

RE-CONCEPTUALISING 'FUN'

THROUGH VIEWER'S EXPERIENCES TO BUILD NEW HOME SYSTEM INTERFACES

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Abstract: This paper reports work from the first stage of a project investigating movie based fun, focused on content and delivery by broadband into the home and to mobile telephones. After considering 'fun', the changing technical and social context of digital technology and digital experiences is examined, to understand how people's enjoyable experiences are changing. Then a detailed scenario of what is here called the experience rich home interface is presented, before highlighting some of the design issues. The paper concludes by identifying the next phase of the research, an engagement with people's experience of movie content.

Key words: Home systems, fun, interfaces.

1. INTRODUCTION

This paper is focused on people's experiences of digital content and delivery, including people's movie experiences (as opposed to the movie design languages of cinematography and editing) as a source of challenge, critique, and design ideas for new interfaces. The paper forms part of the work for the '*Qualitative and quantitative studies of fun with movie based entertainment via mobile telephones and websites*' project. After outlining a high level conceptualization of fun, the paper considers the changing nature of digital experiences and movie experiences. The implications for new interfaces are then illustrated in a scenario, drawing on themes from the preceding section to describe a new type of experience rich home system and its interface. Following this, some design issues of relevance to this

experience rich interface are highlighted. The paper concludes by identifying the next phase of the research, an engagement with people's experience of movie content.

2. FUN

The study of 'fun' is relatively new, though there have been substantial research contributions in recent years (e.g. Blythe *et al.* 2003; Green and Jordan 2002). The growing research interest in fun - particularly as it pertains to interactive devices - is unsurprising given the social significance of interactive fun, the cost of creating interactive products which supply fun and the interests of media producers in improving and extending the fun provided in their interactive products.

Research into 'fun' is complicated by the fact that many terms are used almost interchangeably for fun, such as enjoyment or pleasure (Blythe and Hassenzahl 2003). The origin of the word is uncertain, with the usage changing radically over time (OED Online, Webster, WordNet). The word may be of Celtic origin, from 'fonn', meaning pleasure, but the earliest recorded usage (1685) was to cheat or fool someone. The change to a modern usage came in the eighteenth century and may be linked to the industrial revolution, with its rationalization of work through mechanization. This could have resulted in 'fun', with its emphasis on frivolity and the trivial, becoming seen as the opposite of 'work' (Blythe and Hassenzahl 2003). In modern use 'fun' refers to enjoyment and amusement, usually in a recreational setting: a positive internal psychological state and an external facilitating context.

Much of the research on fun has focused on interactive systems such as computer games (e.g. Carini 2003; Federoff 2002; Kim *et al.* 1999), a medium known for providing fun intense experiences. Films also provide intense experiences, yet research linking the movies to human-computer interaction has tended to focus on cinematographic and editing conventions as a means of improving existing interfaces (e.g. McKendree and Mateer, 1991; May and Barnard 1995).

Fun therefore has as a minimum the following global characteristics:

- Recreational setting
- A positive internal and interpreted bodily/psychological state (for example, enjoyment)
- External facilitating context

In the section that follows, changes in the external facilitating context and recreational setting are focused on. These changes are likely to lead to

changes in the interpreted internal state. How this happens, in relation to the movies, is part of the ongoing programme of research to be undertaken in the next phase of the research. Also part of the ongoing research is an exploration, in the context of movies, of more local (i.e. lower level) elements of fun, which might lead to designers designing *for* experiences (McCarthy and Wright 2004).

3. CHANGING DIGITAL EXPERIENCES AND CONTEXTS

As more people in the industrialized nations become part of the digital networked economy (BT 2004) people's experiences of technology – how they use and interact both with media content and the delivery mechanisms that bring this media content into their lives - are being altered by pervasive changes in the digital context. In the future, it will not be technology *per se* but digital experiences which are available anytime, anywhere. These experiences will interpenetrate both physical reality and peoples 'felt' personal lives.

At the outset, it is important to say that the strong claim that experiences can be totally designed is not being made in this paper- people vary dramatically in their response to identical stimuli and they are active in construing meaning. But experiences can be 'designed for' (e.g. Fiore 2004). The position taken in this paper is that there are both wide individual variations and also central commonalities in people's construal of experiences.

In this section I explore how people's experiences of digital technology are changing, seeking to identify changes taking place now which may in the future shape what I call the hyper-digital age where digital experiences are constantly available and personally meaningful and influential in people's lives. The changes include increased exposure to interactive media, the growth of mobility, the digitization of the movie industry, the shift in locale for digital experiences, the development of consumers as controllers of content and the growing research interest in experiences.

The argument of this paper is that these changes in the external digital context are leading to changes in the internal experiences that people have- and that both these internal and external changes provide a new context for new types of interface, in particular what I call experience-rich interfaces.

3.1 First trend: increased use of interactive entertainment, the Internet and personal computers

The first trend in the changing landscape of digital experiences is the increased use of interactive entertainment, the internet and personal computers. Ofcom report that 64% of adults in the U.K. have a PC at home, with 53% connected to the internet, and 25% connecting via broadband, up from 16% over the past year (Ofcom 2004d). Uptake and usage has also risen: for the period 1999 to 2003 time online has increased from two hours via dial-up in 1999 to 16 hours a week in broadband households (Ofcom 2004a). DVD player ownership in Europe has almost doubled from 30 million in 2002 to 56 million in 2003 and is forecast to reach 67% of European homes by 2007 (Dawtre 2004). Ownership of digital televisions currently stands at around 55% of all UK households (Ofcom 2004a) with market-led adoption of digital TV predicted to reach 78% by the cut-off date set by the government for switching off analogue television (Ofcom 2004b) – there will doubtless be a decisive shift to digital as analogue options run out in 2010.

There is also growth in people's experiences of interactive entertainment, directly affected by the growth in popularity (and notoriety due to sexual and violent content, in some cases) of computer and video games. In 2003 the global leisure software market was valued at \$18.2 billion, an increase of 10.8% from 2002 (Elspa 2004). In the UK, the market in 2003 was estimated as being worth £1,152 million, an increase of almost seven percent from 2002, with the UK's leisure software market having grown by over 100% from 1997 to 2003 (*ibid.*). This compares with cinema box office growth for the same period at 30% and video/DVD rental for the same period at 14% (*ibid.*), though these figures may be understated due to people illegally downloading pirated film content (see Cole 2004).

Not all digital experiences are showing such clear trends – the prognosis for broadband delivery of television content is unclear. Current indications from other countries such as early adopter South Korea are that broadband television is used largely for specialist programs (Ward 2004). In the UK there are currently over 10 million homes with some form of on-demand television programming. This is predicted to rise to 15 million by 2008 (BBC 2004), with movies being mooted as a central driver of this trend (*ibid.*). Though the number of home with Internet Protocol Television (IPTV) is predicted to rise to 4.5 million in Europe by 2008, currently such services are struggling financially (*ibid.*). It is too early to say for certain whether such media will become pervasive (Anderson 2004) though these technologies will certainly carve out their own specialized areas of use – and there are significant business entities seeking to make such technologies

pervasive (Gates 2004). It may also be noteworthy that time spent viewing television has increased only marginally, from 25.6 hours a week in 1999 to 26.1 hours in 2003 (Ofcom 2004c), which suggests that leisure time is being shifted from television to other activities.

This first trend means that users of digital media are gaining increased familiarity with a constantly expanding multiplicity of interface and device control structures, interactive links to advertising content and a multiplicity of intense digital media experiences.

3.2 Second trend: the growth of mobile telephony

The second trend in the changing landscape of digital experiences is the growth of mobile telephony, one of the most influential personal technologies in the UK. Currently 86% of households in the U.K. own at least one mobile telephone (Ofcom 2004c). As more applications are bundled in and cost structures become more acceptable, so third generation (3G) mobiles and services will become increasingly important in many peoples lives, as is the case with earlier model mobile telephones (e.g. Peters 2002). With 3G mobiles slowly appearing (Durman 2004) people will eventually be presented with an ever wider smorgasbord of digital experiences, facilitated by two 3G technical developments. Firstly, 3G provides more bandwidth (always-on broadband connection at speeds of 144Kb/s to 2Mb/s). Secondly, display screens are constantly improving, with high-quality colour displays now standard. These technical advances facilitate the enjoyment of services such as fax, email, web access, videoconferencing and movie-related content such as trailers or tie-in competitions, music videos with high quality audio and multi-player mobile gaming – Bill Gate's view of "digital entertainment, everywhere" (Gates 2004). Uptake of 3G currently is slow, with services still being rolled out in time for Christmas 2004. Billing structures are also not yet finalised, which will hinder uptake because consumers worry about the cost of their mobile calls (The Work Foundation 2003). In addition, technical issues remain - 3G networks are sparse and growth is likely to be slow, with London and the South of England favoured (Durman 2004).

Currently uptake of 3G is projected to be not more than 20% by 2007, but the development of high value innovative services and applications could exponentially boost these figures. With time on mobile phone calls up from 10 minutes in 1999 to 27 minutes a week in 2003 (Ofcom 2004c) mobile telephony is potentially one of the most important delivery technologies for new digital experiences. In the long term mobile telephony will develop greater capacity to bring high-quality audio-visual content to users.

This second trend means that people will increasingly become accustomed to and want rich sensually and emotionally satisfying digital experiences, anytime, anywhere.

3.3 Third trend: the movie industry goes digital

The third trend in the changing landscape of digital experiences is the shift of the movie industry from analogue (celluloid) to digital. This is coming about as movies are entering their own digital age as digital goes beyond digital manipulation for special effects to encompass production and distribution.

Digital cinema (d-cinema or e-cinema) is set to revolutionise distribution and exhibition by removing the cost of celluloid prints from the distribution equation. In the UK, d-cinema is making progress, with the Film Council seeking to install 250 digital screens in the UK, albeit in 'art house' cinemas (UK Film Council 2004). Other countries have similar plans, though there are still digital standards and cost issues to be resolved (Shackleton 2004, Lall 2004, Paquet 2004). Distribution and exhibition is also being affected by the internet, which is slowly becoming a significant medium for the distribution of movies generally, with established firms working to create viable delivery models (Olsen 2004).

The development of d-cinema is being significantly helped by the development of high-definition video cameras capable of producing images of sufficient definition for cinematic exhibition. High definition video cameras were used most famously by George Lucas in *The Phantom Menace* (used because of the effects-heavy nature of the film). This gave a significant boost to the visibility, credibility and perceived viability of the use of high-definition video for movies intended for theatrical distribution. The growth of high-definition video movie production is also being promoted by the insistence of some funders such as the UK's Film Council that entry level filmmakers use it for low-budget productions.

3.4 Fourth trend: digital experiences are changing locale

The drive of media companies to market their products more effectively and to generate multiple streams of revenue is having a profound effect on the locale of digital experiences. Increasingly integrated media experiences across multiple channels are offered to consumers, via newspapers, websites, mobile content, TV/radio etc., even interacting with the physical world of consumers 'real' lives. So, for instance, 'Uncle Roy All Around You', is an internet based game where you hunt for 'Uncle Roy' in the real world (<http://www.uncleroyallaroundyou.co.uk/>). More widely known is the Blair

Witch project, where part of the initial public interest was the belief that the website was giving 'real-life' updates on real-life events. This emphasis on media products and experiences spilling over into real life is likely to be heightened by the development of location aware mobile telephones which can be used as the basis for new multi-player games such as electronic shoot-em-ups played out in real life (Norris 2003). And availability of digital entertainment is being widened by the current Microsoft 'Digital Entertainment Anywhere' initiative (Gates 2004).

The audio-visual experience of cinemas is also shifting. Increasingly, leaving aside the social aspects of cinema, the audio-visual aspects of the cinema experience are available in the home as 'home cinema' technologies provide higher quality audio and picture than traditional television sets.

This fourth trend means that providers will find it easier to integrate movie content with other content, as Vodafone are currently doing (Durman 2004), to provide sensually and emotionally rich digital experiences based on characters and narratives.

3.5 Fifth trend: the consumer as controller of content

The fifth trend is the consumer as controller of content, which relates to the democratization of media production through experiences of media control in the DVD experience and the availability of low-cost computer assisted media production. One output of this trend is the re-use and personalization of existing media content (Bolter and Grusin 1999), shown most clearly in the production of short movies by fans, involving pastiche, spoof and new contexts for familiar media offerings (e.g. *Atomfilms.shockwave.com* and *ifilms.com* for example; see Jenkins (undated) for an in-depth consideration of these phenomena). Ultimately, personalizing content after delivery may lead to personalizing media content during delivery. Currently there is some movement towards this model, with the European Union's 'New Media for a New Millennium' initiative aiming to develop the tools for personalized interactive stories (including movies), adapted 'on the fly' for viewers (New Media for a New Millennium 2004).

It remains to be seen whether this New Media initiative adequately recognizes that certain media experiences such as watching new releases of movies are strongly socialized - a significant aspect of the pleasure is the ability to discuss the same non-personalised movie with friends. It is also possible of course that new forms of personalized movie experience could lead to new topics of conversation and new and attractive pleasures. So, for instance, it may be possible that in twenty years time one form of movie experience will involve groups of people watching a downloaded movie at the same time, with sound feedback from all audience members (or

designated 'buddies'), to facilitate the social experience during the movie (i.e. shared laughter) together with video-conferencing and interactive games after the movie to extend the experience.

This trend means that viewers can and increasingly will actively reconstitute media content according to their preferences and desires, whether just for fun or as an expression of personal creativity or for other reasons. Whatever the pleasures of reshaping media into new forms for the average viewer, most of the amateur efforts available from internet sites are severely lacking in narrative drive and understanding of the fundamental techniques of movie making.

3.6 Sixth trend: growing research interest in 'felt life' approaches to experience

One recent approach to digital experience that roots itself decisively in people's felt life has been put forward by McCarthy and Wright (2004). They seek to go beyond accounts of people's use of technology as described by usability and its dimensions and also beyond accounts of users as cogs in virtual machines, as social actors and as consumers. Instead, McCarthy and Wright focus on interactive technology in the context of people's felt life - an account rooted in emotional, sensual and aesthetic aspects of interaction. They identify four 'threads' of experience - the sensual, the emotional, the compositional and the spatio-temporal. Here the method is not definitional but qualitative, investigative and illustrative, seeking to capture people's felt-life accounts and their responses to the technologies they use.

This sixth trend means that theoretically grounded approaches to the study of experiences are being developed which will facilitate the investigation of people's content experiences in and across the range of new configurations of digital media that are currently being developed.

These trends represent shifts in the global elements of fun- the changes in the recreational setting and the external facilitating context. Now users are getting used to a greater number and variety of fun experiences (Trend One: *Increased use of interactive entertainment, the internet and personal computers*) with new forms of entertainment available anytime anywhere (Trend Two: *the growth of mobile telephony*; Trend Four: *Digital experiences are changing locale*). There are also shifts in the locus of control in the production of fun with the digitization of content, particularly in relation to the movies (Trend Three: *the movie industry goes digital*; Trend Five: *the consumer as controller of content*). Finally, new research (Trend Six) into experiences opens up the possibilities of 'filling in' some of the lower-level elements of fun (without necessarily suggesting a one-to-one

correspondence with visual, sonic or story elements and a fun in all viewers at all times).

So what might a new home systems interface based on fun experiences look like?

4. THE 'EXPERIENCE INTENSE' HOME SYSTEM INTERFACE- EXPLANATION AND DISCUSSION

This section of the paper seeks to show the relevance of the trends discussed in the previous section for an alternative conception of the interface - the experience rich home interface. An extended scenario is presented, to bring this concept to life. Current technology could be used to build this interface.

It should be pointed out that this conception of an interface is not reducible to a souped-up desktop theme with bells and whistles, a 3D interface or an intelligent interface (e.g. Bowen *et al.* 2002) as these are normally conceived. Equally, this interface is not just another computer game: there is a difference in the immersive experience of computer games and movies. Computer games are intensely engaging and immersive, but the immersion can be broken when errors are made and self-performance monitoring takes place. Movies, by contrast, are totally immersive as long as there are no environmental distractions.

It was nearly six-thirty at night when Alicia Smith turned her car at last into the drive of her house. It had been a hard day's work at the canning factory where she is Manager for Creative Projects in Midtown, USA. At thirty-two she feels she has achieved all her dreams - Manager for Creative Projects, great husband, great daughter and the latest in responsive homes. Tiredly, she pushed her long red hair back from her face, longing to be out of her Armani business suit and into jeans and a t-shirt. John, her husband, won't be home until tomorrow. Alicia is thinking of watching a movie that both she and John love.

The Advanced Responsive Home Unit, Design Two (ARHU-D2), the 'brains' of the responsive home, has noted that Alicia is nearing the house. In her living room (Alicia's choice of venue, only messages between her and John go through to the bedroom) the flat wall screen switches on, showing her personal messages. The ARHU has over a period of time logged and analyzed both Alicia and John's messages viewing and other life patterns, creating a detailed mapping of

preferences related to time of day and other critical context issues. In this instance, the ARHU knows that John is away. The unit also knows that Alicia usually checks her messages upon arrival at home.

As Alicia enters the house, she is greeted by the ARHU unit - Alicia has been using the 'Queen of the Ziroconian Islands' world for the past two years as her immersive home system interface (IHSI, pronounced *i-see*). The ARHU knows that Alicia will be feeling a little fed-up without John and has arranged that the Grand Vizier (an animated Laurence Fishburne-*soooo* soothing!) and the Court Jester will deliver the messages to Alicia in her throne room. The unit knows that tonight Alicia will prefer these two rather than the grouchy and feisty Lady of the Royal Chamberpots who Alicia normally prefers to deliver her messages.

"Would you like to see your messages, your Majesty?" asked the Vizier respectfully, as behind him the court Jester piled up furniture, clearly intent on performing another funny but dangerous acrobatic feat. Despite herself, Alicia couldn't help but smile as the Court Jester gave her a little wink then started climbing precariously up the wobbling tower of furniture.

"Yes, thank you, Grand Vizier", Alicia replied. Just then the little lantern by the side of the throne lit up, with the words "Titanic II: Special Offer on Edible Memorabilia" but Alicia ignored it.

The first message was from Rachel, John and Alicia's daughter. As the Vizier opened the light green scroll (Rachel's chosen colour for the outside skin of her messages) which was sealed with Rachel's own large green wax seal, he announced, "A message from Princess Rachel". At the same moment the Court Jester got to the top of the pile of furniture, spread his arms wide as if at the prow of a great ocean-going liner and shouted, "Look at me, your Majesty, I am king of the world!". Then the pile slowly tilted over and fell. The Court Jester, limbs flying in all directions, did an involuntary somersault on his way down, ending up rather shakily on his knees, then pretended this was his intent all along, "Ta da!" he cried, "The Great Alfonso does the furniture leap of death for Queen Alicia!" Alicia laughed, her feelings of loneliness lifting, remembering other times the Jester's antics had amused her. The Jester looked delighted at her laughter.

The message from Rachel was just to say that she was hoping to come over for a visit next weekend. Would her mother and father be in?

Alicia sent her own message to confirm. Then, with a single verbal command "Appointments", called up the appointments diary. In her chosen world this appeared in the form of a large leather bound book. Using the virtual keyboard Alicia logged Rachel's visit. The message from Rachel was the only message known by the ARHU to be from either family or friends.

"The envoys from Daxos are here", said the Vizier. "Would you like to see them today?"

"No", replied Alicia. The ARHU sent a message to the other players in her multi-player game to tell them she was unavailable, warning one of the players to reschedule his offer of a horse drawn carriage ride for Alicia to the Canning Factory (a real life offer that could have profound diplomatic implications for Queen Alicia's government of the Zirconian Islands, if not dealt with appropriately).

The ARHU started to warm up the bathroom, surmising that Alicia would leave the rest of her messages till later, since none of the remaining messages were from known members of the family or friends. The unit had selected the movie that John and Alicia had watched together the most often: 'You've got mail', together with three other emotionally and thematically similar films that the unit had no record of Alicia seeing before, along with trailers to help her choose which one she wanted to watch. The unit also selected six tracks of music, of the sort that Alicia usually preferred to listen to when she was alone and getting herself ready for the main event of the evening, the movie.

As Alicia showered, she smiled again to herself at the antics of the Court Jester. Maybe she would let him bring the messages next week. It would make him so happy.

When the ARHU-D2 unit had first been hooked up, she would have laughed at herself for characterizing the computer program of the Court Jester as 'he' and engaging with it as a real person. That thought would never again enter her mind.

The conventional conception of the interface has as its integrating theme the fact that interactive behaviors alter system states. Movie experiences are, according to this conception of the interface, behaviourally passive, since system states (the movie) cannot be altered by anything that viewers would normally do. Movie experiences may therefore be seen as being of

low relevance to the task of designing interactive interfaces, except perhaps for surface visual design features, using cinematographic and editing conventions to improve or better understand existing interfaces (e.g. McKendree and Mateer 1991; May and Barnard 1995).

The explicit focus on fun in this interface offers an alternative to the pragmatic functional approach to interface design which has its roots in the productivity software of the work place. With home interfaces, where time and task issues take on different meanings, the way is open to deepen the use of non-functional and expressive interactions with the system interface, as will now be discussed.

The ARHU system communicates via an immersive and entertainment based interface which draws on movie experiences, with characters which truly engage (unlike many computer game characters). The ARHU uses meaningful content as the organising structure. The system is mood responsive and positive mood reinforcing. It is media referential, directly incorporating movie and other content, as well as allowing selected advertising. It also integrates narrative and character driven multi-player gaming and the intersection and interaction of these games with real life.

Simple speech recognition is used for responsive characters – a pseudo-conversational style that works on the basis of reasonable inferences about user's behaviour and simple yes-no questions as prompts for user input, to allow a movie like experience with lower required occurrences of overt interaction such as using a keyboard. What is being described is not *Star Trek* but rather a system that could theoretically be built today using technology currently available. A mental model of the interface still has to be internalized by the user - if Alicia tried to initiate a real conversation then the illusion and emotional satisfaction for her would immediately be broken, since the system would be unable to respond. In other words, for all its naturalistic appearance, the interactive context of the interface is highly structured. A consequence of this is the need for subtle prompts to the user within the story world when user input cannot be recognized, to prompt users to return to an appropriate interactional style without breaking the immersive experience of the interface. The interaction is therefore structured by the narrative content and common patterns of yes/no answers to questions, within the expressive 'world'.

The system analyses the owner's life patterns. This enables it to make inferences about the owner's lifestyles and current mood, allowing optimal system and content configuration, within system limitations. The system gathers location data using sensors embedded in Alicia and John's wristwatches.

Usability has been defined as effectiveness, efficiency and satisfaction to achieve specified goals (ISO 9241-11, ISO 1998). Clearly the experience rich interface stresses the 'satisfaction' element.

The question may be asked, do we want to be looked after in such a way by such a system with such an interface? Some people will express a preference for functional interfaces and non-computer controlled mood management. And there is of course nothing to stop people choosing the latest Linux or Windows software as their immersive world. Just as there is nothing to stop the ARHU system from presenting Windows or 'Queen of the Zirconian Islands', according to its judgment of the owners mood and needs.

The experience rich interface represents the substantial deepening and extending in people's lives of the recreational setting and external facilitating context of fun. The experience rich interface links to the changes in the digital context as follows.

The particular integration of the system with the user's life and lifestyle means a much greater (though cognitively less visible) integration of the interface with the user and their life (Trend One). The ARHU demonstrates a constrained case of the shift to consumers as controllers of content, with the personalization that is available to the user (Trend Five). The shift in locale is also illustrated, both because the system can be distributed for users to interact with mobile telephones and other devices away from the home (Trends Two and Four, not illustrated in this scenario) and because of the incorporation of digital movie content into the interface (Trend Three).

5. CONCLUSION AND FURTHER RESEARCH

This paper has explored the changes in the external digital context and suggested that these changes are leading in turn to changes in the fun experiences that people have. It has been suggested that these changes provide a new context for a new type of interface, called here the experience-rich interface.

The next phase of the research will examine the psychology of movie experiences more closely, primarily focused on people's content experiences within a developing framework of 'movie experience intensifiers', to understand such experiences and then deploy this understanding for improved fun entertainment content and delivery via websites and mobile phones.

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