An exploration of a diversity of vision in digital art projects in relation to issues of engagement

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ABSTRACT

Contemporary digital art projects are often dominated by an emphasis on the technology. What is striking is the uncritical approach taken towards the use of much of this technology in contemporary art projects. There is also the idea that interactivity and reflection interfere with each other, which seems to follow on from the idea that a medium is either invisible (like a mirror of 'reality') or mediated. The assumption is that it can't be both or that as participants we cannot multi-task or switch between modes of reception. Artists and theorists in digital media also tend to focus on the technological, ignoring the role of reception. In terms of making the works, technological requirements are distinctive, but we do not discuss literature in terms of the technical requirements and potential of the printing press, but from the point of view of the reader. My position is that any art form is primarily a question of achieving engagement, which as Rosalind Picard states, relates to our emotions. While she adds that "emotion theorists still do not agree even on a definition of emotion," she argues that "we can base solid facts and knowledge on structures that are themselves imprecisely defined," just as we don't need to define whether Mt Everest is rock or ice, to discuss it.[1]

This paper looks at how engagement can be mediated in digital art projects and whether this is significantly different to other media such as the novel, film or photography. This leads to questioning the dominance of cartesian spatial relations as the norm for visual expression.

A distinctive characteristic of digital media is that the medium itself is capable of palpable responsiveness to the user. Are there ways this can affect issues of engagement, particularly in the case of immersive technologies such as virtual and augmented reality?

Interactivity in media, as Stefan Agamogolis argues,[2] is as old as the history of storytelling, but if you view automation as the appearance of autonomous interactivity from the medium, the possibility is a characteristic of new media (even if the possibility is not always used, such as for three-dimensional modelling and digitally-mediated effects). Because of this characteristic of interactivity, gaming and game theory can shed some light on interaction in digital media art projects. However "Today, many games are promoted for their "immersive qualities." But what do they mean by "immersion" in this context? Mainly life-like characters, better graphics and the use of new interfaces."[3]

Popular multi-player online games (known as MMORPG or MMO)[4] are dominated by the competitive motive and an overkill of the male role-model, so obviously popular games are not useful models for innovative art projects.

Playfulness can be the primary factor in making a work engaging, or it can supplement the kind of engagement which one has with a work that stimulates the imagination and requires the suspension of disbelief. I end with some examples of art works where play is incorporated in ways which can be considered engaging while also stimulating critical reflection. Successful practice in digital art projects

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[2]   Agamogolis, 2001

[3]   Debatty, 2006

[4]   See http://mmorpg.top100arena.com/ for the 100 most popular games in this genre. In January 2005 I made a survey of these (presented at the *The Computing Women Congress*, a Pan-Pacific congress for women in IT, February 2006, Department of Computer Science, University of Waikato, New Zealand), finding that all 100 at that date, contained elements of warfare, even those designed for young children.

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[1]   Picard, 1997, p. 21

can feed back into gaming: it suggests that realism and technical wizardry are not necessary, and not sufficient, conditions for achieving engagement

Keywords

Augmented reality, digital media, discourse analysis, engagement, immersion, interactive art, virtual reality

INTRODUCTION

"Experience without emotion is like a day without weather. Emotions are the very stuff of what it means to experience the world."[5]

To experience "Exercise in Immersion 4" (2007) by the Dutch artist, Marnix de Nijs, I put on a face helmet and a small backpack. The actual pillars in this old warehouse were reproduced in the virtual display that was my vision. I navigated through the levels in the game by walking towards projections of moving three-dimensional organic-like objects. I walked all around looking to see if there was more. After about 10 minutes I felt I'd experienced all there was. It was a convincingly immersive experience, as a highly illusionistic simulation of space, but it was static because there was no space "for the individual construction of relationships"[6] I felt intellectually and emotionally unmoved.

My question is how engagement can be mediated in digital or computer mediated projects and whether this is significantly different to other media such as film or literature. What is distinctive with digital media is that the medium itself is capable of palpable responsiveness to the user. Are there ways this can affect issues of engagement? And in particular with immersive technologies such as virtual and augmented reality?

There are many approaches to defining engagement or immersion. My approach here is that engagement involves the viewer psychologically or consciously and affects behaviour. Engagement can refer to *user participation* and to *social awareness*. User participation with the medium and social awareness are what I call two extremes in a definition of engagement, because usually a sense of involvement lies somewhere between them: it is the experience which contains elements of both that I am pursuing.

Participation with a work of literature is usually individual: the reader[7] reads silently. A 'feeling' of identification with

the characters in a novel is participation, but this could only be extended into what I would call engagement if this affects a person's awareness, values or behaviour.

A visitor (right) wearing the helmet and backpack, and a visualization (below) from the first user presentation of "Exercise in Immersion 4" during the 2007 Dutch Electronic Arts Festival (DEAF07), Rotterdam. **www.marnixdenijs.nl/ei4.htm**

The moving floating forms could be collected by touching them. It seemed that the goal of the game was to just collect them as a way of navigating or scoring.

For example reading "Oliver Twist" starts with user participation through an imaginative identification with the character/s and at the level of awareness it informs readers about the institution of the workhouse and the orphanage. At the level of values it persuades the reader of the injustice of these institutions and at the level of behaviour, a reader might take action. At the time it was written, the author, Charles Dickens, it could be argued, would have intended for readers to take action: it was printed in a series in newspaper articles for mass readership and readers could vote or had other means of taking action. Today this novel might function along the lines of a work of art with an element of moral engagement if readers gain information or

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[5] Cornelius, 1996, p. 3
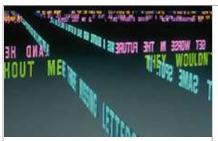
[6] Kwastek, 2003, p. 11

[7] I make this argument also for hypertext literature where via links a 'reader' can choose particular narrative structures, and in works where readers are not necessarily held in "constant suspense by the development of the plot" (Ryan, 2001, p. 4) as was the norm for 19th century literature. Some literary theorists of hypertext, such as George Landrow, have claimed that "electronic linking reconfigures our experience... (to) ourselves as authors" (Landrow, 1997, p. 25) and while I would agree

with Barthes' idea of the 'death of the author' is "to make the reader no longer a consumer but a producer of text", (Barthes, S/Z, 1974, p. 4) this doesn't diminish the individuality of the reader. Mare-Laure Ryan wrote that early theorists and practitioners (see: www.grammatron.com for an example of a hyper-textual novel-cum-theory work.) of hypertext such as George Landrow, Jay David Bolter, Michael Joyce and Stuart Mouthrop have promoted hypertext as "the fulfillment of the ideas of the most influential French theorists of the day, such as Barthes, Derrida, Foucault, Kristeva, Deleuze, Guattari..."(Ryan, 2001, p. 6). Ryan cites Bolter, Joyce and Mouthrop as treating interactivity as a form of deconstruction, the argument being that postmodernist perspectives foreground the individuality of the reader just as hypertext does, because "meaning is no longer the stable images of a world in which the reader projects a virtual alter ego, nor even the dynamic simulation of a world in time, but the sparks generated by associative chains that connect the particles of a textual and intertextual field of energies in ever-changing configurations." (Ryan, 2001, p. 5) The diversity of the reader is foregrounded by "little stories" connected by the "intertextuality" (Kristeva's term) of a link instead of a single grand narrative and yet the reader still reads individually.

insight. It could be argued that this novel enables readers to make individual constructions of relationships with either the characters or principles of justice: for the average reader, I argue, in this novel, there's some emotional connection.

For film, participation can be communal in the sense that people can be aware of others experiencing the same film in a theatre and discussion could be a part of the film viewing experience. Film content, such as the film "Philadephia" or "Amistad" could promote awareness in the viewers' thoughts, values or activities, without the use of the medium of film itself differing distinctively from an entertainment film, in terms of narrative structure, or technical aspects such as tempo, imagery, sound, etc.

For digital media (whether these are works of art or commerce or for educational use) participation can also be immediate: the media could be as engaging as reading a novel, but in addition it is often possible as a participant to leave traces that affects the work for other individuals. Also participation with digital media usually involves some level of physical interactivity or the appearance of interactivity.

My approach is that engagement involves more than user participation or situation awareness:[8] it requires that there be some level of self-perceived conscious response or valuing of certain behaviour over other behaviour. For example, Jeffrey Shaw's interactive installation, "The Legible City" involves sitting on a stationary bicycle and cycling in front of a large projection.

Detail of just the wall projection from "The Legible City," 1989-91, by Jeffrey Shaw in the ZKM-Medienmuseum, Karlsruhe, Germany.

The texts here were from Amsterdam and Karlsruhe which later I read were "derived from archive documents that describe mundane historical events there" [9]

The activity of cycling moves your view through streets made out of three-dimensional words which create streets taken from three cities (New York, Karlsruhe or Amsterdam). When you turn the handlebars, the view turns in the corresponding direction. It was engaging the level of user participation, but after about 10 minutes or so, I was bored and didn't see much point in this, even though the

words sometimes created intriging sentences and I had been to all three cities. My experiences in two interactive video installations inside a room using CAVE[10] technology were similar. Both felt like being in a responsive three-dimensional film without a plot.

It might be argued that the CAVE technology in 2005 and 2007 didn't allow much more, but the technology was responsive in real-time and yet it wasn't engaging for me. Experiences such as this were the impetus for this research into engagement in relation to artworks using immersive technologies. The following two works from the 1990's show that engagement could be achieved with the technologies of the day.

In Jeffrey Shaw's 1996 CAVE work entitled, "conFiguring the CAVE" a near life-size wooden mannequin in the middle of the room served as the interface for interaction with the projections and sounds. There is a sense of a plot. When you moved the limbs it changed the three-dimensional projections and out of this the participant could find some sense of meaning or relationship with the content of the words, images and soundscape beyond the initial "attractor"[11] level of engagement.

Another early VR art project, sure to engage beyond initial curiosity, is "Placeholder" by Brenda Laurel, Rachel Strickland and Rob Tow, developed in 1992 at the Banff Centre for the Arts, with actors from the Precipice Theatre.

The narrative structures and visuals were inspired by the rituals of Dionysian festivals. Each of the two individuals wearing helmets chose one of four forms: spider, crow, snake or fish, and performed actions to be reborn in a different body with enhanced powers of perception while wandering around inside a 10-metre 'magic circle'. They could interact with sounds, three-dimensional visuals, animations, each other's avatar, and could shapeshift by touching a totemic icon. "Improvising on cues provided by the environment and each other, they create narrative."[12]

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[8] Methodology used by Endsley (2000) for measuring a person's awareness of the perceived environment which is based on user recognition and recall.

[9] Experienced in the ZKM-Medienmuseum, Karlsruhe, Germany in 2006. http://www.jeffrey-shaw.net/html_main/frameset-works.php3

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[10] A CAVE (Computer Automatic Virtual Environment) is a room where wearing special glasses you can see three-dimensional projections as if these are in the space around you. Often you can interact with these with a handheld mouse-like gadget or datagloves.

[11] Edmonds, Muller and Connell (2006) present a model of creative engagement with three attributes: *attractors* (things that encourage the audience to take notice of the system), *sustainers* (attributes that keep the audience engaged during the initial encounter) and *relaters* (aspects that help a continuing relationship to grow so that the audience returns to the work on future occasions).

[12] Hayles in Moser (1996), p. 19

Detail of a participants' vision in "Placeholder. It shows Fish, Crow and Voiceholder (which contained recorded messages, left or to be left by a user. Here the eyes are open and the mouth is closed indicating it is in listening (receptive) mode).The spiral on the right is a portal to another environment. These float over a three-dimensional projection of rock formations revered by First Nation people close to Banff

Detail of "Placeholder" by Brenda Laurel, Rachel Strickland and Rob Tow (1992). Two participants wearing head-mounted displays inside circles of river stones [14].

In 2000 I interacted with for a good half hour with the interactive installation "Text Rain" (1999) by Camille Utterback & Romy Achituv, where letters fell like rain which participants could 'catch' with their bodies.

"Text Rain" (1999) by Camille Utterback & Romy Achituv   vwww.camilleutterback.com

As a viewer you had a sense of being present in the 'space' mirrored in the projection where the black and white projections contrasted with the colours of falling letters, creating a sense of distance – space akin to McLuhan's idea of cold media,[13] for your own interpretation.

The letters respond to the participants' motions and can be caught, lifted, and then left to fall to the ground. If a participant accumulates enough letters along her or his outstretched arms, an entire word or phrase could be collected. The letters are not random, but form lines of a

poem about bodies and language by Evan Zimroth (1993). 'Reading' the phrases in the Text Rain installation becomes "a physical as well as a cerebral endeavour"[15] and I felt emotionally engaged in the work, both by the interactivity and by the ideas conjured up by the words and phrases I 'caught' and carried around the room.

Although it might be debatable whether this work affects the user's social engagement, it certainly charged me emotionally, creating an effect on my behaviour akin to reading an engaging novel. It didn't matter to me whether there was a plot or not because I made my own associations from the words and phrases I interacted with. So why did I miss a plot in the other works ("Exercise in Immersion 4" and "The Legible City")? Was the interaction of catching and finding words the plot in Text Rain?
As a participant I was conscious of playing with a system, a medium or technology rather than just participating with it while trying to work out what it did or how it worked.[16]

Play here is a level of engagement beyond interaction (or user participation). Through interaction one learns the rules of a system: if it is sufficiently interesting, one can stay to play in it.

2. Methodology
In discussing the examples in relation to issues of engagment my approach is influenced more by a qualitative than a quantitative analysis of data[17] because I am interested in exploring creative uses of digital media for new insights

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[13] Marshall McLuhan's theory is that interaction is heightened with media that has low definition ("cold media", 1964, p. 24-25) because as a user, you need to imagine the realism. However McLuhan's theory is not really applicable here because he defined interaction according to the materiality of the medium and the view I take is that engagement is dependent on more than just the materiality of the medium. For example for him radio was cold media whereas television was hot media regardless of the content or context. Ryan (2001, p.347) suggests that VR is both hot and cold media, combining high definition with interactivity, but like McLuhan, this is ignoring the role of content (and context).

[14] For more about this work see Ryan (2001) p. 323-326; Hayles, in Moser (1996), p. 13-21 or www.tauzero.com/ Brenda_Laurel/ Placeholder/CGQ_Placeholder.html

[15] www.21cmuseum.org/museum/exhibits/text-rain.aspx, accessed December 2007

[16] Suchman (1987) "locates the source of meaning in situated action itself. In so doing she moves away from a causal, goal-oriented idea of interactivity towards a notion of interactivity in which action is central and goals are emergent. Human actors 'achieve' meaning in their encounters with interactive artefacts through action." Cited in Edmonds, Muller, Connell, (2006), p. 311

into the nature of engagement as a phenomenon rather than to prove or disprove a theory. Discourse analysis is the methodology which most influenced my approach: one strand of this emphasizes analysing narrative styles and another strand focuses on content "as deeply embedded in a variety of social and discursive practices."[18]

Although discourse analysis can be criticized for its subjectivity,[19] I would argue that research such as that by the cultural theorist John Fiske (1987) (cited in Giles, 2003, p. 44) in his analysis of extreme close-ups in a television detective show, where he argued that the invasion of personal space conveyed intimacy or hostility depending on the context, is useful for a qualitative analysis of how a medium achieves effect.

3. Media and Mediation

It is sometimes supposed that engagement is greater where there is an illusion of reality, where the medium is 'invisible' in the illusion. But perhaps the visibility of the medium, or mediation as it is called in theory studies, is a positive factor in user engagement? In reading an engaging novel, a reader reads the narrative created by the words, seeing the words on the page and imagining the rest, through the willing suspension of disbelief. There is no illusion that the words are the narrative. Likewise, there is no illusion of realism in the falling letters in *Text Rain*.

The Gardeners (2006), by Loren Roosendaal and myself employs a similar approach to interactivity and projection. Creature-like balls move as if curious towards participants who, if they move gently, can guide the movements of the

creatures, who then grow and, after a period of interaction, capture an image of the participant within themselves (as a snapshot in their memory) which remains until another period of interaction.

Detail of "The Gardeners" (2006), by Loren Roosendaal and Sonja van Kerkhoff

www.sonjavank.com /gardeners

There is no illusion of reality, but there is an engaging world with discernable rules in which visitors feel themselves present. Participants could see themselves reflected in the wall projection, but the focus was clearly on interacting with the 'creatures,' which are obviously fictional. Perhaps the type of interactivity, and its ability to engage the imagination, is a more significant factor than realism? In contrast, in typical First Person Shooter games, the focus tends to be on the realism and illusionism of the graphics and the interaction is limited to move, open doors, shoot.

The illusion of being immersed in the art work is not a new goal: Bolter + Grusin (1999) make the argument that, for example, paintings by the 17th century Dutch painter Pieter Saenredam, like many Virtual Reality projects, "seek to put the viewer in the same space as the objects viewed,"[20] with the goal of making the medium invisible. This emphasis on the continuous, first-person point-of-view, "which in film criticism is called the 'subjective camera'"[21] is part of a trend of immediacy: there is 'reality television' and news items showing live-feed of a reporter, as if seeing this was like 'being there.' A character in the futuristic film *Strange Days* touts a VR wearable device, saying "This is life. It is a piece of someone's life. Pure and uncut, straight from the cerebral cortex. You're there. ...feeling it."[22]

None of these illusions – from 17th century painting to VR – in fact remove the medium. Someone is directing behind the scenes, deciding when and where the reporter will stand or where the webcam will be located. Every medium is a made thing, and someone made it.

In relation to mediation there have been two main approaches in the development of media: one is to make the medium less visible, the other is to use the visibility of the

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[17] See Giles (2003) chapter 3, "Research Methods in Media Psychology", pp. 28-45

[18] Giles (2003) p. 44. The work of French poststructuralist, Michel Foucault has influenced the latter approach. Another influence is British theorist, Stuart Hall's, circuit model of communication where a product is seen as the product of 'encoding' practices which require 'decoding' in order to yield meaning. See Giles (2003) pp. 25-27 for details.

[19] Kittler's critique that "Discourse analysis cannot be applied to sound archives or towers of film rolls." (1999, p. 5) is based on an assumption that this approach can only be applied to static media because Foucault's argumentation is centered on text. Hui Kyong Chun avoids Kitler's assumption, and instead chooses discourse analysis as a "point of departure in order to examine the relationship between memory and media..." (2006, p. 5). In Continental Europe, the emphasis in media studies, influenced by Kittler among others, has been on the "logics and physics of hardware and software" (Hui Kyong Chun, 2006, p. 4), while the Anglo-community "have focused on the subjective and cultural effects of media" (ibid). Giles (2003) mentions similiar divisions over the role of context in research in the field of psychology, p. 15-26. Hayles (1999) refers to the influential work of Claude Shannon where recorded messages were interpreted as information without any consideration of context (or meaning), p 19. Arjen Mulder (2004) refers to 3 main schools of thought, centering on McLuhan, Shannon and Cassirer. p. 9. See also: Cubitt (2007a) for yet another approach.

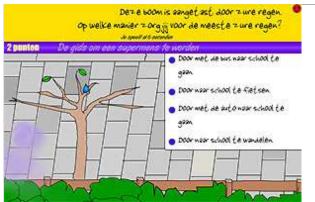[20] Bolter + Grusin, 1999, p. 11; see also, Grau (2003) pp. 91 – 97

[21] Bolter + Grusin, 1999, p. 4

[22] Cited Bolter + Grusin, 1999, p. 3

medium to stimulate the imagination. For example in a medieval manuscript, the authors might include an image inside the initial letter which related to the text or gave it another level of visibility. The graphic design (of size, colour or depicted images) in illuminated texts stresses the artifice of text and image making them visual as well as textural artworks. Icons or collage-like graphics in games or on websites are other examples of where the "medium is the message"[23]

McLuhan's often quoted expression refers to the idea that a medium is empty of content (McLuhan gives the example of electric light which only gains meaning when used to convey content, such as a brand name or as being conceived as light pollution). This phrase is applicable here because the visibility of the medium affects the reception of its message or content.

However I use it not to argue that a medium has meaning but that it is visible as a cultural product.

"Keuze" (Choice) 2006, a game with an evolving avatar by Ralph Kok and Sonja van Kerkhoff, is an example of mediation. Icons, buttons, text, and the interactivity of the elements create a metaphor (mediation) for a child walking along a street.
En route the child needs to make 'choices'. Each 'choice' moment is highlighted by a large white page over part of the image of an evolving avatar (the mouse begins as an indistinct cloud-form and as the player gets points, gains human features, such as facial features and limbs). while making the choice, time (the timer) and the interactive streetscene were 'paused'.

3.1 The Myth of the Invisible Medium

A goal of much immersive digital technology development is to make the medium seem invisible based on the assumption that linear perspective represents space realistically, but it only seems self evidently realistic because of the influence of centuries of development in painting, and later photography and television. The goal, to use Panofsky's phrase for perspective, is to "see through"[24] the medium and in doing so, the belief is that you get

immediacy; the real thing. Bolter and Grusin wrote of todays' interface designers, and students of linear perspective of the past that: "They trusted in linear perspective to achieve transparency because by mathematizing space, it used the "right" technique to measure the world." They refer to a similar argument by Martin Jay (1988)[25] who argues that a Cartesian way of looking and thinking "dominated Western culture from the seventeenth century to the early twentieth by allowing the Cartesian subject to control space from a single vantage point."[26]

The idea of the invisibility of the medium as a goal for visual representation is not new either. Since the Renaissance at least, painting was also dominated by aiming to make the surface of the picture-plane and the paint strokes seem invisible.[27] Another strategy for achieving transparency in visual works of art was to automate the representation of linear perspective, first by the use of the camera obscura[28] and then in photography. André Bazin, with regard to photography, wrote that "The artist was now in a position to create the illusion of three-dimensional space within which things appeared to exist as our eyes in reality see them."[29]

In the end the idea of the invisible interface is built on a cultural way of looking. We read the illusions of space constructed according to the principles of linear perspective as real because we are familiar with them. Creating innovations that build on what is familiar and seems natural is a primary goal of the field of Human Computer Interaction, which in turn contributes to many of the available interfaces, but no gesture is just "natural"and no

one reading of a medium is "natural" either.[30]

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[23] McLuhan, 1964, p. 8

[24] Cited in Bolter + Grusin, 1999, p.24, Panofsky, 1991, p. 27

[25] Cited in Bolter + Grusin, 1999, p 24. Jay built on William M. Ivins' (1973) research.

[26] Bolter + Grusin, 1999, p 24. See also Latour (1990) for a similar perspective.

[27] Bolter and Grusin (1999, p. 25) cite Norman Bryson (1983, p. 29) who argues that Western oil painting was "an erasive medium.". See Leon Alberti (1972) for a similar argument about a painting being like a window you look through. See Grau (2003) pp. 11-13 and pp. 25 – 60, and section 3 in Cubitt (1998).

[28] Which helped painters to mimic the mathematics of linear perspective into their compositions.

[29] Bazin, 1980, p. 239. The idea that what you saw was the real thing rather than a representation of it created by the medium (of photography or the webcam).

[30] Simon Penny (1995) points out that for interface designers "*transparent* means that the computer interface fades into the experiential background and the analogy on which the software is based (typewriter, drawing table, paintbox, etc.) is foregrounded. If the paintbox software is 'intuitive,' it is only intuitive because the paintbox is a culturally familiar object." Penny, 1995, p. 55, cited in Bolter and Grusin, 1999, p. 32

Bolter and Grusin (1999) use the analogy of a window, "(w)here immediacy suggests a unified visual space, contemporary hypermediacy[31] offers a heterogeneous space, in which representation is conceived of not as a window onto the world, but rather as "windowed" itself – with windows that open on to other representations or other media."[32] For those familiar with computer interfaces, these may be as 'transparent' as words on the pages of a book or 17th still life illusionistic paintings were for earlier generations, so I am not denying that transparency – the sense of "real" – in a medium is a significant factor for engagement, just that it is subjective, even if a majority of a given cultural group thinks it is objectivity.

On one level all media are a "play of signs" yet at the same time, photographs, film, computer graphics or websites, for example are "real" as "tangible cultural artifacts."[33] As real as bicycles, books and buildings.

3.2 The Myth of the Ultimate Medium – Virtual Reality

"Today, many games are promoted for their "immersive qualities." But what do they mean by "immersion" in this context? Mainly life-like characters, better graphics and the use of new interfaces." [34]

For some, such as Jaron Lanier, developer of one of the first commercial VR (virtual reality) systems, the experience of illusion is engagement.[35] Meredith Bricken's book "Virtual Worlds: No Interface to Design" (1991) claims that VR is experience without mediation. VR is potentially the ultimate invisible interface. But there is always an interface whether this is text on a page or an eyebrow movement. They overlook the fact that whether an interface (or action to engage the interface) seems "natural" boils down to familiarity and, in this case, the familiar concept of "seeing through" and ignoring the presence of our own embodiment. These cultural ways of reading media are only questionable if a superiority is assigned to one medium over another as claimed by the early developers in VR technologies.[36] Such reasoning is not new. Since the days of

Plato[37] there have been claims that one medium, be it poetry or music, is more 'true' or 'better.' More recently, theorists have debated whether text or image was a more direct presentation.[38] "(T)he *idea* of VR is very much a part of our cultural landscape,"[39] as shown in films such as "The Matrix" (1999) and "Strange Days" (1999), as an ultimate medium based on the idea of the power of immersiveness.

Is the augmented reality art project "Systems Maintenance" by Perry Hoberman, engaging because of its immersive qualities?

"Systems Maintenance", 1998, by Perry Hoberman. Shown at DEAF98, Rotterdam.

It consists of three manifestations of furniture: an ensemble of life-size real objects on a large circular platform you could move around, a display on a computer of the same objects and a 1/8 scale model of the same objects presented on a small pedestal. Each version is captured as an image by a camera and all three images are combined as translucent layers into a single large video projection.

By moving the furniture and camera viewpoints for each of the three rooms, visitors can match or mismatch the

[31] Bolter and Grusin use the term hypermediacy for a visual style that "privileges fragmentation, indeterminacy, and heterogeneity and... emphasizes process or performance (interactivity) rather than the finished art object." Mitchell (1994), p. 8, cited in Bolter and Grusin (1999), p. 31

[32] Bolter and Grusin, 1999, p. 34

[33] Bolter and Grusin, 1999, p. 19. Cubitt (2007, p. 2): "There is no communication without a material medium and these material media, from gesture to money, can be held in the palm of your hand, poked, tasted, relished – and analysed."

[34] Debatty, 2006, www.we-make-money-not-art.com

[35] He claims that you could "then become a Tyrannosaurus" in a VR world. Quoted in Ditlea (1989), p. 97, cited in Bolter and Grusin, 1999, p. 22. See also, Hansen (2006), xiii, pp 20 – 21, pp. 161-164.
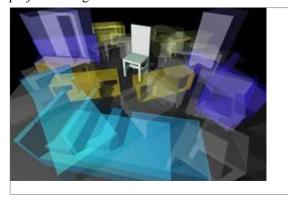
[36] Howard Rheingold (1991) claimed that "VR technology is taking people beyond and through the display screen into virtual worlds." Rheingold, 1991, p. 75, cited in Bolter and Grusin, 1999, p. 29. Cotton and Oliver (1993) describe interactive media as "an entirely new kind of media experience" with "no physical beginning, middle or end" p. 8, cited in Bolter and Grusin, 1999, p. 31.

[37] In Book X of the Republic, Plato denouces images as being just appearances and praises poetry for being based on understanding. Cited in Leitch, 2001, pp. 69-71.

[38] Derrida's *Of Grammatology*, 1976 places the image within the context of text; Nelson Goodman, in *Languages of Art*, 1968 privileges text over image; W.J.T. Mitchell, in *Picture Theory*, 1994 argues for a hybrid "textimage" but his picture theory ends up assimilating images to words more than the other way round. Martin Jay (1993) has shown how most influential French 20th century theorists have subdued image to text. Barthes in his *Camera Lucida*, 1981, argues that image can dominate immediacy with his phrase "punctum" – to pull the viewer into the photograph. See Hayles (2002) pp. 20.

[39] Ryan, 2001, p. 1

components of each of the rooms as they appear in the projected image.

In the development of virtual or augmented reality projects, immersiveness is often equated with successful illusion: if it looks and feels real, it is thought to be immersive. But in the fields of theory and literature, immersiveness relates to the quality of engagement.
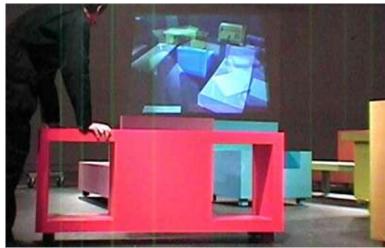
In "Second Life" it is assumed that a simulation of the physical environment (or hyper-environment because you can fly, change the look and feel of your avatar and teleport) constitutes an engaging social environment. Popularitiy (mass appeal), though of some significance, does not contribute towards user engagement, I argue. After the initial novelty... what's new about new media?

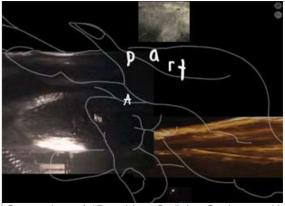## 3.3 What's New about Digital Art in Relation to Engagement?

Bolter and Grusin (1999) argue that "the representation of one medium in another [*remediation*] ... is a defining characteristic of the new digital media,"[40] their argument being that new media visualizations are re-interpretations of photographs, television or video or film. This can't be literally a defining characteristic for new media: Keat's "Ode to a Grecian Urn" remediates what was originally pottery and painting. Before the term remediation was thought of, this was known as *ekphrasis*.

However the point they are making is that in new media, remediation is taking place on a far larger scale, and affects the market size and channels of distribution, involving economic competition between media such as books, film, television, and digital storage media.

Lev Manovich's influential book, *The Language of New Media* (2001),[41] takes the approach of distinguishing new media according to their material mutability as digital data. Neither approach relates this to the effect of new or digital media on the user.

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[40] Bolter and Grusin, 1999, p. 45. McPherson in Hui Kyong Chun (2006) argues against remediation as unique or distinctive in relation to new media (pp. 199 – 201).

[41] S.D. Noam Cook makes a convincing argument against Manovich's focus on the technical in the development of media in Hassan, 2006.

Left + Right, details of "Systems Maintenance", 1998, by Perry Hoberman. Shown at DEAF98, Rotterdam.

Screenshot of "Breathing Out" by Sonja van Kerkhoff As you move the mouse, texts, videos, animations or singing appear, start, pause or disappear. Sometimes there is something like a chain-reaction as one video sets off an animated text. Sometimes elements are active in specific areas of the screen so the user can affect their juxtapositioning.

Bolter and Grusin would argue that such an artwork is a remediation of poetry, animation, film and text. The logic (or 'narrative') of this work is similar to that of any interactive text or film where alternative scenarios are available.

Rather than looking for a definition of what new media could be, I take the approach of media theorist Steven Holtzman (1997) in that I do not think digital media (whether installations or VR or AR (Augmented Reality) or web or net artworks) have found their potential yet because the "existing paradigms..." "weren't conceived with digital media in mind, and as a result they don't exploit the special qualities unique to digital worlds"[42] and because the process of experimenting with a new medium takes time. Bolter and

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[42] Holtzman, 1997, p. 15, cited in Bolter and Grusin, 1999, p. 49. Ryan (2001, p.12) expresses a similar view: "interactivity is still in an experimental stage while literature has already perfected the art of immersive world construction," Hayles (2002, p. 6) argues that all media is remediated and re-remediated.

Grusin criticize Holtzman's view as "a comfortable, modernist rhetoric."[43] However where Holtzman refers to "unique" qualities of digital worlds, I understand he is referring to unique additional possibilities, and not claiming that the new media have nothing in common with the old. The existing paradigms of expression are based on the expressive possibilities of previous media.

Is "Ada the Intelligent Room" (see right), which engages people to play with the responsive lights and sounds by moving or dancing, an example of remediation (theatre/ performance) or of a potential for future possibilities?

Only after photography was experimented with as a form, going beyond the genres of portraiture and history painting, did we start seeing new kinds of compositions and uses which in turn influenced the compositions of paintings. Artists such as Cindy Sherman or Barbara Kruger have developed genres of expression, using photography, which did not exist in painting.

At the same time, due to the influence of the automation of photography (anyone could now take a photograph) the idea of the artist as a creative agent rather than as a skillful craftsperson became more commonplace: the new paradigm of expression involves a new paradigm of the agent and consumer.

Similarly with film: the first films were like photographs in motion, often with a slap-stick quality. Only after the medium was experimented with, did a genre for film develop.

I think that many virtual reality projects are still like extended television or film, and that when there is more experimentation, and in particular by artists, we will find new possibilities. For example, artworks in the emerging field of "software art"[44] have had the affect of changing the paradigm of the computer from a media machine to a programming machine (that is, artists programme them), although I disagree with Manovich's (2002) argument that this is a unique development. In previous ages painters made their own paint.

The basis of these artworks is that an algorithm (a type of information or code) is visualized. Casey Reas' "Process series" of works is primarily an idea of a procedure, akin to a conceptual artwork, but he realizes these by allowing a programmed code to make visualizations of them.

Interactivity in media is as Stefan Agamogolis argues (2001)[45] as old as the history of storytelling, but if you view

automation as the appearance of autonomous interactivity from the medium, the possibility is a characteristic of new media, even if the possibility is not always used, as in applications such as three-dimensional modelling and digitally-mediated effects.

"Ada the Intelligent Room", developed for the Swiss Expo 2002 by a team led by Paul Verschure is equally a game or an art installation.

The room appears to make contact with visitors and to communicate through sound, lights and visuals on the floor, walls and ceiling. People interact with the light panels and the panels seem to respond. At one point the floor lighting changed to arrows and lines that seemed to be pushing the roomful of people to move towards one exit. This worked: they moved towards the exit. The choreography and responsiveness of lighting and sound directed behaviour and elicited a willingness to coorporate with the system.

Because of this characteristic of interactivity, gaming and game theory (an immense field I've not dealt with here) can have relevance to interaction in digital media art projects. I have also not gone into the specifics of how interactivity might function specifically in immersive technologies or digital art projects.[46]

It would be difficult to separate playfulness from interaction[47] whereas in literature or film, play or 'entertainment' is a distinct subcategory.

A greater potential for play with new, interactive, media could also be a potential for greater engagement.

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[43] Bolter and Grusin, 1999, p. 49.

[44] Manovich's (2002) term in Hassan (2006). See Hayles' (1999) discussion of pattern vs randomness in relation to presence/absence and its importance for information focussed work. pp 247-251.

[45] Agamanolis, Stefan, 2001

[46] Just to give one approach, Ryan (1999) in citing Steuer (1992) refers to interactivity as having 3 aspects: speed (response speed of the system), "range, which refers to the number of possibilities for action at any given time; and mapping, which refers to the ability of a system to map its controls to changes in the mediated environment in a natural and predictable manner." Steur, 1992, p. 86. Cited in Ryan, 1999, p. 123

[47] The term "Serious Games" was coined to distinguish games from play-oriented digital projects which are not purely for entertainment purposes.

Augmented Reality (AR) projects combine computer-mediated imaging with the non-mediated world.

"levelHead" is an AR game by Julian Oliver (www.julianoliver.com) shows an animated figure you navigate in the virtual room spaces (and through various levels) by tilting the cube in your hand. It combines the illusionary immersive with the imagined. You kept moving the figure around to discover the plot or interactivity, beyond the illusionism.

I am happy to play with interactive artworks, finding out how they work, but if there isn't something more than that, then for me they are like a well-produced novel in which the author has forgotten about the storytelling.

I am critical of the CAVE experiences I have described, due not to the technology, but rather how it was used. These artworks did not engage with issues of representation: they give an illusion or presentation, expecting us to accept it as 'real': there is no space for critique in these works. In contrast to the view that immersion (either via a suspension of disbelief or t*rompe-l'œil*-like illusionism or simulation) cannot involve reflection or interpretation,[48] I agree with Oliver Grau that "(i)mmersion can be an intellectually stimulating process."[49] More than that, it can also extend an individual in terms of social engagement.

View seen in "Worldskin", a CAVE experience by Maurice Benayoun, with a soundscape by Jean-Baptiste Barrière, 1997. www.benayoun.com

To conclude I describe two works which I think use the materiality of immersive technologies successfully to engage critical reflection.

"Worldskin", a CAVE experience by Maurice Benayoun, with a soundscape by Jean-Baptiste Barrière, 1997. www.benayoun.com

In the CAVE project, "World Skin" by Maurice Benayoun, one person was assigned the role of a bus driver, who determined the route everyone took by moving a joystick inside the virtual war zone, while the others each had a camera as "tourist photographers." The images in the world appeared to be two or three-dimensional depending on your viewpoint. As you passed these in space they appeared to be flat facades, reminding us of the artifice.

For the tourist-photographers, the experience was akin to being in an open bus. When a photograph was taken, there was a flash of light in that area of the world, which was then transformed into colourless cardboard cutouts.

The snapshots were weapons of erasure. They shot away the image. If the analogy with death wasn't strong enough, each time a camera was shot, soundscapes were triggered, which progressively sounded more like automatic gunfire. As the image was 'erased', the sound became more alive, implicating participants "in the 'death' of the landscape even after they've departed the CAVE."[50] The work is a convincing illustration of how engagement can be achieved by drawing on imagination and socially charged content using immersive technologies.

Is the implication here that when we sit (in safety in our bus) to watch the news, that we are like war-tourists? Is this a fair critique, is this just? The artwork presents our interest in the world as passive participants. So the work is effective to the extent that this presentation of ourselves is or becomes untrue.

In "Se Mi Sei Vicino" (If you are close to me) by Sonia Cillari an actor stands on a square in the middle of a square room with wall projections on 2 or 3 sides which are responsive abstractions of the person's electromagnetic
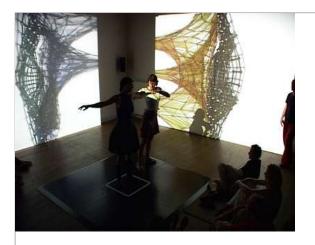
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[48] Cubitt (2007) p 6, "Considered as interpretation, knowledge produces not actuality but potentialities..."
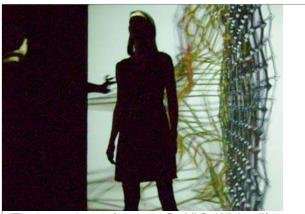
[49] Oliver Grau (2003) p. 13

[50] Cully (1998)

system. If you come close or touch this person's body, it affects the abstracted images and soundscape.

"Se Mi Sei Vicino" (If you are close to me) 2006/7 by Sonia Cillari.

The experience for me felt like an enlargement of touch, plus the various associations one makes about personal boundaries, voyeurism (as audience watching touching) and the subject (I don't know if the artist would always have a woman as her 'passive actor', but I thought it gave the work an edge in having a young woman standing in the centre of the stage, who is simultaneously object-model and player).

"The interactive performance Se Mi Sei Vicino (If you are close to me) is a practical research into the possibility of using the 'Body as Interface'"
www.soniacillari.net/Se_Mi_Sei_Vicino_.htm

The implications of this work are complex. Is it that we are aware of the person as a lively web of electromagnetic energies. But then why is this a woman and why does she have to be passive? Or is it a visualization of human-to-human touch (or proximity)? Or is the woman being treated simply as an object which the user has to use in order to activate the work?

These works confirm Oliver Grau's words that immersive interactive art works can be intellectually stimulating.

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