Inter*faces*

No. 46 Spring 2001

chillin'

Quite the coolest approaches to
interface design ever!

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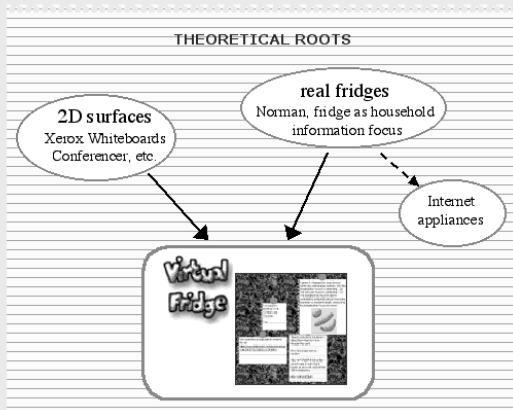
DETAILS MATTER

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Virtual
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UP CLOSE AND PERSONAL

VIRTUAL CRACKERS TOO!

http://www.vfridge.com/crackers

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**FUN PACKED
ISSUE**

"Fun consists of elements of
humour, chuckles, delight, ecstacy,
gags, gaiety, happiness, jests,
jokes, joy, laughter, merriment,
mirth, play, pleasantries, quips
and witticism ..."

contents

Views from the Chair

Calling all usability professionals

I was very pleased to hear of the outstanding success of the London Usability Group meeting in November. This informal group for usability professionals in the London area was set up by Sam Jeffs (see *http://groups.yahoo.com/group/london_usability*). The idea is to provide a regional forum for people to share ideas, contacts and information over a drink or two. Sam tells me she was astounded by the response she received. Despite the rail chaos the meeting attracted over 100 people and they currently have 300 registered. I understand that a second event is planned for late February.

About half the members of the British HCI Group are practitioners and we have been aware of the need for this kind of informal regional arrangement for some while. As a national organisation we have not really known what to do about it, believing that informal meetings have to be organised by enthusiasts on the ground. After all, they know the local pubs best! Sam's success would seem to be a pointer to us all. It demonstrates, if it were any longer necessary, that usability is a hot issue out there in the commercial world. It also demonstrates how easy it is to recruit enthusiasts to informal meetings. The British HCI Group would like to encourage others to do similar things in different locations. Where are you Birmingham, Bristol, Scotland, Manchester and Leeds? If we can be of any help publicising an event for you or with advice about organising it, please contact Gilbert Cockton (Gilbert.Cockton@sunderland.ac.uk). I should also say that we are working on some new facilities for our practitioner members: a "light weight" accreditation scheme and a web-based news facility.

Andrew Monk

Editorial

This issue is mainly concerned with interfaces of the lighter kind – fun.

Andrew Monk's annual workshop has gone from strength to strength. You'll be amazed so many IT people could be so hedonistic about their subject. Maybe not. It's been a while since anything delighted me about using computers (and Cassandra, as you will see, has it worse), but a trip with four-year-old Anna to an edge of town PC superstore led me to two impulsive purchases. For research purposes, you understand. I'm sure bits of this have popped up at a variety of conferences, but I'm still astonished that something this novel, effective and cheap is in the shops already. It's a genuine new way for people to interact with computers and consumers have access to it now. The camera works fine for video-conferencing as well. As Alistair Kilgour also discovers, there are people out there discovering, defining and implementing HCI and usability with no apparent sense (or need) of worthy academic research underpinning. What some have sought for years is now 'obvious' to users.

Jan Gulliksen's report, as chair of Nordichi, gives some clues as to why this might be – the Scandinavian design tradition is a useful starting point, and his conference, with 400 delegates, was a major event. Plainly now is the time for HCI professionals to join together with all those interested in usability, (and London and Scotland already have opportunities for such infiltration) in anticipation of the seminal event that awaits us in Lille this September – IHM-HCI2001. An enormous number of full papers are already under consideration. Now is the opportunity to complete other submissions before 30th April 2001.

Tom McEwan
Editor

Apologies to Lynne Baillie and Liisa Dawson: the following should have appeared at the end of their piece *Mashed Potato and Swedes* in issue 45.

Lynne Baillie: lynne@dcs.napier.ac.uk
Liisa Dawson: liisa@dcs.napier.ac.uk

Liisa is reading for a Ph.D. in system contradictions using an activity theoretic framework.

Lynne's PhD is entitled *Usability and Design in the Home from a HCI Perspective*.

They are both members of the HCI Research Group within the School of Computing at Napier University, Edinburgh

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Cover credits

emotional DJ: Renn Scott
virtual fridge: Alan Dix
'Fun consists of …' Claire Dormann
(see workshop report from Computers and Fun 3, page 4)
snow scene: Tom McEwan

RIGHT TO REPLY

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

NEXT ISSUE

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

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

Deadline for issue 47 is **15 April 2001**. Deadline for issue 48 is **15 July 2001**. Electronic versions are preferred: RTF, plain text or MS Word (5/6), via electronic mail or FTP (mail fiona@hiraeth.com for FTP address) or on Mac, PC disks; but copy will be accepted on paper or fax.

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

Computers and Fun 3

Andrew Monk

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

Despite the best efforts of Railtrack and the weather, an enthusiastic band of fun researchers met in York for the third meeting in this series.

The first paper was by Peter Wright and Tim Marsh from the University of York with John McCarthy from University College Cork. Entitled *From Usability to User Experience*, it explored the notion of the user experience, a key issue in the study of fun. Our hearts went out to Clare Dormann who had travelled all the way from the Technical University of Denmark, in appalling weather, only to get stuck at King's Cross station. You can read her abstract on the use of humour in electronic commerce in the pages that follow. Norman Alm and Dave O'Mara from the University of Dundee told us about their experiments with activities that could be fun for people with dementia. This part of the elderly population have very little short term memory. The games described utilised spared long term memories to provide joint activities for carers and patients.

Janet Read and co-author Stuart MacFarlane have been developing rating scales for assessing the fun had by children. Renn Scott's presentation put all the others to shame, as one would expect from an author from the Royal College of Art. Her imaginative design concept was a wearable device to provide music according to the wearer's mood.

John Mateer, a film producer, analysed what makes for successful television entertainment. Mark Allen brought along a large bag of interactive toys and the remainder of the afternoon was punctuated with the chatter of Furbees and Buzzlightyear. His paper with Blue Ramsay outlined a study he is currently carrying out in a primary school, with these toys. Lydia Plowman and Rosemary Luckin are about to start a similar project in Stirling and Sussex. Rosemary was unavoidably detained at King's Cross but Lydia was able to tell us something about the way they conceptualised the issues.

Each delegate had been asked to bring along an object that symbolised some element of fun. These were used as a final entertainment before we adjourned to the pub. Working in groups the objects were utilised to elicit constructs in a Kelly Grid. There was a surprising degree of agreement. Passive fun versus active fun turned up more than once as a dimension as did various attempts at formulating a construct corresponding to how 'intimate' or 'personal' the fun is.

My thanks: to my co-organisers, Steve Emmott, Marc Hassenzahl and Rachel Murphy; all the people who reviewed abstracts, and the delegates who braved the elements on that December day. I hope to see you all at **Computers and Fun 4** next year.

From Usability to User Experience

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In collaboration with Siegelgale

Since the inception of human–computer interaction as a design discipline, the principal approach to understanding quality of interaction has been through the concept of usability, its definition and measurement. Despite the obvious success of this approach to understanding quality of interaction, new technologies and application areas present challenges to this way of analysing and evaluating human interaction with computers.

User experience has recently become a popular term to capture concerns for a more holistic view of user interaction. There have been a number of recent papers addressing this issue, but this work has not yet led to a coherent framework or set of analytical tools for analysing user experience.

In this talk we wish to ask some fundamental questions about the nature of user experience. Taking Dewey's pragmatist aesthetics as our starting point, we look towards a diverse literature from media, arts and human sciences for inspiration concerning how we might talk about user experience. Our research takes us to Laurel's work on HCI as Theatre as a natural starting point. She attempts to bring a new way of looking at the interaction of people and computers based on drama theory and identifies *engagement* as a form of user experience in which emotional and intellectual components both play a part.

We also visit Boorstin's work on Hollywood movie making. He identifies three ways of experiencing film which open up spaces for talking about visceral, emotional and intellectual experience. We visit Csikszentmihalyi's work on *flow* in sports and games in which he has identified the characteristics of optimal experience in these activities. Finally, we visit Dewey and Jackson's work on *art as experience*. They have identified characteristics which differentiate experience from what they refer to as *an experience*. Despite the diversity of this research, a core set of constructs can be discerned. In this talk we will present our first attempt at distilling those concepts.

First of all we begin by identifying four *foundational elements* for talking about experience. These elements are not divisible independent factors – an experience cannot be without one of its elements. Rather it is constituted by the interplay of them.

The *emotional* element of experience is that which engenders an experience with attributes such as joy, and

frustration. The *sensual* element of experience is concerned with our physiological response to a setting that we variously term thrill, excitement and so on. The *compositional* element constitutes that which is concerned with the structure of action possibilities and likely outcomes as well as explanations of agency and action. Finally all experience has a *spatio-temporal* element. Actions and events unfold in a time and space that is both material and virtual.

Secondly, we introduce a way of talking about the *form* of experience. We conceive of experience not as static but as a dynamic form, and the interplay of elements creates this form. Firstly, we acknowledge that, even if the experience is novel, we do not come 'cold' to it. Rather we always have some anticipation. For the compositional element this anticipation may be some expectation of what will happen. Secondly, when a setting connects with our senses we generate some response, pre-conceptually. For the sensual element this first connection might engender an immediate sense of apprehension or perhaps the thrill of newness. Our third component of experiential form is concerned with giving meaning to an experience. For the compositional and emotional elements this involves understanding the action possibilities, what has happened and what is likely to happen. Our fourth component is concerned with reflecting on the experience as it unfolds.

Do we notice a sense of progress or movement towards completion? Do we have any sense of fulfilment? Our fifth component is concerned with assimilation. We assimilate an experience by relating it to our sense of self and our personal history and our expected future. In assimilating the sensual element of an experience it may have been just another 'white knuckle ride' or it may have taken us to new heights or allowed us to experience altogether different sensations. Finally when we recount our experiences to others or self we imbue the experience with certain values. This recounting of experience shapes our and other's willingness to re-engage in similar experiences.

In our talk, these concepts will be illustrated by everyday examples and 'troublesome' interactions. In collaboration with Siegelgale, our research funders, our next step is to further develop and refine this way of understanding user experience so that it can be applied to an e-commerce case study and to users' experience of brand.

Engaging Consumers: Using Humour in Electronic Commerce

Claire Dormann
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Fun consists of elements of humour, chuckles, delight, ecstasy, gags, gaiety, happiness, jests, jokes, joy, laughter, merriment, mirth, play, pleasantries, quips, and witticism, etc.

Consumers are confronted with millions of commercial web pages and hundreds of sites selling identical products. They often face endless rows of products that are, at the least, not very pleasing, nor tempting or conducive to purchase. Boredom is as big a threat in electronic commerce as in advertising. Humour is proposed as a solution to these problems, as a technique to design fun sites and create a pleasant consumer's experience.

Laughter and humour can improve a person's ability to learn and to recall. Humour opens the pathways to more creative thinking and decision making (Miller, 1996). The most enduring property of humour is its ability to create a pleasant feeling or sensation. In marketing, communicators employ humour to encapsulate their views into memorable phrases or short anecdotes. Humour also serves to build support by identifying communicators with their audiences, enhancing the speaker's credibility and building group cohesiveness.

Examples of humour usage have also been found in electronic commerce, such as Joe Boxer, Kilroy and Hothothot (Dormann, 2000). Joe Boxer (*www.joeboxer.com*) is a promotional site for underwear, based on humorous and provoking messages. Kilroy (*www.kilroytravels.com*), a student travel agency illustrated its slogan 'Go before it's too late, for young people under 26 and students under 33', by depicting a male character going through the infant stage to vigorous and active adulthood (21–27) to a decrepit character (at 33). Humour is effective in arousing attention. Humorous pages are thought to blend pleasure and persuasion by providing an aesthetic reward to the audience, that is, enjoyment of the page itself thus creating an enhanced experience.

There are many ways of creating humorous communication. Examples are found in the field of persuasion with techniques like caricature, pun, or irony or alternatively, in the field of visual comedy. In fact, humour mechanisms have been summarised as incongruity and rhetorical irony (cognitive), arousal-safety (affective) and disparagement (social), (Meyer, 2000).

It is reasonable to expect that not all types of humour will be suitable for electronic commerce. Moreover, from the study of the advertising literature we can also anticipate that individual differences in personality and gender as well as products classes will affect humour effectiveness (Fugate, 1998). Thus, in order to learn to use humour effectively, we need to develop a situated framework that will take into account all issues related to humour such as a taxonomy of humour, functions of humour and factors affecting humorous communication, designing a humorous experience, evaluating humour effectiveness and emotional usability.

It is hoped, in this paper, to answer some of these issues, especially regarding the design of humorous experience, and raise directions for future research. It is also expected that knowledge gathered within the proposed framework could also be applicable to other areas of web communication, including distance learning and information management.

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Having Fun with Dementia

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Dementia, which involves the loss of short-term memory in elderly people, is a very serious problem for the person and for their family and carers. Severe dementia rules out most social activities and interactions, since these depend on a working short-term memory for effective participation.

If the continual experience of people with dementia is one of failure at performing tasks, and of relatives and carers being curt or exasperated with them for reasons which they do not understand, it is not surprising that people with dementia often become restless and agitated. One of the serious dangers people with dementia experience arises from wandering, and the need to wander can be triggered by a general sense of anxiety and an impulse to find somewhere to feel safe and relaxed.

While efforts to find a cure for dementia continue, it is important and useful to be able to ameliorate its effects as far as possible, both for the person concerned, and for their family members, who may eventually be forced to give up caring for them because of the inability to cope with their relative's unrelieved anxious states.

Thus it is worthwhile to ameliorate the person's distress, frustration, fear, and also it would be valuable to give them fun: enjoyable, relaxing, empowering experiences, where that is possible. Finding ways to accomplish this will be difficult, given the lack of a short-term memory, and the incapacity this causes to take part in structured activity. However, it may be possible to make use of developing computer technologies to enable a person with dementia to capitalise on any remaining abilities and to once again be able to successfully have enjoyable experiences.

Reminiscence is a useful starting point for this effort, since it can make use of the person's remaining long-term memory. The usual way of providing a reminiscence experience is to create a scrapbook of photos and other memorabilia, and use audio and video tapes. It is difficult to exploit these materials as successfully as they might be, given their separate formats, and, in the case of tapes, the serial nature of the way the material is held. Providing a multimedia reminiscence experience might give the user a more engaging, immersive, and pleasant experience. A structure that allowed multiple paths through the material would help in keeping the carer's interest in the activity.

There could also be the possibility of bringing in a wide variety of material from the WWW. Such a system could act as a conversation prop, by providing the structure to allow an interaction to proceed, rather than just going around in repetitive circles. We have developed and evaluated a number of prototypes to explore what will make a multimedia reminiscence system work successfully. The evaluation of our prototypes has underlined the need for an extremely simple interface, the grouping of various media items by topic, and has highlighted some limitations of the use of video. The items which thus far have provoked the most fun have been songs, which encourage users to sing along with them.

Another way in which computer technology could help people with dementia to regain the experience of having fun is through games designed to be playable by someone with no short-term memory. Work done in the U.S. has demonstrated that a board game based on reminiscence produced a decrease in agitation and an improvement in mood. The game is non-competitive, but provides an interactional structure that helps people with dementia to enjoy themselves, and enables family members to be able to spend time interestingly and pleasurably with them.

We have developed a prototype computer-based game for people with dementia based on a quiz format. Pictures, sounds, and videos from the past are shown and the player is invited to identify them from a short menu of possibilities. No penalties are given for wrong guesses, and correct guesses are rewarded. In trying this game out in practice, we found that it worked best in fact as a group experience, with the computer screen projected onto the wall. Playing in a group meant that the correct identification came up almost every time, with the group all taking part, and helping each other out. It is difficult to find activities for people with dementia which produce an enjoyable group interaction, so this was a particularly welcome outcome.

The multimedia reminiscence 'scrapbook' and the reminiscence game are actually two aspects of the same idea : providing a structure for interaction, which partially replaces the person's lost ability (short-term memory) while taking advantage of their intact abilities (long-term memory, being able to participate in a familiar activity or a game). The purposes served by such technical assistance will vary, but having fun, and thereby interacting enjoyably with others again, is certainly an important goal for such assistive technology.

Measuring Fun – Usability Testing for Children

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This paper considers the ways in which fun can be defined, measured and justified as a reliable usability measure for the evaluation of interfaces for young children. Children differ significantly from adults in their cognitive and perceptual skills, suggesting that evaluation techniques which work for adults may not work as well for children. Microsoft researchers (Hanna et al., 1997) have published guidelines for usability testing with children, but these are quite general and fail to address specific issues about the metrics which can be used.

Satisfaction and fun

This paper is concerned with that branch of usability testing known as 'satisfaction measuring'. Adults have become used to the idea of 'satisfaction'; it is a concept that they can relate to, suggesting that things are okay. This 'okayness' can be measured by observations and questionnaires. It is not surprising that 'Very satisfied' is used on Likert scales to refer to the best that one can get. As adults, we use the word fun cautiously, almost apologetically, believing it to be something we ought not to have. Watching children in a school classroom, it soon becomes evident that 'satisfaction' is not a good enough word for what they are experiencing. Fun is something that children know about; they are experts. They experience it; therefore they can talk about it, describing it as excitement, play, laughter, and feeling good.

Fun attributes

We wanted to measure the responses of children aged between 6 and 10 to a range of novel interfaces for text entry. It was decided to focus on three key 'Fun attributes'; these were defined as expectations, engagement and endurability.

To measure expectations a repertory grid test (Fransella and Bannister, 1977) was used before and after the activity. This used pictures, and enabled us to measure the effect the activity had on the child's prior and subsequent perception of it. This also enabled us to establish how much desire there was on the part of the children to return to this task. During the task, observations of facial expressions, utterances and body language were used to establish a measure for engagement, and after the task, the children themselves were asked to rate the interface using a Likert type scale as developed by Risden et al. (1997), using a smiley face vertical funmeter. A week after the task, children were asked to recall the activity. It was hoped that this would give some indication of how memorable the activity had been. This gave an endurability score which was a measure of the impact of the experience. It was noted that children were likely to remember both a very good and a very bad experience, and this was taken into account.

Having established this test mechanism, we are now investigating how the three fun attributes correlate with the child's own measure of fun as registered on the funmeter.

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The Automated Emotional DJ

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Downloading music through the internet has become incredibly popular. Technology has provided people with the ability to obtain and listen to music they previously couldn't acquire. However, this technology hasn't really improved the experience of listening to music, and in some ways is inferior to the way we have listened to music in the past. We could even say that listening to music isn't as much fun as it used to be.

There are various online applications that exist today to download music; however, none give the illusion of being 'personalized'. Radio stations today are limited to being one genre of music; however, no person enjoys the same music all of the time. The goal of this conceptual project, entitled the 'automated emotional DJs' is to provide people with music according to their mood.

Issues/problems/opportunities confronted

With the automated emotional DJ project I wanted to explore if it was possible to create a radio system that could initiate station and music selections purely by voice and sound. It was key that the interaction lead to the user believing that he was choosing a station according to his or her mood. This seems to be possible. However for advanced users, and for a richer user experience, the development of a product in which the system could live proved to be an alternate and I believe overall a better approach for all users.

The biggest issue was how to define the choice of moods. A system can monitor Anger, Fear, Sadness, Disgust, Happiness, and Surprise. However, the stations were not best defined by these descriptions. People considered emotions differently than moods, and when asked why they listen to music, for the most part they would say they choose a station according to how they wanted to feel. All said that many times they listen to music to change their mood. For the most part they agreed that there would be up to 6 different types of moods they might want to feel, and that one additional station, 'Background', would be ideal, as many times they just wanted music to listen to that wouldn't interfere with what they were doing.

People say they identify with stations that they like based on a DJ personality. Due to this each mood station has been assigned a DJ. The DJ names have been determined by the most popular keywords that people used to describe the types of moods they are in when they want to listen to music. The default number of stations is that of 6 moods, with one additional 'Background'. This created an opportunity to further develop the mental model of the radio. The DJ gives the system a personality that the user can identify with, and serves as the agent – a modular system that acts on behalf of the user. The DJ is what provides the system with information about the user, answers questions about the user, and negotiates on behalf of the user.

What I did and why

Seven scenarios were designed around 2 focuses

1. Initial Set-up – Introduction to the System, Create My Stations, Choose a DJ

2. How the System Learns – Help Mode, Training the System, Training the User, the Personified Interface

The second scenario focuses on the needs and expectations of an experienced user. As well, it shows how the system can approximate the mood and suggest music accordingly. This time, in addition to voice and sound, images of the user show the experience of using the system. The user is listening to the system's suggested station while wearing the 'emotional DJ coat' through earphones inserted on the ends of the hood strings. The wrist, elbow, shoulder and neck area have sensors encased in the fabric which monitor the body data, changing the coat's underlying colour according to the user's mood. The 'emotional DJ radio' attached to the coat's zipper is where the microphone is that receives the user's voice commands.

As users become more experienced, they will want to be able to cut through the interface to complete common tasks more quickly. The radio device itself can be used for the most common commands, as also for quick access to mood stations, and for re-setting the system in the case of the mood being read incorrectly (e.g. the user could be running across the street to catch a bus, the system may think the user is stressed and suggest music accordingly, the re-set button allows the user to override the system, setting it back to the desired mood).

As the overall goal was to provide music according the mood, the expert user needed to be defined quite well in order to make sure the user model was designed appropriately. To help with the definition of the user model, I designed a questionnaire that each user would fill out before tuning in for the first time. This would allow the system to set up the default stations most appropriate for each individual. As well, I designed a quick access user guide, which represents itself currently as the coat's tag.

Access hours to the system are 24 hours a day, 7 days a week. Due to this, within the second scenario I wanted to show how the system has the ability to analyze tasks. The

system can locate, sort, and store song information, and make any routine decisions. For example, if the user is always depressed, and constantly asks to be 'happier', the system will play messages reminding the user of this desire. In some ways, the user may even begin to rely on the radio as a self-help system and therefore be more motivated to use it.

Conclusion and iteration

Review and discussions of the first two scenarios led to the following conclusions:

• It appears that moods would be considered weak combinations of basic emotions

• It is difficult to sense fine gradations since the signals would probably be weaker than for strong emotions

• It is more productive to find ways to help the user to perceive body factors (like heartbeat) having a relation to mood, and to easily express commands or reactions

• The DJ coat and body sensors are more convincing than a purely voice activated interface.

Ladies and Gentleman, Boys and Girls, Children of All Ages: Multiple Layers of Fun in Entertainment

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An essential tenet in designing any type of entertainment application is to know the target audience – their needs, their wants and their expectations. Successful feature film, television and theatre producers have an accurate understanding of how the audience will experience their work. As technologies evolve and computers play an ever-growing role in all types of entertainment, programming and application design specialists need to gain a similar level of audience knowledge.

Traditionally this targeting has been achieved by framing an experience around established narrative conventions, taking advantage of the audience's understanding and expectations for a given genre (e.g., first person conventions in shoot-em-up computer games, third person conventions in passive television programmes, etc.). In each case, the notion of the *protagonist* is central, be it a game show contestant in a television show, a hero in a feature film or a user in a computer game. Concepts such as *stakes* (the risk involved with a protagonist's actions), *rooting factor* (the ability for the audience to cheer for or against the protagonist), *empathy* (the ability for the audience to identify with the protagonist) and *landmarking* (the means by which an audience can keep track of the physical and/or emotional path of the protagonist) are all vital in the success of both fiction and non-fiction programmes.

Likewise, they are equally important for designers to consider in the creation of next-generation computer-based entertainment applications. I explore these issues as they pertain to both conventional and new media programmes, as well as the ideas of *cueing*, *real-world correspondence* and *presence*, and the tradeoffs between *story and experience*, *story and technology*, and *story and game play*. I will also explore the concept of a *universal demographic* in creating entertainment applications and the critical factors in tailoring audience experiences.

Beyond interactive versions of conventional programmes, new media technologies are also enabling producers to explore uncharted territory by blurring the boundaries between traditional narrative constructs, and develop completely new types of experiences. I examine new approaches to television programme design involving interactive technologies where audience genre knowledge and expectations are being treated in innovative ways in attempts to engage users on multiple levels.

Several examples from cutting-edge projects, including my work on a groundbreaking virtual reality based broadcast television series, and recent shows such as Fox Family's *Paranoia*, Channel 5's *Jailbreak*, Channel 4's *Wanted* and Endemol's *Big Brother* serve as indicators of how traditional experiences are being modified, combined and reformed to create new types of entertainment involving computers. Whilst these can seem fresh and exciting to audiences, the methodology behind many of them is often a clever reworking of age-old presentation ideas. As interactive technologies mature, show formats such as these will grow increasingly more complex, placing a heavier reliance on user input and control. Commercial pressures and the increasing cost of development also have an impact on the manner in which new applications are being developed.

I conclude by discussing emerging trends in mass-market product design and potential implications for both traditional and computer-based media. I then pose questions concerning the evolution of media-based experiences, how producers are changing audience expectations and knowledge of genre and other areas that would benefit from further exploration.

An Initial Investigation of Tangible Interfaces in Smart Toys

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This paper reviews current research in the field of haptics in smart toys, and a preliminary study of children at play using existing toys. The term 'haptic' is defined as 'relating to the sense of touch', and is finding increased use in the field of Tangible User Interfaces (TUI).

One of the most important things a child can do is play. Play is an essential joy of childhood and is the way children learn about themselves, their environment and people around them. Play is defined as a pleasurable, voluntary activity that involves much repetition and variation as the child explores possible activities, actions and results [1]. Toys have been shown to aid the development of mental problem solving [2], enabling a child to move to higher levels of thought as he/she plays in a stimulating environment.

Smart toys can be defined as toys that leverage computing power. This includes toys that connect to a PC and toys that contain sophisticated sensors and electronic circuitry to enhance play [1]. Recent smart toys include Furby, Shelby, Poo-Chi, Interactive Yoda, Interactive Barney and Me Barbie. In smart toys most of the design and development has gone into the visuals, audio and electronics; there is little evidence of haptic design. The sense of touch and its ability to produce pleasure and fun appears to have been overlooked.

The sense of touch plays a major role in the development of cognition and social interactions [3]. Touch can be construed as the most reliable of the sensory modalities. When senses conflict, touch is usually the ultimate arbiter [4]. Research [5] has shown that the sense of touch, with stimulus training, can be made more acute due to the neural plasticity of the somatosensory cortex [6, 7]. Haptics have been

researched for accuracy, for example, of tactile stimulation identification [8] and as a means of data input/output, but little research has focussed on pleasure and fun.

The step from kindergarten to early-elementary classrooms coincides with a tendency to move away from manipulative materials to advanced and abstract concepts. The MIT Media Lab [9] have extended the successful concept of manipulative learning by using *digital-manipulatives*, computer based systems. This has enabled children to continue pleasurable learning with the kindergarten approach through school and indeed their entire lives, and helped young children learn concepts that were previously considered too advanced [10].

Our preliminary study commenced in September 2000 and is primarily video based. A group of 20 children aged five to nine years old have been observed during free play at an after school club. The experimental group were given toys with varying degrees of electronic interactivity. Seven hours of video evidence was collated followed by a structured but informal question session involving 14 of the children and their teacher. During this study three observations were made: the children tended not to interact haptically with the toys, but rather remotely; secondly, a disparity was found between the child's favourite toy and the one they found most haptically simulating; and thirdly, it was observed that the children do not discover the full functionality of the toys.

The expected effect encountered during the study was the inevitable qualitative nature of the experiment, as a large number of variables are present; this is likely not to produce statistically significant results. Conventional reduction of the variables would control the task to such an extent that the child isn't playing any more, and as a result all external validity of the study has been lost. For this reason our initial work in this area will be qualitative rather than quantitative.

This has led us to believe that it is necessary to define the operational variables for playability and pleasure-based toy design. As a first step we are considering creating a taxonomy of children's exploratory procedures as they play with various interactive toys in various games. The protocol would cover the issues of improved motor skills; counting and cognitive skills; reasoning about physical objects; social skills; self image; and, of course, fun!

The ultimate objective of this research is to improve the cognitive value of smart objects. This in turn may promote creative play and the continued use of manipulative learning by utilising the primary skill of direct locomotion/manipulation, touch and natural feedback.

Special thanks to Rosemary Payne and the staff at Lorraine Nursery School, Camberley, for their time and help with conducting this study.

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Exploring Interactivity with Smart Toys

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The toys that are the focus of our study appear like traditional soft toys but are 'smart' in the sense that they can respond to a child squeezing their hand or wristwatch by asking questions, playing games or demonstrating an activity. Typically, they have a vocabulary of about 4000 words. But what distinguishes them from toys such as Furbies is that the toy can be used in conjunction with compatible software on a computer that has a special transmitter. In this mode the toy's vocabulary increases and it can guide the child, commenting on their interaction with the software and offering support.

These toys provide a new form of interface: one which is not televisual or text-based, does not use a desktop metaphor and does not rely on a keyboard or mouse input. Used in conjunction with a computer with a traditional interface there is a three-way interaction between the child(ren), toy and computer that has not yet been explored in any detail and prompts fundamental questions such as 'what is interactivity?' and 'what is an interface?' We are particularly interested in the ways in which the child's interactions are mediated by a toy that can take the place of a teacher, parent or friend. This has enormous potential for the future development of educational software, as well as the 'edutainment' market where the toys are currently positioned, but there are also ethical dimensions to be taken into account. Do children attribute human intelligence and emotions to the toys because they appear able to talk and act? What effect does that have on their behaviour? How do they perceive the differences between these toys and other dolls and soft toys they play with?

We will consider some of these questions in our forthcoming project (funded by the EPSRC/ESRC PACCIT (People at the Centre of Communication and Information Technology) Programme) and we will also discuss a small-scale pilot study that informed its design. This pilot study was conducted as part of a software design and evaluation course run during Spring 1999. Groups of Masters students were set the challenge of exploring the possibilities offered by novel interfaces such as those provided by smart toys. One group developed a small software application designed to encourage pairs of young language learners to engage in conversation. The children were asked to help an on-line screen character called Wodjit put various objects in his bag as part of a game that involved identification, recognition and guessing activities. They had to complete drag and drop activities and were encouraged by a stuffed toy called 'Owly'.

This was nothing more sophisticated than a soft toy with a microphone inside it tethered to a computer.

An initial empirical study of teachers' and children's reactions was encouraging. The children expressed considerable delight at the presence of a toy that 'spoke' to them while they used the computer and were certainly motivated to talk to each other about and with Owly. In addition to the motivation and enjoyment revealed in children's interactions, something of an unforeseen success was seen in children's motivation to keep a game score for Owly as well as for themselves. The fact that the toy was connected to the computer by a wire did not stop children from picking him up and giving him a cuddle.

There were also unexpected issues raised by our method of implementation. The subject matter of the software required a focus on aural interaction between the children as they discussed which object to place in Wodjit's bag. Owly had no gesturing capabilities and whilst this had been seen as a disadvantage of a low-tech prototype the conclusion of teachers and researchers was that gesturing could well have been a distraction to the desired mode of interaction. This finding suggests that there may be advantages to developing smart toys that have less sophisticated functionality than that displayed by Actimates such as Arthur. Whilst this was a small exploratory study with a low-tech prototype the results were encouraging with respect to children's acceptance and enjoyment of Owly.

There has been other interesting work in the area of children and electronic toys but it has mainly focused on design methodologies and implementation. Much of the existing literature on toys that can communicate with a computer has emanated from the Microsoft research laboratories but Microsoft are currently the main producers of these toys. We intend to construct an explanatory frame-work of new forms of interaction and mediation engendered by smart toys in their social, cultural, emotional and ethical contexts and to analyse how to create positive emotional and cognitive engagement.

Designing a Virtual Fridge

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Is your fridge a pristine expanse of white enamel, or is it covered in multi-coloured magnets, photographs, postcards and notes? As Norman discovered several years ago, the fridge phenomenon is global, and anecdotal evidence suggests it is common across cultural and social groups.

Appliance manufacturers are aware of the power of the fridge, incorporating wireless networking and splash proof LCD screens into fridge doors. Soon it will be possible to email, surf the net and control the microwave from the fridge – yes you won't have to walk across the kitchen!
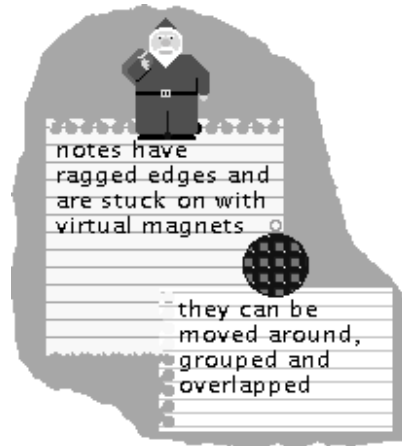
Over the last 18 months there has been an explosion of web-based communication services aimed at families and informal groups (e.g. Yahoo clubs, Adobe eCircles). However, the majority of these simply take 1960s bulletin board technology (originally designed by technologists for technologists), add a few graphics and label themselves a family area.

Virtual Fridge (vfridge) is a commercial web service designed for informal communication and sharing amongst families, school children, and groups of friends. In contrast to the externally structured, text-oriented, hierarchical bulletin-board, vfridge instead takes the metaphor of the fridge giving users a shared 2D surface on the Internet where they can stick notes, photos, etc., with 'magnets'. This builds on experience over many years (e.g. Xerox Whiteboards, York Conferencer) that, given 2D shared surfaces, users create their own structures using the intrinsic affordances of space (overlapping, grouping, alignment).

notes have ragged edges and are stuck on with virtual magnets

they can be moved around, grouped and overlapped

Of course the crucial thing about vfridge is that it is fun. Little Tommy in Taunton can decorate his vfridge, fuzzy-felt style, and then Granny in Glasgow can see what he's done. And not just little Tommy, grown computer scientists given a palette of Christmas magnets have been known to densely decorate a fridge with mini-Santas!

The fridge metaphor sets high standards: how do you achieve the fluidity of physical human–fridge interaction, when all you have is a web interface!! We haven't solved all the problems yet, but where we have succeeded, the mastery is in the detail. One example is the mechanism used to generate torn off notes in a variety of styles. Another is the user authentication mechanism.

Most distributed groupware uses the model of individual users interacting with individual computers (remote meeting room systems are an exception). However, if you watch a family using standard 'family' web software something different happens: two or three people hang over the screen at the same time. When Ann claims the keyboard from Jane, one of two things happens: you may see messages of the form 'This says it's from Jane, but it's really Ann.', or, alternatively, Ann logs out, logs in again as herself, navigates to the appropriate message board and then enters her message … then when Jane wants to say something … For chat systems
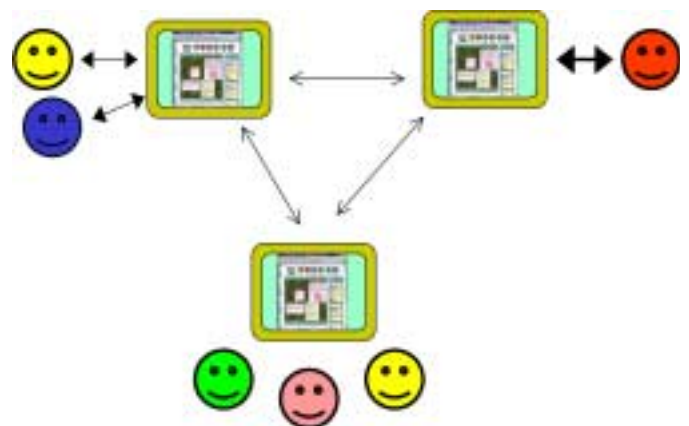
families work several to a computer
vfridge allows multiple simultaneous logins
at the same machine

the latter is particularly disconcerting for the remote participants as all they see is a system message saying 'Jane has left.'!!

vfridge allows multiple simultaneous users with fast swapping of the 'current user'. It recognises that we are moving from a one-man-and-his-computer world to one where multiple people (of all genders and ages) interact with multiple devices in different locations.

vfridge is part of a broader perspective that the Internet can be used as a medium for sharing. This is in sharp contrast to the publish and consume model of traditional web pages. This demands the creation of private but commonly owned spaces for open and closed groups. vfridge is one such space, an early homestead in the claiming of cyberspace for the masses.

Virtual Fridge can be found at: *http://www.vfridge.com/*

It is currently in final development, but if you would like to try out pre-release versions please contact Alan <alan@vfridge.com>.

Fun, Work and Affective Computing: can Psychophysiology Measure Fun?

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This poster explores issues in the relationship between human psychophysiology, computers and fun.

It has periodically been suggested that human psychophysiology can help in evaluating software usability [1, 2]. Phenomena such as skin conductivity, heart activity, blood pressure, respiration rate, eye movements and electrical activities in muscle and brain have long been known to vary in response to mental events. These phenomena are both involuntary and surprisingly sensitive, and could therefore be useful in recognising occurrences of mental effort, frustration or fun experienced during human–computer interaction.

There is, however, a problem. Whilst there is no doubt that psychophysiological responses to mental events do take place, or that they can be observed, it is not clear to what extent they can distinguish between different kinds of mental events. On the one hand the literature is rich in studies in which psychophysiology has been used as a measure of mental workload [3], thereby indicating when users are having to work hard, say, to overcome usability problems. On the other hand, other researchers have used psychophysiology as a measure of emotional response [4], thereby indicating when users are experiencing, say, stress or frustration brought about by usability problems. This second approach might also help indicate positive emotions such as fun. Obviously we do not need complex psychophysiological measurements to identify strong reactions of frustration or fun, but they might help us detect subtle events leading up to strong emotional reactions.

Often mental workload and emotion are simply two different sides of the same coin, reflecting emotions that occur along with the expenditure of effort. But there are circumstances in which emotion and mental effort are not concurrent, e.g. as illustrated by the classic experiment in which the same film is shown with different narratives of different emotional emphasis [5]. This gives us difficulties if we wish to use human psychophysiology as a measure of fun. How would we know whether we were measuring positive emotion such as fun, negative emotion such as frustration, or mental workload?

Taken together, the concepts of mental workload and emotion may provide a useful perspective on the fun element in IT products. Different genres would appear to require users to engage in mental workload and emotion to different degrees in different combinations. Users of office software would seem to be required to achieve high workload with low levels of emotion. Some games might demand high workload and generate high levels of emotion. Promotional web sites might involve low workload but aim to evoke strong positive feelings about particular products. Learning Technology seems to need to encourage high workload with medium levels of emotion as a motivator. These things will all vary according to individual differences and circumstances. The fun element of some games may be attributable directly to the effort involved. Many hobbyist web sites evidence considerable effort, presumably for fun. Users of office software might experience pleasure on completing a difficult task. One person's fun is another's hard work.

If psychophysiology is to be of help in measuring fun, then it would be helpful to be able to distinguish between emotion and mental workload. Recent projects suggest this is possible. Studies of electrical activity in facial muscles have found that some muscles respond to workload but not to emotional stimuli, whilst in others the converse seems true [6]. The MIT Affective Computing Project claims an 88% success rate in discriminating between 3 different emotions through the combined analysis of 5 different physiological readings [7].

Whilst the above ideas have been applied in research into software usability, mental workload and performance in safety critical situations, they rarely seem to have been related to the concept of enjoyment in IT products. How this might proceed is as yet unclear. We need to develop paradigms for research in this area.

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Vet's Diary

Alistair Kilgour

This is the opportunity for those long in the tooth to gnaw through novelty – and find out if the substance underneath is venerable wisdom come back to haunt them. This issue, Alistair Kilgour – still apparently the only distinguishedly-grey usability expert able to string together some cheerful copy, gets on top of his discipline.

Transcendental Meditations

Truly, if HCI did not exist, it would have to be invented. The most surprising news so far this year is that HCI has apparently been invented, in a most unlikely place, by a group who apparently did not know it existed. The story was buried in the 'Solutions' supplement of the Guardian on 1st February – which I nearly discarded without opening. You thought Wap was dead? Well it's been brought back 'from the edge of the abyss', so the article reports, by a small clan of Bristol boiler-fitters, and Caradon Ideal Boilers, the company who make the boilers they (mostly) fit. Effectively they built a specialised intranet adapted to the needs of the fitters, and taking full account of the limitations of the mobile phone interface.

The most interesting aspect from an HCI point of view is that the development process was entirely led by the users. The team did include two developers – one described as an 'interface specialist' and the other a WML encoder – but the other twenty were boiler-fitters. The Wap site – *www.idealtoolbox.wap* – offers fitters technical data and a fault diagnosis assistant. This is being hailed as the first successful business-to-business Wap application. The fact that neither the users nor the developers knew anything about Wap at the start of the project seems almost to have been an advantage – they were not seduced by the widespread belief (and claim) that Wap represents 'the internet on your phone'.

One way of viewing this development is as an example of the emergence, in response to very specific requirements of a particular group of users, of an 'information appliance', in Don Norman's terminology. The mobile phone is of course a general purpose tool, but here it has been specialised for a specific purpose, and because the devices themselves are now so cheap, it is feasible for these users to dedicate their Wap phones to the single purpose of supporting their work as fitters.

Maybe the soi-disant 'interface specialist' was indeed an HCI expert and the user-centred design approach derived from, and was driven by, this person – if so, it would be great to hear more from them about this heart-warming success story, both for user-centred design and for Wap technology. I prefer to imagine though that the team were engaged in a 'discovery learning' process, and were driven by empirical observation rather than by prior knowledge of a particular design methodology.

By chance I recently heard the voice (or at least read the words) of another prophet crying in the wilderness, with a similar message – that Wap has finally come of age. Brian Baglow of Digital Bridges (*www.digitalbridges.com*) was quoted in that quirky but indispensable rag 'Scottish Computer Headline' (*www.headline.co.uk*) as saying, 'Yes, WAP is slow, but some people have been trying to shoehorn too much into limited technology. If you design within its constraints you can still create something worthwhile'. Whether it's worthwhile or not is for you to judge, but what Digital Bridges are focusing on are games for mobile phones – including of course multi-person games. They have already landed lucrative deals with Vodafone and One2One, and other providers in France, Italy and Portugal.

Apropos of which, it happens that the needs of the games industry will be one of the themes addressed in the forthcoming HCI Educators' Workshop (10th and 11th April at Heriot-Watt, *http://www.ics.ltsn.ac.uk/events/HCI2001/*), and one of the speakers will be Chris Wright, who works for Digital Bridges. Chris completed the MSc in HCI at Heriot-Watt in 1996, and worked on games development with Inner Workings in Glasgow before moving to Digital Bridges, so is well placed to reflect on how the teaching of HCI could maximise its relevance to the business of effective computer games development.

Both Bill Gates and Al Gore have one – how long before you join the exalted band of early adopters of the BlackBerry, apparently so addictive that it has been nicknamed the 'crackberry'? Described as a pager, it is really more like a mobile phone with a proper (though very small) keyboard. Again it's an information device, with the principal purpose of sending and receiving email (though it does have diary and address book functions as well). It's sweeping the US, but in Europe will face strong competition from mobile-phone based devices with keyboards, which, though pioneered by Nokia, are now becoming part of just about every phone-maker's range. Given the huge popularity of text messaging on mobile phones, this is surely the way forward – full integration of phones and email.

If you mail me at alistairk@vizzavi.co.uk I will be notified of the arrival of your message (sender and header) on my mobile. If you mail me at alistairk@genie.co.uk the message itself (or the first 160 characters, anyway) should get sent to my phone, but I haven't yet got that to work. The Genie Web site offers also the ability to send an 'email' (i.e. a text message) to any UK-registered mobile (capable of receiving SMS – and almost all are) free of charge. That's a real benefit, but to close the loop you want the ability to send a text message from your phone to an email address, not to a phone number. No doubt that's already possible – although the report on the boiler-fitters Wap system described the ability of their system to have an email sent from the Wap site as a technical breakthrough.

So who wants to type text messages on a phone keypad? Well, having tried it for a few days, I would say I do. It's surprising how easy it is (and addictive), though the rationale behind the allocation of letters to numeric keys is deeply mysterious. I get the impression that the current mapping on European mobile phones is different from the US fixed phone convention, and also different from the mapping on the old UK mechanical dials. In particular it seems perverse that '7' and '9' carry four letters while the other digits carry only three – and '0' and '1' are used for other things.

My new Nokia phone has a fascinating predictive input system, which seems to work very well once you get used to it. I am trying to resist the temptation to enquire more deeply into the algorithms required for this — how many English words match the string 628 for example? (Well that's actually quite an easy example — and I guess that as the number of digits increases, the number of possible words decreases, even though the number of letter combinations will rise sharply.)

The point about this is that maybe there is a real case here for an alternative to the QWERTY keyboard — with fewer keys, but each key overloaded. Rather than regarding this as a clumsy alternative imposed by the restrictions of current mobile phone keypads, a virtue could perhaps be made out of this necessity. I know Maltron, for example, have designed keyboards for one-handed input, but these don't overload the keys. I guess the real downside is that, if a digit sequence can represent more than

one word, the user has to look at the screen to choose which of the offered alternatives is the one intended. However with a natural language processor added, it might be possible for the system to choose, because, given a sequence of word positions, each of which could be filled by a small number of possible words, there might in most cases be only one of these which would make sense. Of course, if speech input is really going to take over the world, research on alternative input using key presses would seem pointless.

To end with, I will refer you to another wonderful story (which many you will already have heard). Out of the East comes the Cybiko — a much more exciting development, and one much more likely to lead to serious addictive behaviour, than the BlackBerry. Aficionados of amateur radio will in particular relish the irony of this wireless device with a limited range, where the amount of fun you have depends on how many other devices of the same kind and within

your transmission range (up to 100m indoors, 200m outdoors). See *www.cybiko.com* for the full story, or Guardian Online (*www.guardianunlimited.co.uk/online*)

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I hope next time to get back to object-oriented design and HCI – but that's an issue that's going to be with us for a while. By the way this soapbox is available rent-free to anyone with an axe to grind, so long as they can claim to be a veteran – and in my book that includes anyone who learned HCI last century.

The 1st Nordic conference on human computer interaction
held at the Royal Institute of Technology in Stockholm October 21–25, 2000

Now the Nordic countries have joined together to present a major event for HCI researchers and practitioners. NordiCHI 2000, the first Nordic conference on Human Computer Interaction, was held in Stockholm in October 2000. The conference attracted over 400 participants, which makes it one of the bigger HCI events in the world.

NordiCHI received over 100 submissions in total and the acceptance rate of full papers was below 40%. The conference program contained workshops, tutorials, full papers and short papers, posters and demonstrations and a doctoral consortium.

The Nordic or Scandinavian design tradition is well established internationally, through, for example, the UTOPIA project. Apart from the Nordic focus on *design as a process* in which the involvement of the active users is very important, the Nordic industrial design tradition is internationally renowned.

Therefore, the conference slogan 'Design versus design' meant to encourage and provoke a wider discussion of such a topic. The presentations during the conference were focused on a broad range of HCI issues that the Nordic countries are well known for, such as user centred design, ethnographic approaches, applications in work settings, mobile devices, etc.

The first keynote address was a reunion of the UTOPIA project, 20 years after the project closed, and described the state of the art within co-operative design and what influence this approach has had on the rest of the world. Yngve Sundblad, Susanne Bødker, Pelle Ehn and Dan Sjögren gave a mix of nostalgia and more recent examples of co-operative design.

The second keynote speaker was Peter Naur, a well-known pioneer in computer science, who gave us a provoking discussion on CHI and human thinking. The third keynote, given by Knut Nordbye and Clas Thorén, was on accessibility and especially on its achievement through standards and procurement.

Jonathan Grudin closed the conference by giving a view on Nordic HCI from the outside, as an American who has been a guest researcher in several of the Nordic countries. Grudin underlined the Nordic influence, but also gave some critique to the luxury problems that mainly are studied, with the fast internet access and the widespread computer availability that the Nordic countries have.

The conference proceedings were produced as a conference CD – which we gather to be the future medium for all conferences in this area. As expected, electronic proceedings gathered several opinions of a varying nature. The possibility of including interactive material and links in the proceedings was appreciated and gives totally new ways of displaying your results at minimal cost. But people missed having a physical book with the papers to glance in during the conference. Many also had not brought laptops to read the proceedings.

The conference proceedings from NordiCHI 2000 (in English) can be ordered from *http://www.stimdi.se/* . The seven best papers from NordiCHI 2000 have been further elaborated and will appear as a special issue of International Journal of Human Computer Interaction some time in 2002.

But, above all, NordiCHI was a social success. The conference dinner at the Modern Museum (that, typically, had an exhibition on Utopia and Reality), the afternoon visits to Icon Medialab, CID (Centre for user oriented IT-design) and the Interactive Institute were important opportunities to mingle and socialise. The event, as such, brought together a great number of colleagues and competitors in HCI.

NordiCHI was an initiative of STIMDI – the Swedish Interdisciplinary Society on Human Computer Interaction – an independent Swedish organisation that has existed for approximately 15 years. After initial discussions on NordiCHI, local SIG chapters of ACM were formed in Denmark and Finland and extensive co-operation with other HCI organisations was initiated. During the conference a NordiCHI organisation was formed with the main purpose of making sure that the NordiCHI conference lives on. The next NordiCHI conference will take place in Aarhus in 2002, watch *http://www.nordichi.org/* for more details.

Jan Gulliksen, Chairman of STIMDI and general chair of NordiCHI 2000, Associate Professor of Human Computer Interaction at Uppsala University and Royal Institute of Technology.

Forthcoming Events

The LTSN Centre for Information and Computer Science 4th annual workshop on "Effective Training and Education in HCI"
9-10 April 2001, Heriot-Watt University, Edinburgh.
http://www.cee.hw.ac.uk/events/HCI2001/

Design, Specification and Verification of Interactive Systems, 2001
13–15 June 2001, University of Glasgow
Contact: Chris Johnson
johnson@dcs.gla.ac.uk

People in Control
19–21 June, 2001, UMIST, Manchester
Contact: *pic2001@iee.org*

IHM-HCI2001 (incorporating both HCI2001 and IHM2001)
10–14 September 2001, Lille, France

For links and more information look at the Group's 'Events' web page: http://www.bcs-hci.org.uk/hci-calendar.html.

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

Lay your sleeping head, my love, Human on my faithless arm…

Cassandra Hall

My multimedia Cray was sick recently. Suddenly, whilst I was downloading the zillion mails that people seem to have to send me, the system went ping, the screen went blue and jaggedy and those ominous totally obscure words popped up. You know the ones that strike terror into the hearts of anyone who knows any vague thing about computer systems and next to 'I love you' are the ones you dread to hear the most because you know what follows will be inconvenient and short-lived:

**Fatal exception
0028:CE8F6E8C in VXD**

followed by a load of other gumph which I shan't bore you with and enough numbers to attract any unattached mathematician within a forty mile radius.

Anyway, the machine went quiet; the screen went black. There was that absolute and tottering silence that follows a serious ping and during which lesser mortals, with less careful upbringings, would swear and during which I use the opportunity to recite 'To his coy mistress' (the bit about world and time always being apt for me). Then it suddenly, kindly, rebooted and we were ok for a bit. Except that it occasionally reported 'system busy' messages and seemed to be suffering from the sort of lethargy and tendency to repeat that I have on Monday mornings when there's a 9 am lecture and I stayed out too late Sunday night.

Well, I'm not going to say what sort of PC I have because the thought of my name being used to sell PCs fills me with revulsion and horror. The VC, bless him, dislikes women enough as it is without seeing my body draped over a keyboard on TV. And I agree, that kind of trick is best left to the very newest of New Universities. But I will say that it's a nice piece of hardware and I'm impressed with both the box and the company that provided it.

In fact, I have a service agreement on the system so after a couple of days of screen busy warnings I decided to contact them, having reinstalled Windows 98 first because I was bored

and I like a laugh. The e-mail address replied almost immediately with a 'we shall get back to you within 12 hours' which reminded me of the nice people I meet who always promise to phone but don't and the ones that are a darned nuisance and do frequently and at odd hours. But in fact they were back within 30 minutes with very clear instructions about what I should do.

I spent the next few days switching off bits of the system, uninstalling virus checkers and eventually stopping just about any process that was running in the background from running. I also reinstalled Internet Explorer (because there was nothing good on at the theatre and I like watching those blue progress bars), and Outlook Express, oh and DirectX for the umpteenth time. DirectX has been reinstalled so many times on my machine that it gets out of the box itself and throws itself at the tower at the slightest hiccup. I also reinstalled Windows 98 yet again because foolishly I allowed the virus checker to repair itself which caused the machine to ping again of course, necessitating the reinstallation of Windows 98 setup yet again… So I uninstalled the virus checker – that'll teach it – paused Task Manager and ran a surface scan of the hard disk. Oh what fun! The Significant Other was abroad.

Reinstalling Outlook Express failed the first time and caused the system to ping yet again. But both I and the machine were used to that by now. At the second attempt I managed to reinstall it but caused it to set a load of odd defaults. It also took a dislike to lumping all my very many ISPs together and singled out one it would dial whatever, whilst at the same time assiduously ignoring any instructions to check those other accounts.

After a few minutes I figured out that one, and Outlook Express and I resumed our uneasy love–hate relationship (I hate it, it loves doing odd things). But the system was stable (well as stable as it ever was). Outlook Express, bless it, took to placing rather odd date-stamps on things that didn't reflect the state of my system clock and sometimes meant that, according to the

sent files, I'd sent a reply before I'd received the original mail. Now, I know I'm renowned for uncanny foresight, but not even I can do that (I think). The latest and greatest got ratty because I kept telling him he was up too late, when indeed he wasn't. But human-to-human interaction is relatively easy. A few sweet nothings soon sorted his hurt pride and harmonious relationships were once more restored, without recourse to a surface scan or worse still updating him to a new version which would be tiresome just now.

But back to the computer. The system was stable at last but alas I couldn't reproduce the original problem, try as I might. Nor could I figure out which of the many things I'd done had actually cured the problem or what the problem was caused by in the first place. My money is on the rather clunky game I tried running in the summer and which liked to splatter DirectX to the four winds when it had a spare moment.

Now, the same weekend my multimedia Cray went ping, a close friend of mine bought her dog a new bed. What I know about dogs is less than MS knows about users except I have a slightly more kindly disposition towards dogs than MS does towards its users. But as I was visiting she showed me new dog bed and dog asleep in new dog bed and I feigned interest. But not for long. Virtual interest became real interest.

The design of this dog bed was perfect. It resembled a child's paddling pool but made out of fabric and stuffed with a soft, soft filling. The dog was snuggled deep inside the bed, its head resting on the edge and a look of such bliss that I almost went out and bought one for myself. My friend who does seem to understand dogs showed me how the little creature could hide things in the edges, could stretch out or curl up. It was a perfect design for a dog bed and it made me realise that whoever had designed it had understood the needs of the dog. But the thing is washable and light so the designer had understood the needs of the human too.

I went home very thoughtful. The contentment of that little dog stayed in my mind all weekend as I gradually dismantled my system and slowly put it back together again. The design of my box is actually not bad, given the limitations. Even I know that it is sexy. But I don't feel the contentment of my friend's dog when I use it. Most of the time, I'm not snuggled down and comfortable, I'm trying to find things that are eluding me.

My friend's little dog had places to hide things but they were easily recovered. I spent the weekend trying to figure out how Outlook Express's archiving system worked and searching for components that might have become corrupt, so well had it hidden them. And that made me realise that most of the applications I used were designed for the applications' convenience, not for mine. Outlook Express looks snuggled down and content, it has little crevices to hide things, but it doesn't let me do that.

The Americans call our discipline Computer Human Interaction and Outlook Express is American. Which comes first? The Computer. And which comes first in fact? The Computer. All the time our field is dominated by a CHI approach it will put Computers first both in the acronym and in reality. There will never be places for humans to snuggle into and be comfortable because it isn't designed to make us at ease.

And what do I conclude? Designing for people has gone to the dogs in the worst possible way. We are given Swiss Army knives and asked to chop down forests and do open heart surgery. These systems are not even computer friendly in the final analysis since I have no doubt of the discontent of my own machine. They are certainly not user friendly. Not only aren't they user friendly but they are positively hostile towards users.

I have spent my life with computers. I played my first computer game on a university machine in the 1970s when computers were so big and produced so much heat that you could not only use them to play games but heat the water to bath a dozen students too. The hardware has progressed in leaps and bounds since then, and so has the software, but in comparison the attitude to the user is still stuck in that age of the dinosaurs. Software houses pay lip service to user needs. However hard the hardware producers might work to provide a much nicer machine to work with they are stuck with operating systems that resemble spaghetti. You can't pull out one strand without getting more than seven plus or minus two mouthfuls.

OK, I have to admit that a kind of anger takes me. Life is so short. Working life occupies so much time. Tools should be enjoyable and easy to use. If some designer can ascertain the sleeping requirements of a dog they ought to be able to figure out what we want to do with our machines. Software houses keep making boastful promises after too much beer at night and which they conveniently forget about come morning. I would say 'mane bibe' but I have a nasty feeling that will be all Greek to them.

Cassandra rants on your behalf every issue. Just wish someone out there would listen to her. But before attempting such a herculean task at home, you would be well advised to get rid of any Trojans. It isn't really a Cray she has of course (although one of those water-cooled models of a few years back would be nice to drape over). Maybe we'd all be better off with a souped up Commodore PET.

Let's get together …… or, PPIG meets HCI

A group of us are putting together a proposal to the EPSRC for the funding of a network, called PICOT (Psychological Input to COmputing Technologies). The aim of this network is to encourage greater collaboration between the HCI and PPIG communities.

We are seeking initial members to help set a research agenda for the two communities.

If you are interested in supporting increased collaboration and are willing to help direct it please get in touch with the organiser, Judith Segal, at the Department of Computing, the Open University, j.a.segal@open.ac.uk. We would especially like to have more people on the initial network from the British HCI Group.

What will the proposed network do? The fundamental aim of the network is to encourage and support collaborative research. This will be done, in part, by workshops on research topics of common interest to help PPIG and the British HCI Group to work together and publicise the results of our research to user communities ranging from programmers & HCI practitioners to academic communities, such as theoretical computer science.

It is clear that there is an overlap between PPIG and HCI research. Let's strengthen the overlap. Let's get together!

What is PPIG? PPIG is the Psychology of Programming Interest Group. The name is, in fact, a misnomer. PPIGers are interested in the theoretical and empirical underpinnings of the psychological aspects of any (and all) parts of the software development process, including the use of language. Research topics which have been developed within the PPIG community include

- the theory of cognitive dimensions by which notations may be analysed. The results of such an analysis can be used, for example, to determine which type of task is best supported by the notation;
- models of programming activity (construction; comprehension; debugging);
- the effectiveness of software visualisation tools, and
- issues in the learning and teaching of aspects of computing.

How does PPIG operate? PPIG is very informal (no subscriptions). It maintains a web-site (*www.ppig.org*) and a couple of mailing lists; publishes a newsletter twice a year, and organises an annual workshop. These workshops are intended for discussion and exploration, and for the rapid dissemination of (perhaps preliminary) results. They invariably involve a large percentage of attendees from outside the UK, together with world renowned keynote speakers. We see these workshops as being complementary to HCI. Why not explore your ideas at PPIG, and then publish the polished product at HCI?

Fun, fun, fun 'til daddy takes the keyboard away!

Tom McEwan

Mummy was out of town for a few days, so daddy takes his little girl (Anna, aged 4) on some bonding experiences after nursery. First a trip to the pub to retrieve microphones loaned to a mate for a gig. Then half an hour being silly in teatime traffic jams, before storming the doors of what anyone under five in Edinburgh calls The Purple Shop!

We'll skip over the parental purchases that precipitated this trip and focus on the nag-ware cunningly arrayed in glossy towers near the till. Usability lesson one for the under fives – it's not what these displays afford, but what a caring parent can.

Firstly, we are now the proud owners of a third 'clip onto the keyboard' activity centre plus CD. The first two were from earlier bonding experiences, and to do with shopping and cooking respectively (no stereotyping here!), and were actually quite fun, interactive and kept Anna engaged for useful periods of time. The new one is more of a 'handyperson' one, full of hammering, sawing, drilling and ratcheting. Actually quite monotonous in comparison. Just as monotonous as the real thing. Do boys' toys have to be more boring than girls'?!

Being a post-modern waif, Anna enjoyed it anyway. Repetition breeds success ('Again! Again!'), but it only occupies middle-ranking approval ratings of the three. Cooking remains the favourite, but

Dad! Is this what they mean by lean-back technology?

working a cash register is now even less fun than watching the news when cartoons are on BBC2.

Secondly (and more significantly), we found a genuinely new piece of consumer-level interactivity for £30. A USB video camera and a CD-ROM application into which your video image is (with the help of some reasonably smart pixel subtraction and addition) keyed. But not only that. Interactivity with the game is entirely by movement detected by the video camera. No VR helmets, no joysticks, no mouse. Just you, the screen, and some computer stuff you don't need to touch. Leaning one way (usually) scrolls the screen or even selects menu options. Reaching your hands in the air lets your onscreen persona pop bubbles. It's not perfect, but it is 'wow!'.

Anna skied down hill, managing to dodge trees, choosing to run over slower skiers. Hmm, some anti-social developmental stuff there. She danced to a band, and the more she danced the hotter they played. Eventually she got the hang of the 'lean over far enough to light up, and to select, the word "EXIT"'.

So what… does this mean? Here we have a screen and a user and no other mediating artefacts or whatever we're calling input devices this week. Talk about the invisible computer, this is hardware and software that's so laid-back, you would forget it was there. By the time

One of five games in the package, in this one you navigate down a ski-slope. The photography is so poor here, you can't detect that the subject's face is superimposed on the body of the skier, but it is!

this converges with Harry Potter merchandise next year (check out JK Rowling's groundbreaking work (1998, 1999, 2000) on interface design for interactive multi-user maps and animated displays that tell jokes so bad they would pass the Turing test), a generation will be so far beyond the mere ability to programme VCRs and Microwave Ovens as to scare me.

But, as a caring parent, I have to ensure that Anna, like my other two, does not spend too much time at the computer to the detriment of health or other development. Off to bed! Daddy has research to do!!

The subject navigates her information space by adjustment of vertical inclination, resulting in commensurate reaction within the VDU display. Or Anna leans over to make it do stuff.

The technology tested by Anna McEwan (aged 4 yrs 2 months) was the Intel Play Me2Cam, and the Hasbro Interactive Playskool series. Anna used to prefer Apple computers, but found the lack of a right mouse button, and the need to drag CDs to the trash can irritating after a while. She says she's too old for Macs anyway.

Bluffer's guide to IHM-HCI2001

Tout va bien! Sorry! Let me slip back to Anglais. We have already seen an extraordinary number of full paper submissions for the conference this year, exceeding our expectations. There have been over 100 submissions, with a healthy number in French. 40% of the contributions are from outside the host countries. Clearly we have continued to build on the huge success of HCI2000 in Sunderland, and I know that Ann Blandford and Jean Vanderdonckt, the Technical Programme Co-Chairs, are particularly grateful to the many reviewers who have agreed a larger burden of review than expected. Those who have been successful will be notified around the 30th of March. Between then and the 7th of May, the deadline for camera-ready copy, we hope the majority of authors will take the opportunity to translate their paper into the 'other' language – a manifestation of our theme – 'interaction sans frontières'.

An interesting aspect of the build-up to this conference has been the opportunity to engage with the subtle differences in semantics between French and English. Have a look in that French–English dictionary gathering dust on your shelf at words in either language like usability, use, utilisation, utilitarian. Then translate back what you find to English. Somehow we have added pejorative connotations to some of these perfectly useful (!) terms.

Now multiply that thought by the Tower of Babel that is the European Union. With scores of languages and location variations (try using terms like "fix" and "sort" in Glasgow and London to see variety of meanings), HCI faces challenges in crossing such linguistic, cultural, and social boundaries. We find it easy to fault those who design systems that can be used only by 'people like them', but how many of us have published recently in another language?

International branding is both useful and cautionary. We are all aware of the undesirable aspects of global brands. But if e-Commerce is to work, then vendors need transparent access to end-users in all cultures. An additional frontier we will look beyond at IHM-HCI2001 is that between disciplines. What can we learn from marketing, education, theatre, as well as our usual bedfellows like psychology and design? Where do creativity and imagination help?

Between now and the deadline (30th April), I hope that many of you will be stirred into action to contribute to the other areas of the conference – posters & short papers, videos, panels, workshops and the doctorial consortium (sponsored by the British HCI Group). In addition, the Interactive Experience, the Laboratory & Organisational Overviews and Industry Day are opportunities to bring your innovations (literally) to the attention of all of the most significant people in HCI (or at least those based in France and the UK!).

In the meantime stay tuned to http://www.ihm-hci2001.org/ .

Usability Scotland

… is the working title for the latest expert group to be formed by ScotlandIS, the association for the new economy in Scotland. ScotlandIS represents, promotes and serves around 500 internet, software and multimedia businesses throughout Scotland. It has been brought together through the merger of the Scottish Software Federation (SSF), the Interactive Media Alliance Scotland (IMAS), and the Internet Society of Scotland (ISOC Scotland). This sector is now bigger than the Scotch Whisky Industry.

Four expert groups have been formed – Pervasive Computing, Usability, Legal, and Emerging Technologies. The Usability group has held pub nights since October 2000 at the Caledonian Sample Room in Edinburgh from 9pm every Thursday and these have afforded an opportunity for staff, researchers and graduates from Napier and Heriot Watt Universities to network. Now more formal events are planned under the auspices of ScotlandIS, and the number of industrial participants is growing.

For more information contact Tom McEwan (t.mcewan@napier.ac.uk 0131 455 4636) or see http://www.scotlandis.com/

British HCI Group – Application Form 2000

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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.

Membership Directory

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 ☐

Getting Involved…

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 the membership secretary, Peter Wild (peter.wild@acm.org; Fax. +44(0) 1895 251686).

Membership Fee

Membership classes and fees for 2000 are:

BCS Member £25 ☐   Non BCS Member £30 ☐   Student £10 ☐   £ ....

Corporate £195 ☐ 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.

Please send me Vol. 12 (2000) of *Interacting with Computers* (£50)   £ ....

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