

Presence as experience: film informing ways of staying there

Tim Marsh
User Centered Engineering
Faculty of Industrial Design
Eindhoven University of Technology
5600 MB, Eindhoven
The Netherlands
t.marsh@tue.nl

ABSTRACT

Experience and the activities that provide it are associated with the virtual places where they were encountered and this may instil in our imagination an illusion of an environment other than where an interactive mediated environment¹ (e.g. virtual environment, virtual reality, computer game, etc.) resides (e.g. home, work or on the move). Appropriate and/or stimulating experience may encourage users to continue, or become engaged in, pursuing activities in a mediated environment. The term ‘staying there’ is used to describe this situation of engagement. Conversely, if experience from use does not match up/deliver on expectations or purpose, or it is dull, boring, uninteresting then it may not hold user’s attention and can potentially shift attention from the mediated to the real world. This paper describes the background work towards the development of a framework of experience with the aim of informing analysis and design of interactive mediated environments (IME) to induce/evoke stimulating experience in users and to encourage them in ‘staying there’. Informed from filmmaking, three levels of experience are explored: voyeuristic (i.e. ‘joy of seeing the new and the wonderful’), visceral (i.e. thrill of spectacle and attractions) and vicarious (i.e. transfer of emotion through another person, being or object). With varying degrees of emphasis, story is experienced by spectators through one or a combination of these three to provide meaning. Drawing a parallel between developments in film and IMEs, situations, circumstances, features and elements of IME design are identified that can induce/evoke these experiences in users. As well as informing analysis and design of experience of IMEs, this may provide an alternative way to reason about engagement and presence.

1 Introduction

Whether use or an encounter with interactive mediated environments is for learning and training, entertainment or shopping, use can be considered as experience. Continuous uninterrupted use helps maintain the illusion of performing activities within a mediated environment and so continue the potential for the inducement of experience. Accepting this argument, we can say that one of the goals of interactive mediated environment use is for users to stay focused, interacting in the illusion. Disruptions break the illusion and

consequently, break experience. One of the most intensive and continued bodies of research in experiential design of technological systems has been from work in 'presence'. 'Being in', 'being there' (Heeter 1992) or 'perceptual illusion of non-mediation' (Lombard and Ditton 1997) are commonly used terms coined to describe the experience of presence associated with mediated environment use. Implied in these terms is the importance of perceptual or continued feelings of a non-technologically mediated illusion and/or focus of attention staying in the illusion. Concurring with this, it is argued that focus be directed towards informing mediated environment design to help users to maintain or stay engaged in activities in the mediated illusion. So rather than talking about 'being there' this paper focuses on 'staying there' (Marsh 2003). While the idea of 'perceptual illusion of non-mediation' is similar to staying there, like other terms that refer to the concept of presence it restricts descriptions of experience to those that occur 'instant-by-instant', 'moment-by-moment' or in a 'continuous (real time)' moment. This makes it difficult, if not impossible, to describe unfolding events, episodes, the 'big picture' of a scenario and the after-effects/affects/consequences of a mediated encounter with technology.

Consider how experiences with potential applications and scenarios can best be described. *Education*: history and geography - enable users to visit different places or past civilisations and experience them first hand; *Training*: fire fighting (e.g. Tate et al. 1997), medical (e.g. Stansfield et al. 1998), surgical (e.g. Ota et al. 1995) etc. - induce a feeling of concern or perhaps agitation and fear of the risks attached to the task at hand or with a flight simulator – feel what it's like to take the controls of a 747 passenger aircraft; *Entertainment*: become a character and feel the emotions of interacting with the virtual world and with other characters (e.g. Laurel 1993; Springel 1999) during the rehearsal of a play (Slater et al. 2001) or as an invisible observer (i.e. spectator) moving in-between the unfolding story and action; *Engineering*: vehicle design - go beyond ergonomic assessments and feel/experience what it's like to sit behind the wheel and drive a car that is yet to be built; *Psychotherapy*: in the treatment of phobias - allow patients to overcome their fears through gradual exposure to the cause of their anxiety (e.g. fear of heights e.g. Hodges et al. 1995 and flying e.g. Hodges et al. 1996, treatment of burn patients e.g. Hoffman et al. 2000 and dental pain e.g. Hoffman et al. 2001); *E-commerce*: in a shopping mall - absorb the atmosphere as you pass by stores and through shopping aisles with ambient sounds of check-out tills, eclectic muzak and announcements of price reductions. See Brooks (1999) for a recent and informative survey of virtual reality/environment (VR/VE) applications including some of the above examples that are identified as being in 'routine production use'.

In this paper it is argued that it is more useful to talk about 'staying there' and the experience consequently induced/evoked in users. This is an attempt to shift towards a wider arena in which to reason about and inform design for experience that is induced/evoked in, or witnessed by users of IMEs. It is a similar concept to that used to capture audience and spectators' attention in film and theatre, the concepts of which have attracted interest in informing user-interface design. Most notably Laurel's (1986; 1993) visionary ideas of 'direct agency' and 'mimetic' illusion, borrowed from theatre.

In earlier work it was argued that 'staying there' was a consequence of three things (Marsh 2003). Firstly, is the transparency of enabling or mediating technologies/'equipment' and interactive devices that are 'supportive and unobtrusive'. Similar concepts have informed human-computer interaction (e.g. Bødker 1991; Dreyfus 1991; Heeter 1991; Holzblatt, Jones and Good 1988; Koschmann, Kuutti and Hickman 1998; Laurel 1986, 1993; Nardi 1996; Norman 1998; Rutkowski 1982; Schneiderman 1987; Weiser 1991; Winograd and Flores 1986) and in virtual environments (e.g. IJsselsteijn, de Ridder, Freeman, Avons 2000; Lombard and Ditton 1997; Marsh, Wright and Smith 2001; Slater and Steed 2000). Secondly, ideas similar to those of transparency were extended to encompass concepts of continuity (i.e. continuous and coherence) of content. This work is informed from 'continuity style' of film editing (e.g. Bordwell, Staiger and Thompson 1988) and cinematography conventions to inform interface design by 'preserving thematic continuity' (May and Barnard 1995), and in the design of smooth animation 'to maintain an illusion of a perceptually consistent [virtual] world' to provide continuity of experience (Hubbold, Murta, West and Howard 1995) and similarly continuity of presence (McGreevy 1992; 1994). Hence, transparency and continuity aim to be antidote to disruptive interaction. However these alone will not hold users' attention in the content of the mediated environment. That is, if the content and/or interactive mediated environment is uninspiring, dull, boring to interact with/within, does not match-up to, deliver on, is not interesting or informing, etc., it will not be successful in providing outcomes from activities that coincide with motives that stimulate users to an encounter with a mediated environment and this has the potential to break users' attention (Marsh 2003). Therefore, it is argued that transparency of equipment, continuity of content together with appropriate and/or stimulating experience will grab and hold user's attention and encourage them in 'staying there'. Furthermore, a central argument of this paper is that experiences and the activities that provide them are associated with the virtual places where they were encountered and this may instil in our imagination an illusion of an environment other than where the mediating technology resides (e.g. home, work or on the move). So, it is argued that finding ways to

capture experience may provide an alternative and indirect way to reason about engagement and presence and this may in turn inform design for presence.

To find ways to identify experiences that may be induced/evoked in users, this paper borrows from concepts and techniques used in filmmaking to grab and hold spectators' attention. To this aim, this paper draws a parallel between developments in interactive mediated environments and film. In particular, it looks to the development of the 'invisible style' of Hollywood filmmaking, whose central goal, like that of staying there, is to hide the mediating technology and uphold continuity in the delivery of content, and the shaping of experience. Building on work originally proposed in Marsh and Wright (2000) and in extended versions (Marsh, Wright and Smith 2001; Marsh 2001), this paper describes the background work towards the development of a framework of experience. The framework contains three levels of experience: voyeuristic, visceral and vicarious (Boorstin 1995), that may be induced/evoked in users of a variety of mediated environments of various media types. This is part of on-going work to find appropriate ways to inform design of interactive mediated environments.

2 Film informing interactive mediated environments

According to Bolter and Grusin (2000), looking to film to inform visually mediated environments is unsurprising as all visual media is refashioned from old. They refer to this as remediation. For example, remediation of photography from painting, film from photography, with each new art form being informed from techniques developed from preceding arts forms. So following this line of argument a natural progression would appear to be the remediation of VEs from film. To lend further support to the notion of remediation this paper formulates a close mapping between developments in VEs and those of film, and develops a framework of experience that can inform design and evaluation of VEs. In reference to figure 1, the developments in film are widely described by film-theorists as a progression from 'recording' or 'actualities' through 'cinema of attractions' or 'spectacle' to 'shaping of character and narrative'. The first is the recording or actualities phase (e.g. documenting of actual or real life events: Auguste and Louis Lumière). Film presentations typical of this phase are for example, workers exiting the Lumière factory and a train pulling into the Gare de la Ciotat. These were generally projected as one continuous film presentation devoid of any complex continuity between shots.

The next developments in film can be described as an ephemeral experimental phase - testing/pushing the boundaries of the medium to see what works. Films characteristic of this

phase are captured well in Gunning's (1990) widely used term 'cinema of attractions' (or 'spectacle') with its 'fascination in the thrill of display' or spectacular virtues, 'féeries' (i.e. magical spectacle/fantasies) and tricks (e.g. disappearing in a puff of smoke: Georges Méliès – although more recently his work is identified as having elements of narrative structure; for discussion see Ezra 2000). Finally, to the emergence of cinematic and editing conventions to manipulate time and space. Central to the success of film and encapsulating transparency and continuity is the 'invisible style' (e.g. Messaris 1994; Rosenblum and Karen 1979). The 'invisible style' marked the arrival of the construction of more complex scenarios in cinema (e.g. construction of story: David W. Griffith, Cecil Hepworth and Edwin S. Porter; see Loughney 1990). This evolved as a way to hold spectators' focus of attention in the illusion of film in a way that hides the underlying artificiality used to capture, manipulate and then project film within the borders of the projection screen. This provided filmmakers with a way to shape character and story and enhance spectators' experience to provide meaning (Boorstin 1995). For an in-depth treatment of the historical progression and developments in film see for example, Arnheim (1957), Elsaesser (1990), Parkinson (1995), Cook (1996), Sklar (2002).

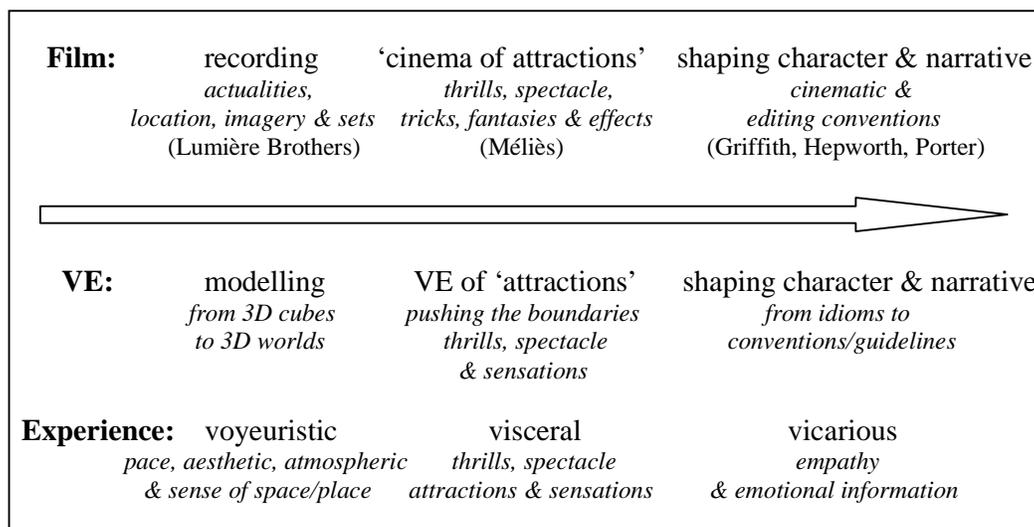


Figure 1 Framework of experience: parallel progression from film to VE

Although developments in film are widely described as following a chronological progression (as shown in figure 1), some film-theorists however, would argue that in reality there is a blurring between these categories. Hence, the exact nature of developments in film is still under debate and is beyond the scope of this paper. For further discussions on the tensions that exist between these categorisations the interested reader is referred to, for example,

Elsaesser (1990) and Ezra (2000). Although it is acknowledged that while some blurring between categorisations exists, for the purposes of this paper however, they provide a useful way to draw comparisons with developments in interactive mediated environments. It should be emphasized that films may contain elements of some or all three: *recording/actualities*, *thrills/spectacle/attractions*, *shaping of character/narrative* and is entirely dependant upon the film's genre and the kinds of experience that the filmmaker wishes to transfer to spectators (see examples later). In addition, it should be emphasized that improvements in techniques in film are of-course on-going and furthermore, improvements in one category may introduce improvements in another. For example, the arrival of cinematic and editing conventions provided ways to manipulate the time and space of narrative and so introduced ways to punctuate or shape spectator's experience through the manipulation of pace, setting, location (i.e. recording/actualities), attractions/spectacle (i.e. thrill), and emphasise or shape character.

The next sections draw a parallel between developments in film and IMEs. Then, looking to work in film studies, feminism and filmmaking, a framework of experience that fits neatly with the developments in film and IMEs is presented. This provides answers to a number of questions, in particular: what kinds of experience do spectators receive, how do filmmakers create these experiences and how can this be used to inform design and analysis of IMEs?

2.1 VE: remediation of film

In reference to figure 1, developments in interactive mediated environments are identified as similar to that of film. It is argued that modelling, from cubes (Sutherland 1965; 1970) to 3D worlds, is likened to film's '*recording*' or '*actualities*' phase. In film, this in most part refers to recording or capturing of actual everyday real life events and scenes by pointing a camera in the right direction to frame the scenery, sets and circumstances. Similarly, in mediated environments this is the computer-generated representation of real or imaginary (or abstractions of) objects and 3D environments. Although in mediated environments we don't have the benefit/advantage of being able to point a camera to capture content – we have to construct or model it. Furthermore, the camera captures a sequence of images that are presented to passive spectators whereas, in interactive mediated environments, the user is active and chooses where to look and move. The additional interactive component is one of the central differences between film and interactive mediated environments and provides the means to view, move around and through the model.

Drawing a parallel to film's next phase, '*cinema of attractions*', appears at first to be

somewhat problematic. A way forward is to divide interactive mediated environments into two groups: computer games and entertainment systems, and VR/VE (that in most part is in an experimental/scientific/research phase) that are devoid of any complex narrative structure. It is easier to draw a parallel with developments to the first of these, computer games and entertainment systems running on a personal computer or dedicated configuration (e.g. games consoles, video arcade games or VE entertainment systems) than with VR/VE (i.e. experimental/scientific/research). This is because the goal of development is to provide entertainments for users and it is argued that this is described well as thrills, spectacle and attractions and hence, is directly analogous to that of film. Indeed, the inspiration of Gunning's (1990) term 'cinema of attractions' can be found in the Russian filmmaker Sergei Eisenstein's attempt to find a way to describe thrills/spectacle/attractions in film (Arnheim 1957). Eisenstein found the closest approximation to be with fairground 'attractions' and especially to his favourite, the roller coaster or 'American Mountains' (Arnheim 1957). Thus, by drawing such an analogy, this is in a way taking the meaning of 'attractions' back to its origins, the fairground (i.e. the arcade). So perhaps an appropriate way to describe this is VE, computer games or interactive mediated environments of 'attractions'.

With developments in VR/VE (i.e. experimental/scientific/research) however, the analogy is not as apparent. The nature of this work which comes largely from the academic and research communities is experimental and just like that of the 'cinema of attractions' it tests/pushes the boundaries of the medium to see what works (e.g. to identify optimal blends of hardware and software that is appropriate to the environment and purpose in which they are intended to be used) and to identify the purpose/goals of VR/VE. Proponents of these systems would perhaps argue that their environments are developed for real purposes: scientific, engineering, education and training, and medicine, etc. Any suggestion that these provide thrills, are spectacle or can be described as attractions in any way, shape or form would most likely be met with strong opposition. However, if one examines the purpose, goal and/or requirements of successful VR/VE systems (some of which have been identified as in 'routine production use'; see Brooks 1999) a common characteristic that can be identified in many of these is sensations, such as driving, flying, fear inducing, etc. These can indeed be described as thrills, but thrills with purpose (e.g. ergonomic assessments, training and overcoming phobias respectively).

Finally, looking to the '*shaping of character and narrative*', this is directly analogous to that of film and likewise can be separated into two categories. One of the main drivers for developments in both these can be found in computer games. Due to the commercial nature

and associated profits, their underlying developments and mechanisms remain largely in-house secrets and generally go unpublished. However, work is beginning to appear that addresses both developments in character and narrative. For example, Hales 2000, Mateas (2000) and Young (2000) address the inherent tension between interaction and narration. That is, in contrast to old media (e.g. literature, radio and film), new media gives the user control of their encounter and so allows them to formulate their own non-linear narrative structure. Examples of innovative techniques that attempt to ease this tension and are commonly found in computer games are, multi-choice narrative paths, the suspension of interaction whilst story is updated, and essentially, these are examples of new kinds of idioms (e.g. phrase, vernacular, language or dialect) and are constructed with a lexicon (e.g. vocabulary, glossary). Pausch, Snoddy, Taylor, Watson and Haseltine (1996) identify the lexicon of film between directors and spectators as 'close-ups, cross cuts, flashbacks, etc.'. They go on to suggest that over time a common lexicon will evolve for VE and it is argued that this will form a common language or idiom between VE designers/developers and users and may perhaps orchestrate their wider adoption and acceptance as conventions (i.e. standard practice). Laurel, Strickland, and Tow (1994) suggest the motivation for this, just like that of film, is that it may lead to the formation of a language that supports the creation of virtual/mediated environments of 'increasing complexity and power'. Furthermore, just like the way in which developments in film narrative introduced improvements in other categories, it is argued that the same is true with interactive mediated environments.

Similarly, work is beginning to appear on the developments of virtual characters. As mentioned, this has been a continued area of interest in the development of computer games for many years. The drive for some of this work is in producing 'believable characters'. Concurring with Marsh (2001), whether characters are cartoon-like, photo-realistic or exact replicas of humans or other beings, it is argued that the believability of characters is judged through 'honest emotion' (Boorstin 1995). The focus for this final category in this paper is in experience induced/evoked in users through character.

Like film a mediated environment may contain elements of some or all three depending on the application/genre its purpose and the types of experience that are to be induced in users. Consider for example potential applications such as, architecture/real estate where the requirements are to visualise 2D drawings by constructing 3D virtual *models or actualities* and then take a virtual tour to assess the suitability/applicability to support the intended real world use; entertainment where the *thrill/spectacle/attraction* is of more importance to give participants a buzz/kick; and training (e.g. fire fighting/surgical) where both *thrill/fear* and

shaping of character are perhaps the dominant requirement/purpose. However, like film and as suggested above, an application may have elements or blends of all three: *model/actualities*, *thrills/spectacle/attractions*, and/or *character*. Identifying the developments of interactive mediated environments in this way as a linear progression from *modelling* through a kind of *VE of attractions* to the development of idioms and *character* may be an over simplification. However, it is argued that this is a useful and worthwhile exercise principally for two main reasons. Firstly, because it provides a way to draw comparisons with developments in film: to see where we are, how far we need to go to get to the stage where interactive mediated environments provide experiences comparable with those of film and inform on how we might get there. Secondly, the three phases of development (as shown in figure 1) can be used as broad categorisations for the different kinds of experiences that are induced/evoked in users/spectators, so providing a convenient way to develop a framework of experience that can be used to inform the design and evaluation of interactive mediated environments.

3 Framework of experience

What motivates an audience to watch films for hours on end? What makes a good film? These are topics of continuing debate. Much work in film studies has concentrated on analysing film as text, but not text as in the written word, but in 'texture' or the 'weave' of images and sounds from a variety of different sources. To aid our understanding of this, Phillips (2000) offers an alternative view by arguing film is more than text - it also provides 'meaning' and 'experience' for the spectator. In his concise treatise he discusses 'pleasures' that come from 'story', 'spectacle' and 'character', and in developing 'a language [of film] that is capable of shaping and articulating what we know and experience'. In addition, he talks about scopophilia, the pleasure that comes from looking, as a central and major aspect of spectatorship since the beginning of cinema. Similarly, Laura Mulvey (1975) developed the concept of 'visual pleasure'. Although the term originates from feminist literature to describe pleasure that arises from images with a sexual content, Ezra (2000) argues that the term can be extended to include 'any spectacular element of a film, from lush scenery to magic tricks designed to amaze and delight'. Placing these elements (i.e. from lush scenery to magic tricks) within the progression of film from recording to spectacle, as shown in figure 1, Ezra (2000) expands Mulvey's (1975) concept of 'visual pleasure'.

Another approach that encapsulates 'visual pleasure' and also embraces Ezra's (2000) expanded proposal on Mulvey's (1975) work comes from Boorstin (1995). In his influential book, 'Making Movies Work: Thinking Like a Filmmaker' (1995) he states that we don't

watch films in one way but in three ways and as we watch a film the three compete in us. In reference to figure 1, Boorstin's (1995) three categories (see below): 'voyeuristic', 'visceral' and 'vicarious' ('three Vs') that describe spectators' film experience link with some ease to the three categorisations in film's development. There are similarities between Phillips' (2000) categorisations of 'story', 'spectacle' and 'character' and Boorstin's (1995) 'voyeuristic', 'visceral' and 'vicarious' respectively. Indeed, Phillips' (2000) categorisations indirectly reference the progression of film as outlined in figure 1. Although a key difference is Phillips' (2000) emphasis on 'visual storytelling' or 'story' that 'take place in locations, physical places or – to put more abstractly – in space'. Here the space or places of location are of secondary importance to the story itself, while Boorstin (1995) talks about 'story' and 'place' with equal emphasis. However, while accepting Boorstin's (1995) analysis, as previously argued the punctuation or shaping of experience through *models*, *spectacle* and *character* provides meaning in an unfolding story for spectators/users through all three categories. The framework presented in this paper takes into account this additional quality. The three broad categories forming the framework are described as:

i. Voyeuristic: 'the voyeuristic world is where movies began. Before anyone thought that film could portray character [i.e. vicarious experience], before the great innovators of the twenties had invented montage and tapped the visceral power of editing' (Boorstin 1995). He describes the voyeur as the 'prying observer' and the voyeur's pleasure is the joy of seeing 'the new and the wonderful'. The fundamental components of voyeuristic are 'place' and 'story'. Their use and meaning in the context of voyeuristic reflect the dynamic nature of film. Place refers to visual pleasures: the geometric shape and space of the location, imagery, scenery and sets just like that identified in the recording phase of film. Story refers not to the transmission of emotional information through character like that of the vicarious experience but in the progressive advancement of the dynamic film. That is, 'something has to happen'. To emphasise this, Boorstin (1995) draws an analogy with turning the pages of a storybook to find out what happens next; what E. M. Forster describes as 'and then, and then...'. If there is nothing to provoke our curiosity and interest in both 'story' (i.e. scenario) and/or 'place' (i.e. visual pleasures) of film then simply we get bored. Finally, this must occur within a credible flow of time and space. Failings in either of the above are negative characteristics that have the potential to break our interest and attention in the film. That is, the pace shouldn't be too slow to bore or too fast that we lose track of/get lost in the film and the film must be plausible – it must make sense. So, meaning from voyeuristic is interpreted through the progressive advancement of a dynamic environment and in the spaces and places created in that environment.

Like film the articulation of time and space in interactive mediated environments is artificial, that is, it is constructed. This permits the creation of just about anything that we care to construct and is only constrained within the bounds of human imagination (i.e. within technological limitations). The only limiting condition that must apply is that the flow of time and space is credible. This leads to a similar and inter-related issue – pace. The pace of a game, story/scenario and the movement through a mediated environment must also be credible. That is, the unfolding of game/scenario played out through causal events that push/pull it along in situations (e.g. moment-by-moment, action-to-action, mission-to-mission, start-to-end) should occur at an optimum pace. Not too slow so as to bore confuse or frustrate, and not too fast that users lose track of, or their way in, the scenario, game or environment.

Finally, mediated environments and the scenarios played out in them should provoke interest and curiosity so as not to lose/break user's attention. For mediated environments to do this they need to create 'visual pleasures' and induce/evoke experience. These are issues related to the geometric space of a mediated environment and objects within them. That is, the sets, scenes and settings are characterised through aesthetic (i.e. artistic) and atmospheric (i.e. ambient) pleasures, all combining to provide a sense of space and perhaps sense of place for users. To encapsulate the voyeuristic experience two dominant features are identified:

- interaction: pace of the unfolding game/story/scenario/environment.
 predictability and credibility of moment through the environment and with
 the behavior of objects and environment.
 plausibility to make sense of the game/scenario/environment.
- place: aesthetic (i.e. artistic), atmospheric (i.e. ambient) and sense of space.

ii. Visceral: the instinctive base sensations and thrills; these are gut reactions rather than emotions. For example, the roller coaster and helter-skelter type effect, the sensation of movement (e.g.vection: visually induced illusion of self-motion), feelings of fear, disgust and nausea, as well as, sensual and sexual feelings (i.e. 'surge in the loins'). So with visceral meaning is interpreted through thrills. 'Point-of-view (POV) is the gateway to the visceral'. Like vicarious experiences, POV puts us in the scene, for example in IMEs this occurs through a first person perspective. However, we can also experience visceral thrills through a third-person perspective, e.g. driving a racing car in a computer game from behind the car. More complex emotions require the empathic process of the vicarious. It's more simple with visceral; if it's not a thrill, it isn't visceral, and its main criticism is 'it doesn't get me'. This is

because either we have acquired an increase in threshold for the visceral effect to kick-in or simply the design of the visceral effect is inadequate. Examples of experience that fall in this category are:

sensations of movement: driving, flying, walking, running, jumping.
feelings of fear and disgust: frightening, nauseating, disgusting, shocking.
sensual and sexual feelings: 'surge in the loins'.

iii. Vicarious: this is to imaginatively experience something through another person, being or object, for example in the transfer of emotional information through behaviour, gestures, dialogue and facial expressions. Within a mediated environment all interaction is performed vicariously through either a first or third person perspective. Indeed, recently Lee and Nass (2003) have associated the term 'vicarious' with the transfer of experience mediated by VR, simulators and novels. However, they restrict their discussions on experience to the concept of presence. In this paper it is argued that simple vicarious experiences are in the transfer of spatial knowledge and object manipulation/interaction, for example, from exploration in a virtual space and manipulation of virtual artifacts. As technological and artistic innovations are developed, the vicarious experience will become more complex by the transmission of emotional information through empathy. This is to know what a person is feeling and to feel what that person is feeling (e.g. Levenson and Ruef 1992). The empathic process is transferred through actions, stories/anecdotes and facial expressions. In a mediated environment this is through either our interactions or that of other beings (e.g. avatars, virtual humans, etc.) or objects. Within film (and theatre) the vicarious/empathic experience is induced through an actor's ability to convey 'honest emotion' (i.e. accurate, believable; see Boorstin 1995). Empathy in film/theatre usually occurs between the spectator/audience and the protagonist (i.e. the hero, central character), although it can also occur with other characters. So with vicarious, meaning is interpreted through the transmission of empathy. The vicarious experience stops working when a character is unbelievable, emotionally untrue or simply 'he wouldn't do that'. Many methods have been developed to capture/measure empathy. For reviews see for example Levenson and Ruef (1992). However, in mediated environments another kind of empathy can be identified: the transfer of emotions and perhaps personality traits from the user's virtual character (i.e. that the user controls, represents or takes the part of) to the user themselves. The higher the transfer of emotions the higher the empathy and the term 'empathic accuracy' (Ickes 1997) can be used to describe this.

As spectators of a film, the voyeuristic, visceral and vicarious experiences are not necessarily mutually exclusively but may occur simultaneously and compete within us. Boorstin (1995) provides many descriptions of this. An example of a film invoking/evoking predominantly visceral experience is the well-known shower scene from Hitchcock's (1960) *Psycho*. In contrast, Boorstin describes Stanley Kubrick's '2001: A Space Odyssey' (1968) as perhaps the ultimate voyeuristic film. Although the film provides other experiences for the spectator (e.g. the visceral experience in Douglas Trumbull's 'StarGate sequence') it is in most part devoid of any complex story, character, or suspense. To keep us watching and maintain the illusion Boorstin suggests 'Kubrick keeps the pages turning simply by showing us one amazing sight after another'. 'As pure an example of a vicarious film' Boorstin identifies Alan Pakula's 'Sophie's Choice' (1982), particularly in the scene that prompts the film's title where 'Sophie' played by Meryl Streep is forced to make a choice between her two children. These experiences provide meaning for spectators. Stimulating experience through an optimal combination or blend of the 'three Vs' (i.e. depending on genre) encourage spectators in 'staying there'.

Like filmmakers, designers of IMEs need to provide meaning in an unfolding story/narrative/environment through experience and preliminary studies using a questionnaire have shown that the 'three Vs' are induced/evoked in users of IMEs (Marsh 2001). I have identified aspects of design that induce/evoke these experiences in users. Depending on the purpose or genre of IME, emphasis is put on specific aspects of design to induce/evoke appropriate experience. So for example, consider the following hypothetical scenarios. Take us back to previous civilisations with models of living accommodation, surroundings and everyday artifacts, and let us become voyeurs moving through this environment and so evoke curiosity and interest. Allow us to vicariously become someone in this past civilisation and experience the fear (i.e. visceral) of potential attack or war; or let us take the role or part of anyone or anything we want to become – a film star, an astronaut, a world leader and experience reactions from others in these environments. Even become a dinosaur, dolphin or bird and experience the visceral sensation of swimming or flying. To encourage users in 'staying there' these experiences need to be stimulating and this may provide an alternative way to reason about engagement and presence.

4 Conclusion

Building on earlier work this paper draws a parallel between developments in film and interactive mediated environments. It argues for a concept of 'staying there' to hold user's attention in a mediated environment (Marsh 2003). This is a consequence of three things:

supportive and unobtrusive equipment that remains effectively transparent in use, continuity (i.e. continuous and coherence) of content, and thirdly, appropriate and/or stimulating experience induced/evoked in users. Conversely, 'equipmental', continuity and/or experiential breakdowns may shift attention from the mediated to the real world. Focusing on experiential, this paper has described three levels of experience: voyeuristic, visceral and vicarious. With varying degrees of emphasis, story is experience by spectators through one or a combination of these three to provide meaning. As part of on-going work, preliminary studies (i.e. using a questionnaire) have shown that these experiences are induced/evoked in users of IMEs. Future work will investigate the 'three Vs' further to formulate a richer understanding of its constituents with the aim of informing design of interactive mediated environments to induce/evoke 'stimulating experience' in users.

As well as informing interactive mediated environments this work aims to apply the 'three Vs' to other new and emerging computer, media, technological devices, products and artifacts, and environments. Some moves in this direction have already taken place, for example to inform e-commerce (Wright, McCarthy and Marsh 2001), 'Enchantments of Technology' (McCarthy and Wright 2003) and 'Emotional Design' (Norman 2004). However, this paper aims to hold true to Boorstin's (1995) analysis from a filmmaking perspective. Building on this, it was argued that the punctuation or shaping of experience through *pace/model*, *spectacle/attraction* and *character* provides 'meaning' in an unfolding story for users through all three categories. So in summary, meaning from voyeuristic is interpreted through the progressive advancement of a dynamic environment and in the spaces and places created in that environment; with visceral, meaning is interpreted through thrills and with vicarious, meaning is interpreted through the transmission of empathy from character. When meaning provides 'stimulating experience' users are encouraged in 'staying there'. This may provide an alternative way to reason about engagement and presence.

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¹ The term interactive mediated environment is used to encapsulate similarities in many current, new and emerging media types (e.g. virtual reality, virtual environments, computer games, the Internet) comprising three-dimensional computer generated/manipulated visual environment or space (e.g.

graphics, video, photographic, etc.) and provide the potential for user activities within the environment. To enhance a line of reasoning individual media/platforms are referred to by name.

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