 2008. So, as Liverpool is being re-made, it may also be time to reflect on how HCI might be re-made. What new challenges do we face? How many of our current approaches and methods meet these challenges? What has to change in HCI if we are to continue making progress? We look forward to submissions addressing new challenges and overturning accepted convention, or confirming past practice.

Social programme

Our social programme will include

Tuesday evening get together at Tate Liverpool
www.tate.org.uk/liverpool/

Wednesday evening reception at Wolstenholme Square with Interactive Experiences and Digital performance

Conference Dinner at the Maritime Museum, Albert Dock

Submissions

Submissions on all areas of HCI are invited, but we strongly encourage submissions addressing the challenges and opportunities posed by our theme, *Culture, Creativity, Interaction*. Relevant topic areas include but are not limited to:

- Human-centred creativity
- Interaction for the performing arts
- Ubiquitous interactivity
- Disappearing or ambient computing
- Design and evaluation methods
- Effecting affective HCI
- Learning and training for HCI
- Interfaces for pervasive systems
- e-Security and e-safety
- Users with unusual requirements
- Mobile media access and sharing
- Interactive public displays
- Fun and games – the next generation

Contributions that advance the theory or practice of any aspect of HCI are also welcomed.

All submissions must be camera-ready. The required template and more detailed instructions for each category, including page limits, are on www.hci2008.org. You must submit through the online process described on the conference website.

Please note that 30-word summaries are required for each submission, and that these are used to promote the submission, session and conference. HCI 2008 is an international conference and contributions are welcomed from all parts of the world. However, the official written and spoken language of the conference is English. Guidance on the use of plain English is available from the Plain English Campaign web site. (www.plainenglish.co.uk/guides.html). All submissions will be reviewed, anonymously, by an international panel of international HCI experts. See the website for names of reviewers of previous conferences. Both volumes of the conference proceedings will be published, with full ISBN, by the British Computer Society, and all papers will be available via the ACM Digital Library.

Second call for participation – deadlines

Submission deadline: **9th May 2008**

Notification of acceptance: **16 June 2008**

Camera ready submissions for proceedings: **23 June 2008**

Conference venue

Liverpool John Moores University is a city-centre campus at the heart of Liverpool. There is a wide range of accommodation available within different price ranges. The city celebrated its 800th birthday in 2007 and continues to celebrate as European Capital of Culture 2008 with a whole host of artistic and cultural events. The city is internationally famous for its music, its football teams, its two cathedrals and its World Heritage Water Front. However the city has many features beyond the more well known. It is a cultural powerhouse in the visual arts and performance with many theatres and art galleries. Liverpool boasts the oldest Chinatown in Europe with a range of restaurants and an active community. It has a thriving university student population and a varied night-life. City centre shopping has been redeveloped to provide the largest shopping area in Europe. We hope that delegates will find time to explore many aspects of the city during their stay at the HCI 2008 conference.

Doctoral Consortium

Chairs: Andrew Howes, University of Manchester, Yvonne Rogers, Open University, Simon Harper, University of Manchester

The aims of the HCI 2008 Doctoral Consortium are: to offer a friendly forum for students to discuss their work and receive constructive feedback; to offer relevant information on issues important to doctoral candidates; to nurture a community of researchers. The Consortium is designed for students currently registered for a PhD in HCI or a related field, and is open to

students at any stage of study. It allows participants to interact with established researchers and with other students, and to reflect – through short activities, information sessions and discussions – on the process and lessons of research and life in academia. Each participant will give a short, critiqued research presentation. See www.hci2008.org for template and detailed requirements.

Laboratory & Organisational Overviews

Chairs: William Wong, Middlesex University, Dianne Murray, *Interacting with Computers*

Tell us about HCI and other HCI-related activities that go on in your labs, your research groups or organisations – in both commercial as well as university-type institutions! We love to hear about your cutting-edge research and developments, your design and evaluations of the next generation mobile phone interfaces, SCADA systems, aeroplane cockpits, entertainment consoles, and examples of academia–industry collaborations. *Format:* To be presented in a dedicated poster session, can include posters, live demos, and organisational videos. What's needed? A one-pager to register and a two-page short paper if you want a publication in the proceedings. See www.hci2008.org for template and detailed requirements.

Panels

Chairs: William Wong, Middlesex University, Dianne Murray, *Interacting with Computers*

A good panel will stimulate thought and discussion on some controversial or emerging issue. Panels typically consist of



three to five panellists and a moderator. Proposals that include specific and innovative ways of involving the audience in the discussion, and/or proposals that suggest ways in which constructive outcomes can be achieved are particularly encouraged. See www.hci2008.org for template and detailed requirements.

Posters

Chairs: Omar Abuelma'atti, Liverpool John Moores University, Oscar de Bruijn, Manchester University, Barbara McManus, University of Central Lancashire

Poster submissions addressing any of the areas identified in the conference topics are invited. Authors are encouraged to demonstrate work in progress and late-breaking research results that show the latest innovative ideas to stimulate audiences. See www.hci2008.org for template and detailed requirements.

Short Papers

Chairs: Omar Abuelma'atti, Liverpool John Moores University, Oscar de Bruijn, Manchester University, Barbara McManus, University of Central Lancashire,

Short papers may address any subject of relevance to the field of Human-Computer Interaction. Authors are particularly encouraged to address the main topics of HCI 2008. Submissions should report original work that has not been published previously. Successful submissions will typically demonstrate work in progress, late-breaking research results and ideas relevant to the conference theme. See www.hci2008.org for template and detailed requirements.

Student Papers

Chair: Janet Read, University of Central Lancashire

The Student Papers track encourages junior researchers to present their research programme. We welcome submissions from undergraduates, masters and early state PhD students. Applications should use the same format as the regular short papers. Papers that are accepted as student papers will be identified as such in the conference programme. Discussion and review of student papers will be slightly less formal than for the main conference, providing a platform where innovative ideas can readily aired. Each paper must be accompanied by a declaration by an academic to the effect that the first author is a student and that the work is essentially the student's own work. It is a condition of acceptance that the student registers for the conference and presents the work.

HCI Practice

Chair: Leslie Fountain, System Concepts

HCI has a long tradition of providing a platform for issues of HCI practice – whether in industry or the public sector. We would like to hear from the UK's industry and public sector leaders in HCI and usability. This track gives industrial and commercial organisations the opportunity to share their work in HCI and usability. The conference and the conference dinner offer a superb annual opportunity for practitioners to network with peers from across industry. Contributors with a commercial affiliation may either submit:

To any of the standard conference categories – submit these as per the category deadlines and instructions and these will be reviewed competitively against other submissions, but will be reviewed by industrial practitioners.

Specifically as a Practitioners' Report – submit two pages,

using the template on the website, direct by 9 May 2008 to the HCI Practice Chair (via d.england@ljmu.ac.uk). These will be reviewed by the HCI Practice Chair and may be accepted subject to specific conditions.

Contributions on the following are particularly encouraged: tools and methods for usability and HCI design in the industrial context; experiences in design for different user groups e.g. accessibility best practice; results of experience in practice; product evaluations; experience of training people in HCI and usability techniques.

Interactive Experiences

Chairs: Jenn Sheridan, Bigdog Interactive, Nick Bryan-Kinns, Queen Mary University

Reflecting our European Capital of Culture theme this year Interactive Experiences coincides with (re)Actor3: The Third International Conference on Digital Live Art and, for the first time in British HCI history, selected proposals will be exhibited in an open public gallery and performed at the opening evening reception. This stream of the British HCI/(re)Actor conferences is the forum for the demonstration of real systems, advanced prototypes, pre-recorded or dynamic videos, interactive installations, HCI-related live performance, and so on. This includes a wide variety of dynamic and 'touchable' experiences for which a standard paper presentation would not fully convey the appeal or novelty of the work. An Interactive Experience could involve a demonstration of a new device or novel application of existing technologies, an engaging experience that highlights some unique interactive phenomenon, or even a video or a live performance. Proposals may also be submitted for interactive surveys or polls that will take advantage of the assembly of expert practitioners present at the conference. In addition, the theme emerging out of (re)Actor3 this year is 'HiTech LowFi'. As such, we are seeking those engaged in DIY Culture and Upcycling with a strong emphasis on sustainable technologies, reclamation and a greener future. The (re)Actor crew, led by this year's Chair artist, VJ and film maker Tom Lloyd, will ensure a sensory feast of interaction delights. (re)Actor3 provides artist commissions, travel bursaries and prizes for selected proposals. For information on (re)Actor3 artist commissions and travel bursaries visit www.DigitalLiveArt.com

Awards for International Excellence

(Chair: Alan Blackwell, University of Cambridge)

As a new initiative this year, the conference will present awards to UK researchers whose recent work has been recognised for international excellence at other HCI-related conferences in 2007 or 2008. Nominations of British (or UK resident) authors should specify the international conference, basis for selection (e.g. prize-winner, top-ranked UK submission), citation details and abstract of the nominated publication. Recipients will be invited to present award winning research at HCI 2008. Nominations should be sent to Alan Blackwell, Alan.Blackwell@cl.cam.ac.uk

The British HCI Conference Series

HCI 2008 is the 22nd Annual Conference of interaction (The BCS Specialist Group formerly known as The British HCI Group). The conference has become the premier annual conference on Human-Computer Interaction in Europe and has always addressed the needs of practitioners and researchers through a balance of conference activities. interaction: www.bcs-hci.org.uk

My PhD

Assessing the gaming experience

Eduardo H. Calvillo Gámez

I do research on videogames... and no, I do not spend my time just playing. I did not go into this field of research intentionally but instead gradually got drawn into it. If I recall correctly, during my undergraduate years I was still playing NES when others had moved on to Starcraft, Nintendo-64 or some other new console; the truth is that I liked playing videogames, but never stayed on top of the trend ... or maybe I was never good at playing them as I would always lose to my friends. So I was quite surprised when my PhD steered into the video game domain, and I must admit that my friends were quite puzzled about it, and, of course, jealous.

But let me begin by quickly explaining my path into videogames. I started my journey into HCI with tangible user interfaces (TUI), my undergraduate and masters studies were in electronics so playing with hardware seemed like a natural match to make the move. My first steps into HCI dealt with modelling of TUIs [2, 8] and life was square and engineering-ish. Eventually my interests started to change: rather than being motivated by how to make TUIs more available and easier to design, I began to wonder, do users really care about TUIs? It turned out that in order to answer that question I had to jump into the field of qualitative research. Life was not square any more. Changing from formal methods and modelling into doing, transcribing and analysing interviews, as my understanding of qualitative research was reduced to that back then, was a big challenge.

I still wonder why we engineers tend to believe that social sciences are easier and obvious; they are not! Thankfully UCLIC, where I am doing my PhD under the supervision of Dr. Paul Cairns and Prof. Ann Blandford, had experience in similar converting procedures. Anyhow, in order to answer my question I had to look into this 'new' area of HCI called user experience. User experience, as described by Preece et al [7], is the subjectivity of the interaction. Studying the user experience of TUIs, by themselves, was quite ephemeral; they need to be used for a reason. I decided to widen the range and instead of looking only into TUIs I decided to look for input devices in general, but as a domain I picked one that has user experience at its core: videogames. I re-formulated my question into this: what is the role of input devices in the gaming experience? The gaming experience is, of course, the user experience of playing videogames. Even though videogames are a valid research domain, I still feel the need to tell people that they were not the start of my research, but just a landing place of a different research question.

User experience as an expression is great; it means what we say it means in the way defined by Humpty Dumpty himself, who told Alice that words mean exactly what he chooses them to mean, "neither more nor less" [3]. Well, I should not try to diminish user experience or give a wrong characterisation of what it is. But when I first confronted the concept, I could not find out how to deal with it; it took me a while to approach the gaming experience in a manner that would allow me to be objective and to generalise, which would allow me to evaluate. How do we assess the user experience? I had no idea, and the concept itself was not really cooperating. I decided, after reading [5, 4, 6] among others, which I recommend as standard ref-

erences, to study user experience as a two-fold phenomenon: process and outcome of the interaction. Looking at the outcome makes it possible to identify those elements that form the basis of the experience, the elements that are part of the process and without which the user would have a poor experience. That is, it allowed me to identify elements that can be studied objectively, and up to a point, generalise findings. My current research focuses on how to assess the gaming experience [1]. I am formulating a questionnaire that could firstly confirm my claims about how those elements integrate to form the experience, and secondly be used to assess the gaming experience.

My PhD journey has taken me into many detours from electronics, but I must say that I am quite glad of being involved in a thesis that uses both qualitative and quantitative methods, that required a deep understanding of the concept of user experience, and that eventually gave me another view of HCI that complemented what I had learnt in my modelling days. The main contribution of my research is that it provides a way to assess a part of the gaming experience. And with a little bit more work, I think I would be able to use that very same approach to understand how input devices influence the gaming experience. Then I can spend my time just playing.

Acknowledgements

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HCI 2008 Doctoral Consortium

A friendly forum for students to discuss their work and receive constructive feedback

Open to currently registered PhD students in HCI or related fields, at any stage of study. Participants can interact with established researchers and other students, and reflect on the process and lessons of research and academic life. Each participant will give a short, critiqued research presentation.

Deadline **9th May 2008** • www.hci2008.org/

Is ethical design any good?

John Knight

As well as hype, recent media interest in sustainability does seem to chime with changes in consumer behaviour, at least among the more affluent. Of course, many contemporary designers have responded to ecological concerns by offering less harmful alternatives such as reusable shopping bags and wind-up radios. But even before supermarkets and wirelesses were around, designers (e.g. William Morris) have sought (more or less successfully) to promote values and behaviours across the political spectrum through their work.

Successes in this endeavour include the Volkswagen Beetle, and failures the high-rise sink estates we see around, caricaturing the International Style. And both these examples of explicitly socially motivated design span the dictates of communism, fascism and social democracy. This disparate success of design suggests that it is not just about good intentions but also impact over time, that good is not a static or universal concept and the traditional artisan stereotype of design is often ill placed to meet societal needs as it relies on introspection rather than social research. It is also open to the vagaries of history and changes in social values, but I guess everything is. Despite these limitations any purely analytically based discipline is less able to innovate and produce the beauty we get from wallpaper and iPods.

Whether explicitly (e.g. participatory design) or implicitly (e.g. usability engineering), traditional HCI promotes a humanistic value of delivering a better experience with technology for people. Some practitioners have gone further and proposed ethical principles for HCI (e.g. Thimbleby). The ethical strand in HCI has focused on minimising harm, such as ensuring security and universal usability. While a relatively narrow trend, ethical HCI does reflect some broader underlying values that centre on removing barriers to value rather than adding it. As diverse topics as return on investment and accessible web design are justified in this way, most commonly evidenced on hard empirical research that is missing from traditional design approaches.

User Experience (UE) moves beyond just removing bad and toward delivering good. In other words UE sees usability as a hygiene factor, and good as the quality of design of the experience. The move to a more design-oriented discipline is at first glance much more fun and exciting than a boring empirically based evaluation one. However, this shift implicitly detaches doing (e.g. design) from knowing, unless underpinned by reflective practice. Of course, widening the range of use qualities beyond usability is not only sensible but also well understood among designers, consumers and companies alike. But the full embrace of user experience also has pitfalls. The more immersive, the more emotional, the better the flow and thus the better experience whatever its utility or impact, so the logic of UE goes.

UE has fixed research as a tool in the service of experiential design rather than as guardian of users against harm in the participatory design sense. In UE, participation is limited to being just another tool that the design team deploys to optimise the experience. However, in developing tools and methods for designing interaction, UE is far better placed to deliver successful design than the older design disciplines. By focusing on the experience rather than the interface, UE broadens the scope of design and research into a more dynamic environment of users

and devices, although in embracing design it has also moved away from HCI values focused on measurement.

The rise of UE is based on the critiques of good old usability, including Patrick Jordan's work on pleasurable products. While this was a good antidote to the cognitive doldrums of efficiency, in Epicurean terms hedonism is problematic as a design goal although taking fun seriously (by researchers and companies alike) is a great leap forward. The move may reflect the increasing market for related products such as games that defy HCI and UE and indeed traditional design approaches. Good games can be annoyingly simple, do not have usability barriers, are compelling and also involve some degree of risk and reward, which can be as complex a prize as pleasure, challenge or even complete exhaustion.

Like film, fashion or fiction, games are also non-linear, sporadic, and often social in execution which makes them difficult to design. Likewise good social networks excite and deliver a flow experience but are really (as the name suggests) social phenomena. In fact, the experience is 'social' with some experiential props to support it designed in. 'Design' in the User Experience sense cannot guarantee good that is predicated on a critical mass of fickle users (often co-producers) driven to adopt a product or service. To really understand this we need an approach that looks beyond the designed experience to the wider social and material one.

In this context, good is both more difficult but also more rewarding, as it could, for example, involve facilitating self governance and social rules rather than removing the number of clicks to achieve a goal or adding glitz and Flash. Strangely, enough the lack of real-world notions of good and bad and the immaturity of technically mediated social interaction is often where social networking and gaming come apart. And these problems only emerge with use, so that even simple interactions and features like a camera on a phone can lead to unforeseen negative impacts such as happy slapping. Conversely, simple functions such as text messaging create new behaviours and can take off without a commercial push but from users' adoption and usage.

Interactive, multimodal, socially and contextually embedded experiences are very complex, especially when compared to the single user task-oriented model of the past. So complex is this new stage in which interaction takes place that we can think of it as HCI + Material Culture. As such intervening at the level of design (in a good way) requires a combination of design reflexivity, participation and anthro/ethnography to cover all bases including innovation and impact analysis.

Consumption, unlike linear modes of interaction or even designed experiences, is clearly predicated on choice at purchase, uptake and use. And in this context, good becomes tightly bound to whether individuals and societies make good or bad choices in what they consume, what they do with it and who uses it and of course the reverse too: who is excluded, what is not done or consumed, etc. Here good or bad has to be considered in terms of impact but also in enabling consumption to facilitate, communicate, contest and continually redefine what is good. In this sense an ethical strand in HCI is not just desirable but is already here; we just need to see the values we perpetuate better.

There are two books that we have reviewed in this edition of *Interfaces*. In the first review, John Knight presents his views on the book by Jonathan Chapman, *Emotionally Durable Design: Objects, Experiences and Empathy*. Thanks very much to John for his interesting review and insights. I have reviewed the second edition of the *Human-Computer Interaction Handbook*, edited by Andrew Sears and Julie Jacko.

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

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Emotionally Durable Design: Objects, Experiences and Empathy

Jonathan Chapman

Earthscan, 2005

ISBN 1-84407-181-2

Paperback, colour cover, black & white

As soon as I saw the title of this book I decided to buy it. Of course, I am not sure how many other people would jump at the chance of reading about empathic design, but for me the book satisfies the impulse to get it. Chapman works in Three Dimensional Design at the University of Brighton and is also founder of a sustainable design consultancy called Safehouse Creative.

The book demystifies consumption and proposes a way to intervene in it at the level of design based on the notion that the strength of the bond between products and people determines whether stuff is binned or cherished. While this thesis is applicable to all kinds of products, Chapman argues that the lack of bonding is most obvious (and harmful) in the realm of electronic products. Low levels of attachment means products become redundant before their useful days are over:

Why do we, as a consumer society, have such short-lived and under-stimulating relationships with the objects that we invest such time, thought and money in acquiring, but that will soon be thoughtlessly discarded?

Coming from a traditional design background, Chapman traces a history through the 'Decadent Arts and Crafts movement' (p25) to Victor Papanek, and brings this up to date with the more political socially motivated work of Rem Koolhaas. Critical notes are made on some of these approaches and the author goes on to criticise the modern manifestation of ethical design (sustainability) arguing that it has

tended to focus on the symptoms ... even an excuse for more rapid discarding ... rather than the central pioneer of social change that it potentially could be (p10)

The first chapter is titled 'The Progress Illusion' and marks the growing awareness of sustainable alternatives. The author notes that ecological concerns are hardly new, charting the growth of environmental organisations from the early 1970s, and shows how this was soon incorporated into the mainstream via legislation and alternative concepts of stewardship such as Gaia. The analysis is even-handed whereby population growth alone is not a problem in itself but the impact of unbridled manufacture is. Having dealt with the rise in ethical awareness, Chapman turns his attention to the paucity of many product relationships including the very limited range of emotional needs they offer; especially electronic ones. Despite the blandness of offerings the stream of new products is relentless:

We do amazing things with technology and we're filling the world with amazing systems and devices; but we find it hard to explain what this new stuff is for; or what value it adds for our lives ... (p11)

Chapman puts part of the problem down to the design profession that has become enchanted by 'technocentricity' (p10), churning out slight variations on the same theme of sleek black shiny boxes. Consumers have also changed to endorse a shallow kind of 'nomadic individualism' (p18) that also weakens the links between being and doing with negative impacts on the environment and the person. The chapter concludes by showing that consumption is predicated on a motivation to buy and use stuff.

The second chapter explains motivation and in particular why people buy

things when they do not really need them (p171). Chapman argues that consumption is complex and multifaceted; which at first sight is a rather unsatisfying conclusion; but on closer inspection a very reasonable and brave one to make. There are some pointers, however, on what constitutes consumer motivation. This is described as a personal journey whereby products provide meaning, expression and attachment among other values such as utility. The restlessness that consumers experience is explained by Bocock's theory of imbalance whereby products never deliver complete satisfaction but instead partially meet desire and partly produce an itch for new latent ones. This is a rewarding conclusion suggesting that there is an infinite variety of product-people interactions that can be imagined and built.

The notion of attachment is dealt with in the next chapter. Chapman provides examples of people loving products (p73), and how some possessions become treasured and even accrue a patina of affection over time (e.g. teddy bears and jeans). Such product relationships are not just born from utility but also more elusive qualities such as the crackle of expectation when the needle hits the groove on a vinyl record. The author underpins these ideas with evidence of the importance humans have given to material culture throughout history. Drawing on anthropology, the nature of attachment is explored thoroughly, including the promise and reification of value and its transmutation along the customer lifecycle from desire to death. Lastly, attachment is considered within the realm of electronic products including Tamagotchi and Aibo where electronic pets mimic our warmer blooded four legged friends.

A chapter titled 'Authors of Experience' follows and takes the idea

of durable relationships into design. Chapman notes that the goal is not necessarily to deliver 'intensity or power' but rather a holistic approach based on experience design. Sustaining Narrative develops this perspective but extends it to cover the lifecycle of the product relationship. Drawing on a diverse range of narrative approaches including Brecht and bizarrely MTV (p127), Chapman suggests that the traditional goal of user experience (flow) is at odds with both a meaningful and long-term interaction. The key to achieving this is via a narrative that allows a dialogic relationship, ambiguity and 'leaving space for the user' (p23) 'while never being fully understood' (p121). 'De-fictioning Utopia' is the penultimate chapter where the author cites Thomas More (p137) and quotes Plato's premise that 'everything that deceives may be said to enchant' (p121). Lastly, Chapman argues that:

Fictional narratives...provide an invaluable resource of consumable experiences (p140)

The last chapter is called 'Real World Feasibility' and is a call to action for a 'radical design agenda' that attempts to:

Reduce impact of modern consumption without compromising commercial or creative edges – empowering alternative modes of consumption that extend our experience of daily life

It is very refreshing to find a book which indexes boredom (p79, 85, 102) disappointment (p17, 24) and disillusionment. It took a few reads to really understand some of the points and it does all go metaphysical at times although strangely there is actually very little on ethics. Despite this Chapman has provided an invaluable input for HCI by showing that electronic projects are consumed and not just interacted with. The implications of this are generously dealt with in a book that offers a great starting point for further research and design.

Reviewed by

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The Human-Computer Interaction Handbook: Fundamentals, Evolving Technologies, and Emerging Applications

Andrew Sears, Jackie A Jacko (editors)

Lawrence Erlbaum Associates Inc. US, 2007

ISBN-10 0805858709

ISBN-13 978-0805858709

Hardcover, 2nd edition

The second edition of *The Human-Computer Interaction Handbook* is an excellent collection of chapters by HCI academics and practitioners who are foremost in their respective research areas. There are 67 chapters contributed by over 130 HCI researchers and professionals and over 5500 references with 400 figures and 100 tables. It is an exceptional collection of HCI topics that would be of interest to newcomers in HCI, outsiders who want to dip in and out of the chapters which concern the challenges they are experiencing, and also to 'matured' HCI researchers and practitioners. The handbook has a foreword by Ben Shneiderman where he reflects on whether this handbook marks the emergence of HCI from its childhood to either its youthful adolescence or its young adult status. Whatever our (the reader's) perceptions of HCI's maturity may be, he states that each one of us has a role to play in influencing HCI's maturation in terms of: proposing new theories and frameworks; exploring affiliations with disciplines such as sociology, semiotics, or nanotechnology; working with cultures other than our own; influencing the media, government and policy makers by making HCI issues visible and specifically in related disciplines such as software engineering, networking and security. He reminds the HCI community of the challenge set out in the 'CHI 99 research agenda workshop' of developing usable, universal and useful technologies.

The introductory chapter entitled 'A Moving Target: The Evolution of HCI' is by Jonathan Grudin and looks back to the role of HCI in computing from the mid-1940s and takes the reader through its growth and to its current state. He also looks at the future of HCI: '... perhaps HCI, too, will become invisible through omnipresence.' The

first sixteen chapters of the handbook are in two parts: Humans in HCI, and Computers in HCI. They address fundamental issues in design decisions: for example, mental models in HCI; emotion in HCI; motivation and persuasion of users; human-error identification, inputs and output technologies and techniques; haptic interfaces, wearable computers; and so on. Part III relates to designing HCI. This part covers a wide range of topics from visual design; cross-cultural user interface design; multimedia and multimodal user interface designs; information visualisation; groupware and CSCW; Web, online communities, virtual environments; and ends with a chapter that views HCI from the intersection of privacy, security and trust. Part IV relates to application/domain specific design issues such as in Healthcare; design of games and entertainment interfaces; motor vehicle designs; aerospace. Part V would be most useful for colleagues who are involved in designing interfaces for diverse users (and users with special needs): gender issues; older adults; for kids; physically disabled; or who have perceptual impairments; deaf and hard of hearing users; and designing for functionally illiterate users and/or users with learning disabilities. Parts VI and VII discuss the development process of HCI and the management of HCI. Part VI has three sub-parts: requirements specification; design and development; and testing and evaluation. Issues such as Human Values, Ethics and Design, and Cost Justification are covered in Part VI. The handbook concludes with the 65th chapter: Future Trends in HCI. This chapter has interviews with five international experts where they share their perceptions on the past, present, and future of HCI.

It has been inspiring looking through the handbook – first, to see how HCI has grown over the years; how different and very diverse approaches and research areas in HCI have been brought together in this unique book; and how the challenges of usability, usefulness and universal access continue to guide our efforts irrespective of the technologies. In the application/domain specific design

part of the handbook (Part IV), I would have liked a chapter devoted to the e-learning domain and the role of HCI in technology-enabled learning. Irrespective of the pedagogical rationale of the various technologies, they can only be accepted by students and educators, and be pedagogically effective if they are usable. Various recent initiatives to integrate virtual learning environments or tools such as blogs, wikis, podcasts and 3-D virtual worlds have revealed that usability issues start overshadowing the pedagogy, if HCI and usability concerns have not been addressed.

Part V – ‘Designing for Diversity’, addressing various diverse needs of users ranging from illiteracy to physical/cognitive impairments, sets this handbook apart from other HCI resources and is a novel resource for all HCI researchers as the issues raised and discussed sensitise readers to the needs of users which we would normally not consider or think of. In Part VI and in chapter 46, the concept of ‘User Experience’ is discussed through Jesse James Garrett’s excellent model: Elements of User Experience, <http://www.jjg.net/elements/pdf/elements.pdf>. However, the themes of user experience and customer experience don’t seem to be carried through in this part of the handbook – which was somewhat disappointing. In recent years, the themes of user experience and ‘total customer experience’, which relate to experiences of a user beyond the interaction with the e-commerce website (for example), and relate to the overall experience (from pre-purchase to consumption) with a product/service, have helped to build bridges and facilitate communications with marketing/services management professionals and HCI/usability professionals.

The last chapter of the handbook was the highlight for me in this book. The editors pose a series of questions to five experts in the HCI community: John M. Carroll, Katsuhiko Ogawa, P.L. Patrick Rau, Gavriel Salvendy and Constantine Stephanidis. The questions range from three grand challenges in HCI; most important results that have emerged from HCI research in the last 10 years; most exciting and emerging domains for HCI researchers and

practitioners to explore; most innovative changes envisioned in the next five years with regard to how people will interact with information technologies; what do educators need to change to ensure that PhD students are prepared to address HCI’s grand challenges; and, finally, the future of HCI as a discipline/profession and will it continue to be sustainable as an academic endeavour that yields marketable practitioners/researchers? This chapter was truly an interesting journey for me into the past, present, and future of HCI.

The handbook (available in hardcover) is an invaluable reference book for practitioners, students, researchers and academicians. The book is large and heavy with over 1350 pages and though it requires quite a bit of shelf-space, it can be an inspiring text just to look at from time to time even though you may not open it or refer to it every day; the handbook is an indicator of how the discipline has grown and how there is still much to achieve and make progress with.

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CfP

NordiCHI 2008

Using Bridges

The 5th Nordic Conference on
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20–22 October 2008

Lund, Sweden

28 March 2008: deadline for submission of workshops, tutorials and panel proposals

14 April 2008: deadline for submission of full papers and design cases

11 July 2008: deadline for submissions to doctoral consortium

19 August 2008: deadline for submission of short papers/posters and interactive demos

www.nordichi.org/2008/

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Papers, polemics, products and presentations required to broaden our understanding of electronic products and artefacts.

contact John.Knight@intiuo.com

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Jyväskylä, Finland

HAID’08 will bring together researchers and practitioners who share an interest in finding out how the haptic and audio modalities can be used together in human-computer interaction.

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www.haid2008.org

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Between adaptivity and adaptation in
context-based interactions

Workshop at
Informatik 2008

12 September 2008

Munich, Bavaria, Germany

Submission deadline **28 April 2008**

<http://kalu.fernuni-hagen.de/Informatik2008/>

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Physical Fidelity in Design: a shared exploration

UWIC, Cardiff, Wales

3–4 July 2008

How important are physical prototypes or mock-ups for design? Fidelity is a hands-on event exploring this issue through mutual exchange of experience and group design challenges.

www.physicality.org/fidelity

Profile

Konrad Tollmar talks to John Knight



I am an Associate Professor at Ingvar Kamrad Design Centre – Lund University. My main research interest is to better understand how interactive technologies become a part of our everyday practice and life. To get there I try to combine interaction design and co-operative approaches with novel use of technologies, such as computer vision, mobile computing and virtual reality. Prior to this, I worked at MIT, The Interactive Institute, and The Royal Institute of Technology. Today I am coordinator for Re-Flex, a multi-disciplinary centre in simulation and virtual and mixed reality, as well as working in a couple of EU projects on mobile computing. My most recent research has expanded into market research and analysis where I am now also working as a research director at the Institute for Economic Research. Last but not least I am co-chairing NordiCHI2008.

What is your idea of happiness

I really enjoy making new things, like creating new ideas, etc. But also very simple basic stuff that stays over time makes me happy.

What is your greatest fear?

Many things worry me but none do I actually fear.

With which historical figure do you most identify?

I am a nerd so (most) scientists have my respect, although Russel is favorite. He combined social activism with a true passion for science. It's rather rare that academics have the guts to take a stand nowadays.

Which living person do you most admire?

All people

What is the trait you most deplore in yourself?

Laziness

What is the trait you most deplore in others?

Lack of empathy

What vehicles do you own?

As a true Swede I'm a SAAB owner, but since SAAB is now owned by GM it does not really matter.

However, I hardly ever drive since I mostly cycle and, together with skis, I have many more bikes than I need. My new favourite is Merida Matts TFS 500; my old favourite, a GT AGGRESSOR that I bought in the US, has now passed its best-before-date.

What is your greatest extravagance?

Well, that would be skis then; 5 pairs of downhill, 2 pairs of telemarks, and 4 pairs of Nordic skis (What else do you need?)

What makes you feel most depressed?

When people don't care about the 'real' consequences

What objects do you always carry with you?

Too much and too many gadgets. A couple of cell phones, weird devices (like a remote to my Mac that I never use), etc., etc.

My girlfriend has suggested stitching my pockets together 'cause I never find what I need when I really need it.

What do you most dislike about your appearance?

I rather flip the coin and say that I'm not too unhappy about my strong legs, at least good for skiing and biking.

What is your most unappealing habit?

I'm not always that outgoing and sometimes wish that I was more interactive

What is your favourite smell?

Old ski wax on wooden skis, and I'm not joking I am afraid.

What is your favourite word?

"liljeholmare" – an expression from my hometown Stockholm that describes when you suddenly get a bright insight

What is your favourite building?

Anything by Alto goes

What is your favourite journey?

Sailing around Stockholm

What or who is the greatest love of your life?

My kids and my loved one, of course

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

If it's dinner I would prefer a good friend. For talking there are too many interesting people to list here, everyone has a good story if you take the time.

Who annoys you the most?

When I don't get things done in time

Which words or phrases do you over-use?

Maybe, and should. Sometimes I maybe should be more direct :-)

What is your greatest regret?

It's naturally too personal

When and where were you happiest?

Happiness is a roller-coaster, I don't think you experience it if you're not sad from time to time.

How do you relax?

Being lazy, and watching too much TV

What single thing would improve the quality of your life?

A memory-boosting smart pill :-)

Which talent would you most like to have?

I would really like to be able to paint and draw well

What would your motto be?

Don't forget here and now. Try to enjoy here and now.

What keeps you awake at night?

Nothing, I always fall asleep, but when I'm stressed I tend to wake up too early.

How would you like to die?

Old, several in my family reach 100+ so I have some faith

How would you like to be remembered?

Beside family, if someone gets some inspiration out of my work that would be great

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

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We are always looking for people interested in contributing to HCI group activities by, writing for *Interfaces* magazine, helping run the annual conference or joining the executive. If you are able to contribute in this way or if you have ideas for 1-day meetings or new activities please contact Janet Read (JCRoad@uclan.ac.uk)

Data Protection Act

The data on this form will be treated as confidential to the BCS. Names and address may be used, under our strict control, for mailings judged by the British HCI Group Executive to be of value to the membership.

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Corporate membership entitles the organisation to 8 copies of *Interfaces* and other mailings; membership rate for any 4 individuals at British HCI Group events, as well as a free one-page entry in the membership handbook.

Journal Subscription to 'Interacting with Computers'

The HCI Group manages a journal, *Interacting with Computers*, published quarterly by Elsevier Science. Members may subscribe to this journal at a reduced rate (£55.00). Vol 19:1 is published in the winter of 2006/2007.

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Queries about membership can also be emailed to: hci@bcs.org.uk

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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