'The Real' Just Got Realer

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1 Introduction

Humans have always lived in hyperrealities; it is perhaps an unavoidable consequence of (self) consciousness. Early Homo Sapiens Sapiens would have 'seen themselves' in a world which was a complete and terrifying mystery to them. Life gets a little easier if you invent or evolve a hyperreality - however unconsciously - which makes the whole thing more understandable. Early cave paintings - such as those at Lascaux - are expressions of the pervading hyperreality of the time. Plato's shadows on the cave wall are a dawning realisation of the 'fact' of hyperreality. The mnemonic arts of early Christian monastic practice sought to actively populate and enrich the very hyperreality on which they were based (Carruthers, 1998) – only, that is, if you were part of the qualified and trusted elite of course. Otherwise you might populate the hyperreality with heresy and folklore.

Baudrillard (eg. 1996) tells us about our hyperreality dependency; but it is not new; it should only have been news. It should have been a realisation that this is the way things have always been for self-conscious humans. If you are self-conscious you, perhaps, cannot know reality. To know reality you may well have to experience it without a self. Is to be without a self to be without a hyperreality?

In confronting our hyperreality dependency maybe we can begin to find ways of getting to know reality. But we must not forget technology; particularly its role in reinforcing, if not enabling, our hyperrealities. There is a view that we didn't evolve technology so much as technology evolved us (REF). Whatever the truth or otherwise of this technology maintains us in evolving hyperrealites and just as we are getting to find a way to understand, if not master, our dependency technology evolves Virtual Reality (VR). VR is hyperreality made concrete, grounded. The simulation - the myth with no referent - now has a referent, a mediated referent, a referent that we appear to mediate. Haptics and other modes of agency allow us to intervene in, to touch, our simulations. Or rather they can now touch us; they can push and prod us into shape (Fencott, 2003).

If the simulation gets realer, how real can it get and where does this leave reality? Hyperreality becomes the confusion of sensory frameworks and not myth and the real. What of 'the real'?

Before attempting to speculate answers to these types of questions we consider what we mean by VR and some associated terms. The following is a useful starting point:

> *Virtual Reality, also called Virtual Environments (VEs), is a new interface paradigm that uses computers and human computer interfaces to create the effect of a three dimensional world in which the user interacts directly with virtual objects* (Bryson, 1996).

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This is useful because it does not stipulate the exact nature of the technological interface which could therefore be high-end – Head-Mounted Display (HMD), CAVE, data gloves, haptic peripherals and so on - or a standard desktop PC with a standard interface. This means both high-end enviroments such as Osmose (Davies) computer games such as Shenmue and Rez. It is quite possible that virtual experience is as much to do with content as embodying technology.

Two related terms are important in this respect: by immersion we mean the technology of the embodying interface (Bioca, 1997) rather than the mental state of presence: the 'willing suspension of disbelief' (Coleridge, 1817), the 'perceputal illusion of non-mediation' (Lombard & Ditton, 1997). In other words, immersion is the technology that attempts to remove and replace sensations of the real while presence is the state of mind in suspending disbelief in that replacement. Computer games – the commercial manifestation of VR – are low on immersion but high on presence. It is possible to be totally present but (very) partially immersed (Lombard & Ditton, 1997; Bioca, 1997).

But at the high end, what if it was possible for humans to safely escape to another world entirely, without moving from their current location? What if they could live out a totally immersive alternate reality – a 'viable alternate sensory framework' (Zhai, 1998) - through virtual reality technology? People can already experience mediated presence, with partial immersion by playing computer games. Slater, among others, has shown that increased immersion hightens the emotinal responses to VR content (Slater, 1999).

High-end VR attempts to immerse the user by appealing to their natural sensory and perceptual systems, such as sight, sound, touch, smell and taste. The sensory data, cues, can be: visual, through a visor display for example; auditory, through a 3D speaker system of some sort; haptic, using various tactile feedback devices (Haptic Community). The technology to deliver mediated olfactory cues is under active develpement (eg. Yanagida). Mediated taste cues are readily available the world over.

So far the general public has not embraced high-end VR, as much as people ten years ago might have imagined, although there are highly sophisticated and expensive instances. In exploring the questions concerning VR and 'the real' we start by reviewing the technology of immersion from a current VR perspective and then total immersion from both a fictional and a technological perspective. We then go on to explore the relationship between total immersion and 'the real'. In doing this we consider the possibility that humans experience 'the real' and 'hyperreality' concurrently in their everyday lives.

2 The Mechanics of Immersion

Current high-end VR technologies attempt to provide us with an immersive environment by using electronic, electro-mechanical, electro-chemical-mechanical technologies to mediate our sensory environment. Many advancements in this respect are being made by the medical industry. One company making such waves in this area is the Immersion Corporation which is leading the development, manufacture, and marketing of simulators that recreate realistic medical procedures.

The realism of the simulations this company has developed is generated largely through the use of haptics (Haptic Community Website), which is tactile feedback provided by devices such as joysticks, gloves, wheels etc. The signifier, in simulations that use haptics, is the actual pressure that is being applied to the hand of the user and the signified is the belief of the user that they are touching the actual

object, what ever that might be. The influence of touch on users is so much more significant than any other type of signal, as the human reaction to stimulus is far quicker when based on physical sensations (ref ????).

The Immersion Corporation's AccuTouch Endoscopy Simulator (Immersion Corporation 2003) simulates the procedure of an endoscopy, as the name suggests, using a computer based system. The aim of the system is to assess the motor skills and cognitive knowledge of each medical student. The force feedback is applied through a flexible scope with the mannequin also providing a realistic feel to the procedure. The main advantage of using a realistic simulation is that students can practice without endangering a test subject or patient when in their training stages. Although this system is expensive, its performance and successes far out way the monetary cost.

The Immersion Corporation also provides haptics in their game technologies to allow users to become active in a virtual environment. Their major haptic system centres on a glove that has a number of layers. There is the Cyber Glove (Immersion Corporation 2003) which uses "proprietary resistive bend-sensing technology to accurately transform hand and finger motions into real-time digital joint-angle data" and Cyber Grasp, a light weight, force reflecting exoskeleton which fits over the glove and adds resistive force feedback. The user can then feel the size, shape and texture of objects in the virtual world.

To view this world, the most common interface is the visor (Cyberworld Online 1995-2003), which consists of a viewing screen that is integrated into a head mounted display unit. The auditory senses can also be stimulated through speakers within this unit to encourage the user's immersion within the virtual environment. The movement of the user's head and or body can be tracked through sensors to translate a feeling of movement to the visor and their view of the world.

But how total can this new reality become? Proprioception - our bodily self-awareness - may mean that we can never be fully immersed by such meditative technolgories. We will always be aware of the weight of the HMD, of the slight delay between sensing a head movement and updating the stereosciping display, of the sensation of the material of the data-glove touching our skin and so on. Total immersion by meditative VR does not seem viable. That is not to say that mediative VR does not work, only that it will never completely remove all vestiges of the real.

3 Total Immersion

The science fiction media has often predicated the need for invasive VR technologies that bypass the body's nervous system to a greater of lesser extent. The idea is exemplified by a whole genre of films of which eXistenZ, Dark City and The Matrix are good examples. We will consider one of these, eXistenZ, as predictive technology and as a game for the real.

The technology used in the 1999 film eXistenZ, by David Cronenburg, bypasses sensory cues using a device that "ports" into the base of the spinal cord and passes messages directly through the nervous system to the user's brain, thus causing them to imagine they are experiencing an alternate reality without moving at all. The user can lie down yet be walking around in the virtual world and the only movement others witness in the real world would be twitches as a side effect of their immersion.

The device used in the film is known as a meta-flesh game pod manufactured with organic components so its appearance is much like that of a bare skinned creature. It is ported into the user with a cable known as an umbi or umbilical cord, which closely resembles a natural umbilical cord. The signifiers mentioned here, such

as the game pod's life-like appearance and the use of an umbilical cord are icons that represent myths of maternalism. The prolonged use of the game pod by the main character in the film, Allegra Geller, causes a bond between them and she is visible distressed when there is a possibility that it might die.

The idea that a console such as this can become like a child or an extra appendage reinforces the dependence that she has on the game and escaping from a world that she finds dissatisfying. During the film Allegra is accompanied by someone who has not played one of these games before, she advises him to "break out of (his) cage" of reality.

The users of the console control the pod to begin the game by putting pressure on a sensitive nipple-type protrusion on the pod, which has connotations of similar stimulation points in humans. The use of this as the engaging interaction medium is appropriate for a console that is, to all intents and purposes, a living creature and is sensitive to touch. It could also be argued that this further bonds the pod with the user. When the user is in the game they no longer interact directly with the pod and control their environment by actions they take in the game such as pausing or exiting the game by shouting "eXistenZ is paused!"

Content and analysis techniques for interactive media such as computer games are being actively developed and applied at the University of Teesside (Fencott 2003 & 1999). In the former an aesthetics of interactive media is proposed which will be applied to eXistenZ below. First we will very briefly analyse eXistenZ as a game for real using Andersen's Computer Based Signs (CBS) which allow us to characterise the content of interactive digital media, signs, in terms of permanence, transience, handling and action. The interaction sign – which the user can handle, can affect other signs, might change but will always be recognisable – is the means by which game players see themselves re-present-ed in the game and affect change within the game. Actors and signs which can affect other, are always recognisable though they might change but cannot be directly handled by the player.

Because eXistenZ is intended to be totally immersive it is not supposed to include unrealisms (Poole, 2001) such as cursors, buttons, graphs representing health, wealth or progress for instance. The interactive sign in the game is each user's viewing frustum, ie the point at which they are positioned to interact with the artificial world. There are actor signs within the game that possess all the qualities of an interactive sign, without allowing the user to handle them. These are the computer-generated characters the player interacts with to advance the game. They are programmed to only respond to certain phrases or actions that lead to altering events in the game or else they regress into a game loop in which they appear as if in a vegetative state.

An object sign's definition is that it is permanent and transient but does not cause changes to you or the game. The objects within the game are signs such as trees, buildings etc. Although in the game there is no evidence of the users interacting intensely with the objects, in theory, if the user was to run into a tree they might feel pain, which is the object affecting the user and also the game. The object signs, therefore, can transform into an actor sign if the user chooses to interact with them. Allegra being shot by a tooth-bullet is a good example of this, a beneficial unrealism. There in a point in the film, when you are not sure if they are within the game or not, when Allegra appears to test the realism of her environment by stroking a wall and kicking the ground.

As already pointed out, there are no tangible buttons or other traditional interface components in the game but there is a sign that will exit the user from the

game, which is the shout for pause mentioned previously. Although this is not a visible sign it has permanence for the time it is being voiced, transience as it changed sound and tone and it causes the game to act differently by pausing it. The act of shouting creates a button, or actor, sign on the fly.

Controller signs have the attributes of being permanent and also affecting the game. Examples of these in basic IDEs would be the boundaries to a maze. There is no evidence of physical boundaries within eXistenZ that the user walks up to and can go no further. There is, however, an attribute to the game that moves the user to another area of the game if they have exhausted one avenue of exploration.

Layout signs in the game would be elements, such as the sky, that the user cannot interact with. To define all the layout signs would involve further exploration within the game as there may be visual elements of the game that are displayed to the user as a backdrop to the scene without them being fully aware of its existence.

It is interesting to consider eXistenZ from a broader aesthetic point of view. We can characterise a particular aesthetics for VEs as:

- Agency – which itself consists of:
  - Intention - setting goals, plan their attainment
  - Perceivable consequence – being rewarded for one's mental and virtual activity by sensing the VE change appropriately as a result of the actions taken.
- Narrative potential – the sense that the VE is rich enough and consistent enough to facilitate purposive experience that will allow the user to construct her own narrative accounts of it.
- Co-presence - being present with others.
- Transformation – temporarily becoming someone or something else as a result of interacting with the VE.
- Presence – the perceptual illusion of non-mediation
  (variously: Murray, 1997; Church, 1999; Laurel, 1994; Fencott, 3003)

The aesthetics of a VE are the pleasures that it offers to the user as a result of interacting it. They are the reasons that the user wants to interact and keep interacting for long periods of time. These aesthetics are strong in such an immersive environment as eXistenZ and will now each be analysed in turn:

Agency in eXistenZ allows the user to interact with characters in the game in order to affect changes to the path of the game, although the game environment controls the characters responses. The user has a certain amount of control over where they move to next, the objects they can use and what they say but sometimes the "game character" applied to the user will take over and act out in ways the user cannot control, in order to advance the game. We have here the basic interplay of intentions and perceivable consequences.

The eXistenZ game is based around a story with multiple endings and paths the user can take. Narrative potential is much like that of adventure books where you can choose to take one path over another to reach an end. There is no set storyline in eXistenZ, "you have to play the game to find out why you're playing the game".

When the user is in eXistenZ their physical appearance may change, but only slightly in elements such as their clothes and hair. Their personalities can be transformed drastically, however, dependant on the game character there are supplied with. Players are role playing via a 'prosthetic consciousness' (Fencott, 2002) that constrains and directs their normal expressions of self.

The player may sometimes be transported to another area of eXistenZ if one area of the game has been exhausted of possibilities, although the passage or point in

time is not clearly defined in the game as past, present or future, it is just existence. This action of this transformation is described, in the film, as cutting and fading in, which are editing conventions used in the film world to describe moving from one scene to another. The intertextuality (Chandler 2001) between one 'scene' in the game and the next depends upon the aggressiveness of the transition between the worlds. For example, the start of this game fades in smoothly but it is mentioned that some scenes may harshly cut to a more dramatic scene, such as in a shoot-em-up type of game.

When Allegra is trying to convince Ted Pikul, the other major character in the film, to port into the game with her, she says that it is not as much fun without someone else to play it with. Although the player of the game can interact with game characters, it has been shown in non-immersive gaming that game players achieve a higher level of presence when playing against real people, like themselves, when they are co-present. Unlike playing games over the Internet, it is not mentioned that eXistenZ can be played over long distances. The players in the game have to be close enough to become connected with umbi cords.

The realism of eXistenZ allows the user to become totally immersed in the game. The society in which people play are so used to using an alternate reality for realistic recreation that “nobody actually, physically skis anymore” and getting ported - having the socket that your umbi chord plugs into inserted into the base of your spine - is “like getting your ears pierced”. The only obstacles that prevent the user playing the game instead of living their lives is that the game will not function if the user becomes tired, hungry of injured in any way in the 'real' world.

When the users are playing the game there are moments when they, and the viewer of the film, are not sure if they are in the game or not. The users and viewers each use their knowledge of codes of realism to determine this. The viewer's codes of realism are that none of the game pod or the society previously mentioned can exist. Although we assume that eXistenZ is the game, at the end of the film it is discovered that their playing of the eXistenZ game was another game entirely, called tranCendenZ, and even then one of the users asks “are we still in the game?” When the users are playing eXistenZ, aspects that flout their own codes of realism are the smaller game pod that squeezes itself right into the user's spine socket, the mutated animal factory and the fact that Ted Pikul would kill someone.

Within the film, there is a group of people known as realists who are against the use of the alternate reality as they believe it is effectively destroying actual reality. One of the metaphors used within the film is that it “seems as if everything was something else once”. The aspects of reality such as a ski boot and the ski lodge have both become something else; a pod carrier and a pod workshop respectively.

The appeal of the virtual reality system used for the eXistenZ game is its portability. The system does not require a bulky visor, haptic technology and a powerful computer to generate the environment. Also, as mentioned previously, when the user is connected to the console they do not move from their position. The console relies on sending specific instructions, determined by the game, to stimulate the user’s own senses by accessing the brain directly.

In eXistenZ we have an example of both: VR as a medium for simulation and VR as a simulation of 'total immersion'. In the former we have VR as the familiar medium which delivers interactive 3D games and other such content. In the latter we have the myth without referent of totally immersive VR. VR is a manifestation of the hyperreal. We have compounded this by considering eXistenz as a game for real. That

VR itself gives rise to hyperreality is an apparent contradiction we will explore later. Before that we consider the reality of invasive total immersion.

4 The Technology of Total Immersion

To support our assertion that VR is in itself a simulation we pursue the possibility of eXistenZ-like technologies. Although there are currently no VR systems that perform in the way such game pods do, it does not require a huge step to imagine how one might be created in the future. In order to recreate a system like that used by the game pod, the components must stimulate the brain or nerve cells directly. Advancements in this field are largely being made by the medical industry.

Embedding electronic components in humans has been used in the medical field for longer than many people might realise. Fifty years ago, cardiac patients were implanted with electronic “spare parts” such as the pacemaker, first used in 1960.

There has been a large amount of current development in replacing defective parts of human visual mechanics with microchips and microelectrodes. (Scherpf 2002) The most recent work has involved retina implants that connect to the optic nerve. Used for a blind person, visual signals are sent to the brain, which relate to their current view. This procedure involves a very delicate operation and is extremely risky; however, the user is given the benefit of being able to see rudimentary light patterns.

The greatest achievements have been made with enhancing hearing for the deaf or hearing impaired. Electrodes can be implanted in a person’s inner ear and linked directly to the auditory nerve. This causes the brain to interpret the nerve impulses it receives as sounds.

If the visual and auditory senses are two of the most important senses when virtual reality is concerned, the feeling of movement is the other. When moving around in the eXistenZ world, the user believes they are walking around in their environment. For this to happen their brains must believe that their muscles are actually working in a way that would cause them to move. For a particularly grotesque 'thought experiment' based on this idea see chapter one of Zhai (1998).

One giant leap in this direction has been made by neurosurgeons working with paraplegic patients. They have been able to implant a set of microchips under the patient’s abdominal wall that stimulates ambulatory muscles via an electronic cable. The patient can then send messages to these muscles through the use of a remote control.

Other advances in this field have been made by Stanford University with a neural interface chip. The chip assists in partial amputation cases, such as a partial amputation of a hand that causes the patient difficulty when clenching their fist.

In paraplegic patients, the link to the brain and the muscles is broken. To play in eXistenZ this also needs to happen temporarily to allow the user to wander in the artificial world without actually moving whilst being provided with the illusion of their movement. The system needs to somehow disconnect or jam the signal route to the muscles whilst sending their own discrete signals to the muscles, controlled by the computer or game rules rather than a remote.

Biomechanics is the closest science has come to creating a biological computer like eXistenZ. Scientists have succeeded in growing leech nerve cells in wells in a microchip that grow fibres that connect to other cells. The neurochip is then a hybrid of both the biological and mechanical, with data flowing in each direction.

Another area of research in the medical industry involves partially paralysed patients. A neurotrophic electrode (Williams 1999) allows a biological system, the

brain, to send signals to mechanical devices, such as a computer, to control them (Neural Signals Inc. 1998-2003). A small cone shaped electrode is placed inside the patient's motor cortex. The nerve growth chemicals within the cone encourage brain cells to grow into the electrode's tip. Some patients have successfully managed to access the Internet using a type of thought control with this technology.

If a biological organism, such as our brain, can communicate directly with a computer, it is not, perhaps, such a jump to imagine a computer communicating directly with our brain to send signals to our senses of sight, sound, touch, smell and taste as well as movement.

In order to live in a virtual reality, in the way that the users of eXistenZ do, a series of micro and neurochips would need to be implanted in appropriate areas of the body. A chip in the retina would be placed so the computer or console can send visual stimulus and an aural implant in the inner ear which can be send auditory data. To stimulate the olfactory sense the information could be sent directly to a neurochip implanted in the limbic area of the brain, which handles primitive smell structures (Kruszelnicki 2003). The stimulation of taste takes place in the anterior insula (BBCi 1998), so yet anther neurochip would be placed there. The ability for the user to experience movement has been covered previously, by allowing the muscles to be sent discrete signals.

It is possible that using a number of chips to allow interaction is, currently, a more viable method of interaction than sending a number of signals to the brain as a whole. The main concern with this method would be that the player of the game would require a large amount of invasive and extremely hazardous surgery. It is not difficult to believe that a blind person would go through this procedure at this risk of their sight, as they would only have the option of enhanced sight or staying blind. If an able bodied person was to undertake this treatment they may be considered as something of an eccentric. There has, however, always been a fear factor when it comes to technology. People once held the ability to provide light as the power of the Gods; we now switch on a light bulb with a switch without thinking.

The computer that controls this technology would have to be placed close to the microchips and neurotrophic electrodes in order to send signals to each chip. The computer may be quite bulky but have a peripheral that is some sort of lightweight helmet for the user to wear. The signals could be sent to each chip using a similar technology to that used by Bluetooth (Franklin 1998-2003), which sends radio waves with a frequency of 2.45 gigahertz as a signal from computer to computer. To track the user's eye movement within the game, eye-tracker technology could be implemented. This already exists in the form of headsets (Cybernet Systems 2003) but the user's eyes would probable be closed during the game. To solve this problem, either a contact lens could be used which carried a miniscule sensor to track eye movement or some sort of movement sensor could be placed over the eyelids to track the raided iris area.

Even if invasive VR bypasses bodily self-awareness completely we will still have our individual memories of our self and its histories. This is the case with eXistenZ where players are self consciously aware of their presence but still have to try and find out if they are in a game or back in the real. Total immersion even by means of invasive technology may well be unobtainable, a myth without referent.

There is still at least one route to total immersion, birth! This is total presence in the style of The Matrix. Without somehow being able to 'pause' or 'interrupt' our memories, the only route to total immersion might well be starting with no sense of self and growing up in simulation. Bostrum (2001) investigates just this idea in trying

to work out the likelihood that we are actually living in a simulation running on a hugely powerful computer system created by some post-human species somewhere. We are all born into total immersion but it seems we can only partially exchange it.

5 VR as Simulation; VR for Real

In section three we came to the conclusion that VR is itself hyperreal in the sense that there is a confusion between VR as simulation – in Baudrillard's sense of the word – and VR as part of the real in terms of computer games and VEs making use of the mechanics of immersion. Total immersion is a myth of hyperreal VR for the very reason that it is rarely if every questioned; we assume, perhaps, that we will some day be totally enveloped by technology.

The inherent limitations of the new technologies of immersion may, counter intuitively perhaps, actually have the effect of helping us to acknowledge and question our hyperrealities. Lauria sees VR as an empirical-metaphysical test bed in which can experiment with the real and our experience of it (Lauria, 1997). If to know reality, we have to experience it without a self then VR could offer us a way of coming to know 'the real' by removing us from it. By allowing us to leave it and return to it and leave it and return and so on and so on. We could perhaps use VR to de-naturalise the hypereal. This is potentially empirical; we could conduct experiments to search for de-naturalisation in process.

But there is a second possibility. It is possible that we all experience reality without a self all day, everyday, throughout our lives. We do this through one of our two unconsciousness'.

- U1: what we were once conscious of but have forgotten or repressed
- U2: what we have experienced and learned unconsciously

The first is the unconscious of Freud and psychotherapy, the second is the unconscious of consciousness studies. The latter should really be called unconsciousness studies with consciousness merely an epiphenomenon: either an emergent property of the complex system that is our mind or a useful but artificial concoction of our unconscious. U2 is our unconscious experience of the world. It is what we use to survive and make our way in the world. Perhaps survival is far too complex a business to leave to our fickle and unreliable consciousness. But why have we evolved so that reality is forever hidden from us by the fabrications of hyperreality? And can we ever break through?

I suggest that in interacting with media, playing games and watching films there are times when we do indeed break through. Tennis players, for instance, have to respond so quickly to their opponent's shots that they do so quicker than conscious thought is able decide, they respond unconsciously. In certain types of computer game the interaction sign contains no connotations of self or sentience of any form; Tetris is good example but there are many more. This form of interaction is called 'flow' by Csikszentmihalyi (1990) and is characterised by:

- losing track of time losing their sense of self
- "action follows action according to an internal logic that seems to need no conscious intervention by the actor"
- "there is little distinction between self and environment, between stimulus and responce or between past, present and future"
- "flow experiences are attained when there is a percieved match between the elements of the activity and the subject's skills

When we attain flow we experience the real. For instance, when we catch a ball that someone has thrown to us we respond using unconscious knowledge of the world. Even if we know the Calculus and could calculate the parabola for the trajectory of the ball we would not be able to do it quickly enough. We have to use our unconsciously learnt knowledge concerning the behaviour of thrown objects to get our hands in the right place to catch the ball. We use unconscious knowledge all the time and I suspect that such knowledge is direct.

6 Playing With Simulations

One of the questions raised by this paper was, can we really become fully immersed in a virtual environment? Can we believe, in all totality, that we are in another world whilst depending upon mediating technologies to facilitate our existence, in that environment? We have shown that total immersion is a Baudrillardina simulation but that doesn't mean it isn't useful.

In order to investigate the power of the mind's belief, we can look at the use of VR in psychotherapy. The psychotherapists at Virtually Better (Virtually Better 200-2003) are successfully using virtual reality to treat patients' phobias, such as the fear of heights and travelling by plane. In Jane M. Sanders' (Sanders 2001) paper for the Georgia Institute of Technology, she writes about a patient, experiencing one of their environments, with a fear of flying. On first impressions, the patient felt disappointment that the simulation of the view from an aeroplane window was not realistic. She then felt the seat begin to shudder and promptly fastened her seatbelt.

In July 2003, the Psychiatric Times (Wiederhold 2003) reported on a similar use for virtual realities in treating agoraphobia. They call it Virtual Reality Graded Exposure Therapy or VRGET and developed the system after the lack of success they found with non-immersive environments, such as computer screens. In this situation, the patient is subjected to a controlled set of situations, to which they are supplied appropriate therapy at various stages.

When developing VRGET, the team noticed that the mediating technologies used brought the user away from the virtual experience. After refining the system, and removing other distracting factors, such as invasive ambient light and the position of the therapist, the Virtual Reality Medical Centre reported a ninety percent success rate in treating their patients.

In these two cases, it is the individuals' own memories and hyperrealities, therefore their fears, that makes the virtual world a reality to them. The user of the environment would not be helped in their treatment if they did not, even subconsciously, believe they were in danger in that virtual world. Although the mediating technologies did not fully immerse them in the environment in a physical sense, the power of their minds and strength of their hyperrealities lend significantly to placing the user in that world.

If we exist in and are totally immersed in this 'real' and cannot experience self without a hyperreality, why should total immersion not require the "hyperreality" of technology to facilitate existence in the virtual world?

Even if we still cannot be totally immersed in a virtual environment, do we really want to be? For us to obtain this total immersion, the environment would have to conform to our perceived idea of reality in every way, perhaps with added scenarios that suit the user. If we were to believe this world is real when we exist within it, where is the advantage of having a virtual environment? Even with a game like eXistenZ, which immerses Allegra and Ted so fully into the game world, the pleasure they receive when using the system is derived from their knowledge that it is

not real. Even when they are inside the environment, they refer to it as being a game, and only as a real world when conversing with game characters.

The use of virtual reality as a simulation is already at a level of technology that can put the user in situations that they believe are real, but are still aware that they are not. If a user was to truly believe that they are in an aeroplane, when experiencing a simulation to treat a phobia, they could suffer a severe reaction. In the same way, if a pilot in flight training was to believe one hundred percent, that they were flying a commercial aeroplane, full of people, when they were actually in a simulation, the trauma they would experience if they caused an accident could be described as sadistic.

7 Conclusions

In the introduction to this paper we suggested that humans have always lived in hyperrealities; that it is perhaps an unavoidable consequence of (self) consciousness. Without the hyperreal consciousness might well result in sheer terror of all around us. We have demonstrated that total immersion is a myth that we should question. VR is an embodiment of hyperreality in that VR as simulation, the myth with no referent, is so easily confused with VR as realised in technology.

Experiencing other 'reals' through 'real VR' might well lead us to confront our hyperreality dependency. Everytime we play an interactive 3D computer game or immerse ourselves in Osmose (Davies, 1995) and return we confront the disparity between simulation and the real; we experience the hyperreal that has lain so long camouflaged in and filtered our consciousness. Maybe we can begin to find ways of getting to know the real by what it is not; a good old fashioned semiotic technique.

In playing certain kinds of computer games that entice us into forgetting our selfs and not replacing with another we may also come to know reality directly. In experiencing 'flow' we forget to filter the real and experience it without intervention of rational explanation.

'The real' just got realer because the simulation that created the hyperreal got realer and denaturalised the hyperreal. Play lots of computer games and experience lots of reals. The everyday real will become more apparent. Play lots of computer games that are just flow, experience a little of the real directly, without self. Hyperreality may well be a passing fancy. We need to make it work for us.

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