Engaging Media: issues of engagement in digital media art projects

Sonja van Kerkhoff, *Masters dissertation Media Technology, LIACS, Leiden University, The Netherlands*
www.sonjavank.com/text sonjavank@hotmail.com

Supervisors: Dr. Michael S. Lew, LIACS Media Lab, Leiden Institute of Advanced Computer Science, Leiden University, The Netherlands. *www.liacs.nl*
Dr. Sarah Kettley, Nottingham Trent University (School of Architecture, Design and the Built Environment), U. K. *www.sarahkettley.com*

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Abstract: *This paper explores how engagement, the sense of feeling immersed in or consumed by a medium, is mediated in digital projects and whether this is significantly different to other media such as film or literature. The user's immediate experiential engagement with the digital environment is also related to social engagement in general. The paper takes a number of theoretical and methodological approaches in analyzing particular digital media projects, drawn from research and theories in fields as diverse as culture studies, philosophy, psychology, literature, art history and media studies, and draws particularly on discourse analysis. This exploration is intended to yield both theoretical and practical benefits. A theoretical benefit could be in developing diverse paradigms for reading digital media or narrative in general, which in turn could contribute to new practical applications by developers, artists and designers. In more practical terms, such an approach to new media applications could lead to a design process that does not end with the user but also includes a social dimension. My reading and analysis, and my own experience, show that realism and interactivity are not sufficient in themselves to achieve engagement, and support the hypothesis that socially charged content can be a significant factor in engagement. The effect of charged content is tested using an online questionnaire: an analysis of the results is included.*

"Experience without emotion is like a day without weather.
Emotions are the very stuff of what it means to experience the world." [1]

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" [2] I felt intellectually and emotionally unmoved.

A visitor (left) wearing the helmet and backpack , and an impression (below) of 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.

1 Cornelius, 1996, p.3
2 Kwastek, 2003, p. 11

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?

1. Introduction

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 reads[3] 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.

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 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.

3 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 hyptertext 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.

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:[4] that there is some level of self-perceived conscious response or valuing of certain behaviour over other behaviour.

Jeffrey Shaw's interactive installation, “The Legible City” involves sitting on a stationary bicycle and cycling in front of a large projection. 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.

Detail showing just the wall projection from “The Legible City”, 1989-91, by Jeffrey Shaw in the ZKM-Medienmuseum, Karlsruhe, Germany. The texts I encountered were from Amsterdam and Karlsruhe which later I read were “derived from archive documents that describe mundane historical events there”[6]

My experiences in two interactive video installations inside a room using CAVE[5] technology were similar. Experiences such as this were the impetus for this research into engagement in relation to artworks using immersive technologies.
In 2005, inside a CAVE at ARS Electronica[7], I saw projections of Escher-like architecture, which created a convincing sense of altered space around me, but again, once the novelty had made its impact, I was ready to leave. In 2006 I experienced a CAVE artwork in the Erasmus MC hospital in Rotterdam, of floating organic forms which moved around me and in response to a hand-held wand-like gadget, but it felt like being in a responsive three-dimensional film without a plot.
It could be argued that the CAVE technology doesn't allow much more but the technology was responsive and yet it wasn't engaging for me.

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

5 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.

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

7 http://www.aec.at/en/index.asp Info about this CAVE: http://www.aec.at/en/center/current_exhibition_detail.asp?iProjectID=11197

In Jeffrey Shaw's 1996 CAVE work entitled, "conFiguring the CAVE" where 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" level of engagement. [8]

"conFiguring the CAVE", 1996, by Jeffrey Shaw. www.jeffrey-shaw.net

An example of 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 and with actors from the Precipice Theatre. The narrative structures and visual were inspired by the rituals of Dionysian festivals. Each of the two individuals 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 shapeshift by touching a totemic icon. "Improvising on cues provided by the environment and each other, they create narrative."[9]

Above: Detail of a participants' vision in "Placeholder", 1992, by Brenda Laurel, Rachel Strickland and Rob Tow. 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.) and 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.

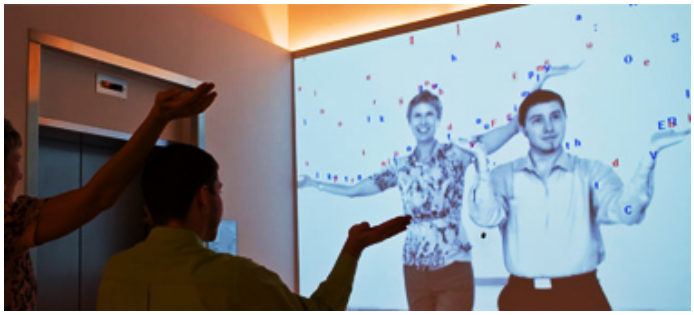
Left: Detail of 2 participants wearing head-mounted displays inside circles of river stones.[10]

8 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).

9 Hayles in Moser (1996), p. 19

10 For more about this work see Ryan (2001) p. 323-326; Hayles, in Moser (1996), p. 13-21. See also their paper: http://www.tauzero.com/Brenda_Laurel/Placeholder/CGQ_Placeholder.html

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



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

As a viewer you have a sense of being present 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[11] 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"[12] 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 affect 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 two CAVE experiences? 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 as in the previously mentioned CAVE examples just *participating with* it while trying to work out what it did or how it worked.[13] 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.

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11 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 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).

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

13 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 Edmonds, Muller, Connell, (2006), p. 311.

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[14] because I am interested in exploring creative uses of digital media for new insights 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".[15]

Even though discourse analysis can be criticized for its subjectivity[16], 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.

Giles (2003) argues that discourse analysis is useful in the field of psychology, where it "feeds into related techniques such as rhetorical analysis which has proved useful for studying the nature of advertising (Berger, 2000), and narrative analysis".[17] I agree with Giles' where he states, "(e)xperiments can tell us some useful things about media and psychology, but questionnaires, interviews, observations, and textual analysis (both quantitative and qualitative) are essential for full understanding."[18] I apply the latter approaches in my discussion, but also use an experiment to test one hypothesis about content and engagement (See section 4).[19]

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14 See Giles (2003) chapter 3, "Research Methods in Media Psychology", p. 28-45

15 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) p. 25-27 for details.

16 Kittler's critique that "Discourse analysis cannot be applied to sound archives or towers of film rolls." (1999, p. 5) is based on Kittler's assumption that this approach can only be applied to static media because Foucault's argumentation is centered on text. Hui Kyong Chun takes the approach in leaving the argument aside to instead choose 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 around: McLuhan, Shannon and Cassirer. p. 9. See also: Cubitt (2007a) for yet another approach.

17 Giles, (2003) p. 45

18 Giles, (2003) p. 45. See Hansen (2004) about the Shannon-Weaver theory (influential in America) of information being dependent on probability (ignoring context, function or meaning), xvi-xvii.

19 There is a theoretical issue concerning the extent to which media, content and society can be regarded as entities, and as separate. Livingstone (1999) suggests that studying content alone is not enough for audience research and that an engagement with social levels is necessary, (Cited on page 5, Giles, 2003) whereas Marshall McLuhan (1964) argued that each new medium shapes society on its own terms: that what they have in common is that each is an "extension of ourselves". (p. 11) Bolter and Grusin (1999) state that "(n)ew digital media... emerge from within cultural contexts, and they refashion other media, which are in the same or similar contexts." (p. 19) So we need to look at the effects of a particular medium in relation to culture and technology and not as a finite entity, bearing in mind that "the sheer diversity and ubiquity of electronic cultural material" blurs the "boundary between culture and media" (Giles, 2003, p. 7) I've focussed on media in relation to artistic or aesthetic purposes, where such a blur is unlikely to occur (because the user is usually aware of the medium), and where engagement is not be so likely to be mixed with functionality. Another motivation for taking an approach which focuses more

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.

(Left and Right) Two details 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 cerebal cortex. You're there. ...feeling it"[22]

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on affect is that in moving beyond a focus on technical considerations it is a way, in relation to digital technologies, to "actively examine, and adapt to, the changing nature of contemporary artistic practice." Douglas McLeod, in Moser and McLeod, 1996, preface xii

20 Bolter + Grusin, 1999, p. 11, Also see, Grau (2003) p. 91 – 97.

21 Bolter + Grusin, 1999, p. 4

22 Cited Bolter + Grusin, 1999, p. 3

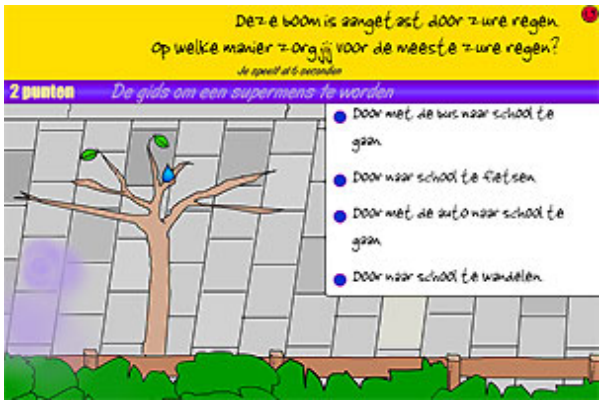
None of these illusions – from 17th century painting to VR -- in fact remove the medium. Someone is directing behind the scenes, deciding when and where the reporter will stand or where the webcam will be located. Every medium is a made thing, and someone made it.

In relation to mediation there have been two main approaches in the development of media: one is to make the medium less visible (discussed in Section 3.1), the other is to use the visibility of the 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 media 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). McLuhan's slogan applies here because the visibility of the medium affects the reception of its message or content. However I use it not to argue that the medium has meaning in itself, but that the medium here has some level of visibility ('mediation') for the participant.

"St Bavokerk", painting by Pieter Saenredam (1597-1665). "Saenredam usually is credited as the first painter of actual churches, in opposition to the fantasy church interiors previously done by sixteenth-century artists... The accuracy of Saenredam's "church portraits" continue to be debated,... a number of his pictures of existing churches contain unmistakably fictive elements."[24]

The goal is to present the image as if it is a mirror, even if the elements have been composed by the artist



Left: "Keuze" (Choice) 2005/6, 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 as a medium by a large white page over part of the image of an evolving avatar (the mouse begins as indistinct cloud-form and as the player gets points, gains human features, such as facial features and limbs) while time (the timer) and the interactive streetscene were 'paused'.

23 McLuhan, 1964, p. 8
24 Vanhaelen, Angela, 2005

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"[25] 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) [26] 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."[27]

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.[28] 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[29] and then photography. André Bazin in 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"[30]

Juan Sanchez Cotan (1561-1627) Quince, cabbage, melon and cucumber, Oil on canvas, 69 x 85 cm, c.1600, Museum of Art, San Diego

Bolter and Grusin undermine this assumption about reality with their statement:

> "When computer graphics lays claim to the real or the natural, it seems to be appealing to the Cartesian or Galilean proposition that mathematics is appropriate for describing nature. ...(C)omputer graphics adds the algorithmic mathematics of John von Neumann and Alan Turing. Computer products may ultimately be human products, in the sense that they embody algorithms devised by human programmers, but once the program is written and loaded, the machine can operate without human intervention." "To achieve photorealism, the synthetic digital image adopts the criteria of the photograph. It offers a single station point, a monocular point of view, and a photographic sense of appropriate composition."[31]

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

26 Cited in Bolter + Grusin, 1999, p 24. Jay built upon William M. Ivins' (1973) research.

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

28 Bolter and Grusin (1999, p. 25) cite Norman Bryson (1983) who argues that Western oil painting was "an erasive medium", p. 29. 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).

29 This gadget helped painters to mimic the mathematics of linear perspective into their compositions.

30 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).

31 Bolter + Grusin, 1999, p. 27

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 the many of the available interfaces, but no gesture is just "natural"and no one reading of a medium is "natural" either. [32]

Bolter and Grusin (1999) use the analogy of a window, "(w)here immediacy suggests a unified visual space, contemporary hypermediacy[33] 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."[34]

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 objective.

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."[35] As real as bicycles, books and buildings.

3.2 The Myth of the Ultimate Medium

> "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."[36]

For some such as Jaron Lanier, developer of one of the first commercial virtual reality systems the experience of illusion is engagement.[37] Meredith Bricken's book "Virtual Worlds: No Interface to Design" (1991) claims that VR is experience without mediation. VR as potentially the ultimate invisible interface. But there is always an interface whether this is text on a page or eyebrow movement. They overlook the fact that whether an interface (or action to engage the interface) seems "natural" boils down to the familiar 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.[38] This type of reasoning is not new. Since

32 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

33 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

34 Bolter and Grusin, 1999, p. 34

35 Bolter and Grusin, 1999, p. 19. Cubitt (2007): "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." p. 2

36 Debatty, 2006, www.we-make-money-not-art.com

37 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.

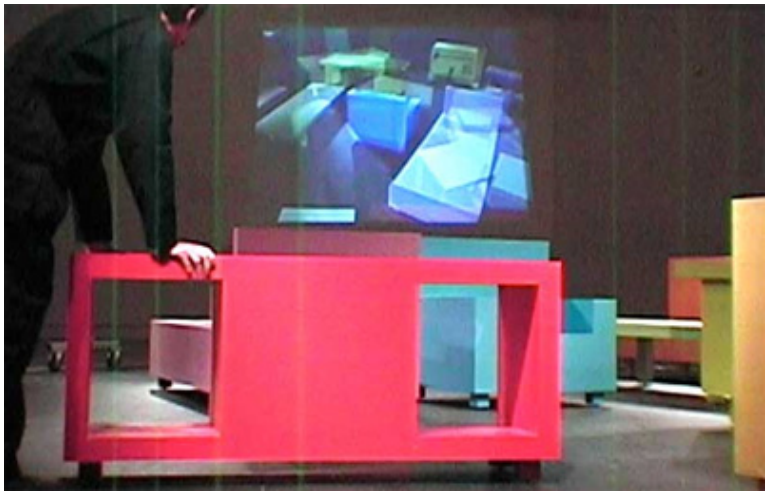
38 Howard Rheingold (1991) claimed that "VR technology is taking people beyond and through the display screen into virtual worlds." Rheingold, 1991, p. 75, cited Bolter and Grusin, 1999, p. 29. Cotton and Oliver (1993) describe interactive media as "an entirely new kind of media experience" with "no physical beginning, middle or end" p.8, cited Bolter and Grusin, 1999, p. 31

the days of Plato[39] there have been claims of one medium, be it poetry or art, being more 'true' or 'better'. And more recently theorists have still debated whether text or image was a more direct presentation.[40] "(T)he *idea* of VR is very much a part of our cultural landscape"[41] as shown in films such as "The Matrix" (1999) and "Strange Days" (1999) as an ultimate medium based on the idea of its 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 components of each of the rooms as they appear in the projected image.

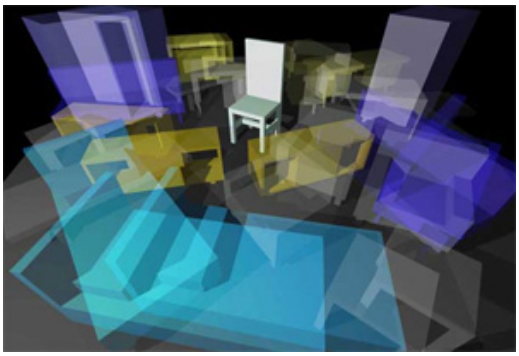


39 In Book X of the Republic, Plato denouces images as being just appearances and praises poetry for being based on understanding. Cited in Leitch, 2001, p. 69-71

40 Derrida's *Of Grammatology*, 1976 places the image within the context of text; Nelson Goodman, in *Languages of Art*, 1968 places preface on 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) p.20

41 Ryan, 2001, p. 1

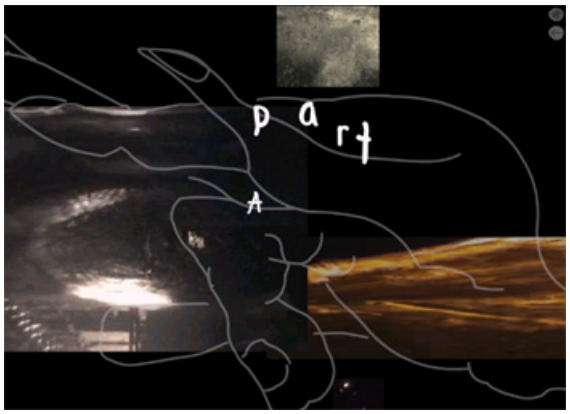
In the development of virtual or augmented reality projects, immersiveness is often equated with successful illusion: if it looks and feels real, it is thought to be immersive. But in the fields of theory and literature, immersiveness relates to the quality of engagement.
In "Second Life" it is assumed 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. In the three times (October 2006, November 2006, February 2007) I visited Second Life, I found it uninteresting, even when invited to an art performance located there. Popularity (mass appeal), though of some significance, does not contribute towards user engagement, I argue. After the initial novelty... what's new about new media?



"Systems Maintenance", 1998, by Perry Hoberman.

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"[42], 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)[43], 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 art projects.



Screenshot of "Breathing Out" by Sonja van Kerkhoff
As you move the mouse, texts, videos, animations or singing appear, start, pause or disappear. Sometimes like a chain-reaction of one video setting off an animated text and other times in specific areas of the screen so the user can select the juxtapositioning of various elements.
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.

42 Bolter and Grusin, 1999, p. 45. McPherson in Hui Kyong Chun (2006) argues against remediation as unique or distinctive in relation to new media p. 199 – 201.
43 S.D. Noam Cook makes a convincing argument against Manovich's focus on the technical in the development of media in Hassan, 2006.

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) has found its 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"[44] and because the process of experimenting with a new medium takes time.

Bolter and Grusin criticize Holtzman's view as "a comfortable, modernist rhetoric"[45] 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?

"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 had affect. Most moved towards the exit. The choreography and responsiveness of lighting and sound directed behaviour and elicited a willingness to co-orporate with the system.

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.

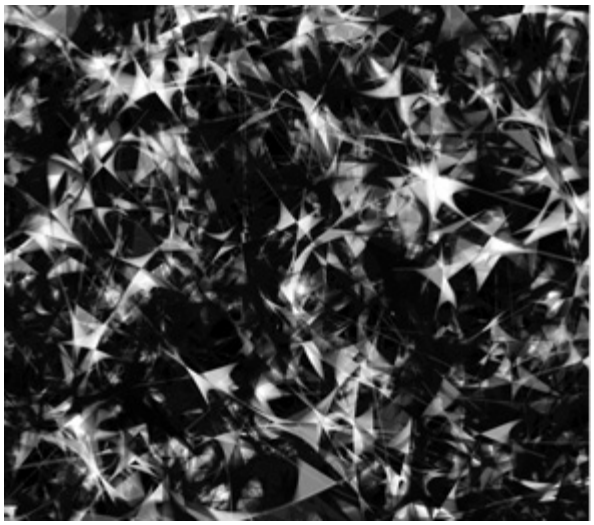
Dziga Vertov's 1929 film,"Man with a Movie Camera" was an example of future possibilities for film: flashback, split screen, etc. Here the cameraman is filming while the same man is walking, in miniature, on the left.

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

45 Bolter and Grusin, 1999, p. 49.

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, whether these would be defined as "remediation" or not.

For example, artworks in the emerging field of "software art"[46] 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 procedures by programming to make visualizations of them. For example the image on the left is a print out from a moment in an evolving animation that was the result of following the instructions in the text below it.
It seems to be an autonomous entity interacting with the programmed instructions.



Process 12

A rectangular surface filled with instances of Element 3, each with a different size and gray value. Draw a dot at the center of each line. Draw a quadrilateral connecting the endpoints of each pair of Elements that are touching. Increase the opacity of the dot and quadrilateral while the Elements are touching.

Implemented by C.E.B. Reas
Fall 2006
Processing v.121
Process 18 (Object 1) by Casey Reas, 2008
Unique milled fiber composite
18 x 18 x 1.25 inches

Element 3 is defined as Form 2 + Behavior 1 + Behavior 3 + Behavior 5 and then these are defined further. For example: Behavior 1 is Constant linear motion which Reas programmed as such a behaviour. These instructions foreground the role of subjective interpretation into the structure of programming.

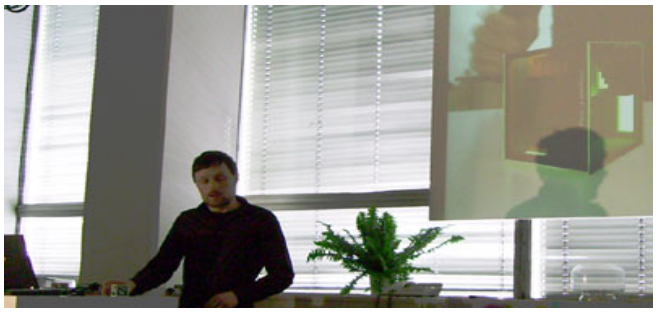
Interactivity in media is as Stefan Agamogolis argues (2001)[47] as old as the history of storytelling, but if you view automation as the appearance of autonomous interactivity from the medium, the possibility is a characteristic of new media, even if the possibility is not always used, as in applications such as three-dimensional modelling and digitally-mediated effects. 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.

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

47 Agamanolis, Stefan, 2001

I have also not gone into details in discussing any specifics of how interactivity might function specifically in immersive technologies or digital art projects.[48]
In fact it would be difficult to separate playfulness from interaction[49] whereas in literature or film, play or 'entertainment' is a distinct subcategory. This 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.

An example of a simple game created in a Augmented Reality Gaming Workshop at Mediamatic in June 2008, where two players hold opposite ends of a pole and need to balance a flat board in the middle. If they balance this correctly a virtual image appears where the black marker is and they need to stop it from falling off the edge. The goal here was to finding a balance which required the players coordinating with each other. It was made in a 3 day workshop to experiment with ARToolKit openSource software (www.hitl.washington.edu/artoolkit). The game had potential to be developed further in terms of content, context or play strategies.



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

"levelHead" 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 and to play with it.

48 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

49 The term "Serious Games" was coined in order to distinguish games and play oriented digital projects which are not purely for entertainment purposes.

A much greater potential for play with new, interactive, media could also be a potential for greater engagement. To see how this is being exploited, we need a method of measuring the engagement felt by users of digital technology.

4. Measuring Engagement

"..it appears to me that wonder is the first of all the passions; and it has no opposites, because if the object which presents itself has nothing in it that surprises us, we are in no wise moved regarding it, and we consider it without passion"

Rene Descartes, The Passions of the Soul, article 53[50]

Rosalind Picard argues that engagement relates to our emotions which are cognitive and emotional, adding that "emotion theorists still do not agree even on a definition of emotion." However, using the example of not being able to define whether Mt Everest is rock or ice, Picard argues that "we can base solid facts and knowledge on structures that are themselves imprecisely defined."[51]

For the purpose of measuring engagement in a practical experiment I have chosen to focus on the time spent in a system and the observed interactivity or responsiveness of the user or viewer. The assumption here is that the longer a person continues to interact with a simple interface, the more engaged the user is.

4.1 My experiment: What Do You See in A Face?

In the previous sections I've attempted to show that interactivity and realism in themselves are not enough for sustained engagement. To test my hypothesis that social charged content is a significant factor in engagement, I created an online questionnaire based on the Myers-Briggs/Jung typology[52], a widely used personality test. This was used so that the questionnaire would appear credible to the users, although the experiment is not in fact intended to test personality, but rather to see how long users continue to answer questions, when faced with one of the four different questionnaires.

The first page also recorded the user's gender and age group, although this information was not used. Each respondent was randomly assigned to answer one of the four types of questionnaires, unaware that there were three other types. To ensure this IP addresses were recorded so those in the same household or office were not able to repeat the questionnaire.

The title and question on each of the 72 pages of each questionnaire asks "What do you see in a face" and on one side there is either a drawing or a photograph of a face, with a caption which is 'charged' or neutral.

Figure 1: Type 1 of the questionnaire. The caption reads: Angeline Jolie Asks for Humanitarian Aid in Iraq.

50 Cited in Hui Kyong Chun (2006), p.1.
51 Picard, 1997, p. 21.
52 See http://www.humanmetrics.com for an explanation of what this is.

The four types of questionnaire were:

**Type 1* (see Figure 1) each page showed a photograph and a 'socially charged' caption: a caption which identified the person and said something significant about them or their life.

**Type 2* showed the same photograph with a 'neutral' caption, approximately the same length as the matching 'socially charged' caption.

* *Type 3* showed a sketch of the same face with the same 'socially charged' caption as type 1

* *Type 4* (see Figure 2) showed a sketch of the face with the matching 'neutral' caption.

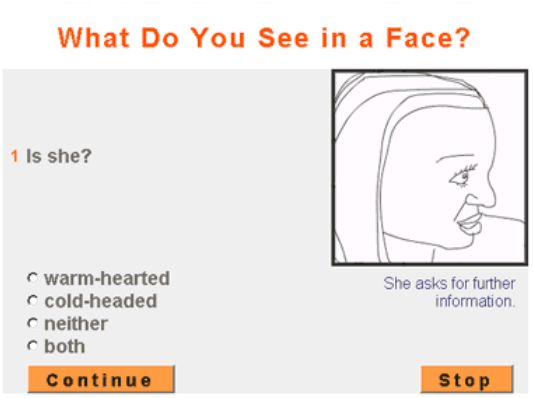


Figure 2: Type 4 of the questionnaire. The caption reads: She asks for further information.

The purpose was to measure the effect of socially charged verses neutral captions, of a similar length. To get an idea of the actual (and not merely statistical) significance of any effect found, two design variants (photograph or sketch) were also used, so that it would be possible to say that socially charged content is – for example – twice as effective as a change in design, or half as effective. The two design variants also serve as a check: if only photographs were used, and respondents were found to quit the questionnaire in large numbers at – for example – question 25, this might be because that photograph was particularly offensive. It might then have been necessary to rerun the experiment without that photograph. No markedly anomalous effects for individual questions were in fact found, but the photograph-sketch variants still gave a yardstick of how sensitive the experiment was to small differences in the questionnaire.
The test was to measure how many questions were answered before the visitor left the system, so it was important that the questionnaire should appear credible, and that it was easy to leave the system at any moment. The first page stated that results were available at each step and that the participant was free to choose to stop at any moment.

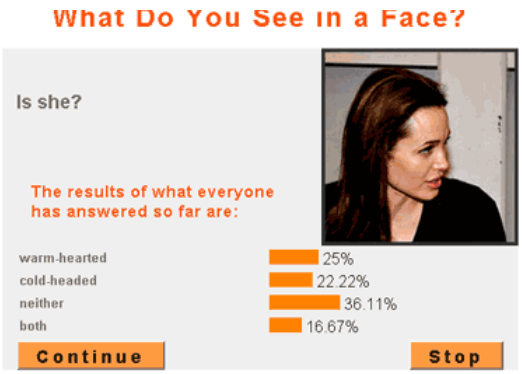


Figure 3: Type 1: after the first question has been answered. The results are the actual results of all participants in the questionnaire up to this point.

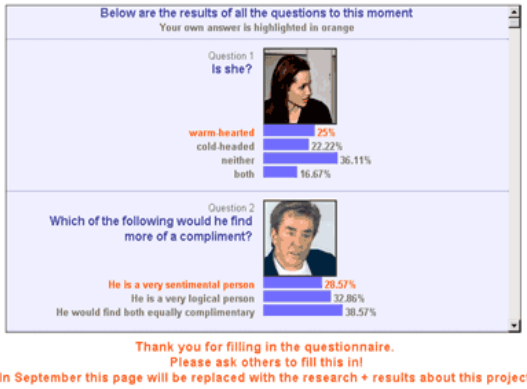


Figure 4: Type 1 or 2 (photographs) showing the person's own responses in orange and all 72 images and results. Visitors at this point had finished the questionnaire and could not return.

Initially I tested this questionnaire on seven people in three countries, working on various operating systems, aiming to make the questionnaire long enough so as to be a little demanding to complete but not so long that it would lose credibility. Through trial and error I settled on 72 faces, half being of females, of known personalities in diverse fields or cultural backgrounds. Because I relied on six types of user audiences in the e-mail lists for my participants I chose 'faces' known in the film world, art world, media technology world, education, literature, acoustic music, New Zealand and Bahai worlds. I invited feedback on the questionnaire in the invitation I emailed out. I received responses from ip addresses from around the world.

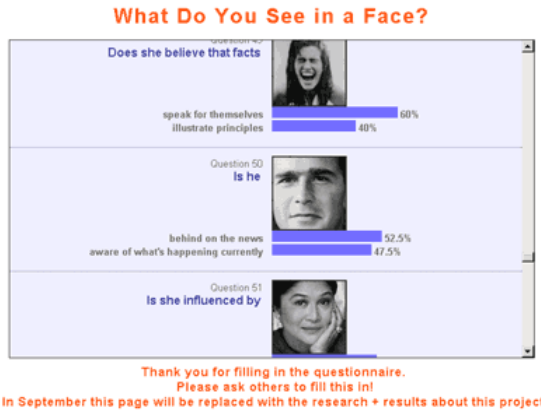


Figure 5: The results page of type 1 or 2: accessed on July 12th, 2008

Figure 6: The results page of type 3 or 4: accessed on July 12th, 2008

The questionnaire was functioning between July 7th and August 22nd 2008 (by which time there were 347 responses: 85, 94, 88 and 80 for types 1 to 4 respectively plus 24 responses for types 5 and 6). I received feedback related to the content of the questionnaire from 18 respondents, many of whom I knew personally. Most made responses in relation to the content of the questionnaire or in relation to the results they saw. A few made the comment that they found it difficult to make a choice, not knowing if they should respond to the face or the captions.
To see if this was a significant factor, I added types 5 and 6 on July 19th: . These have photographs or drawings with no captions, and were intended to see whether the mere existence of captions was enough to change user's behaviour. I stopped this on August 22nd and had 24 responses in both types. These few results indicate a pattern similar to the other types with six stopping at question 9 or less, and five finishing at question 72 with the rest spread thinly in between. The number of responses was too small for the numerical analysis applied to types 1 to 4.
I also observed 8 individuals undertaking the questionnaire in August and found that all read the captions before making a choice. I noted that some stopped because they had to do something else, and not because they wished to leave. I had told them that part of my test was to see when they would leave the system, so that they wouldn't feel they had to complete the questionnaire because of my presence. However given that all of these individuals as well as any person who did the questionnaire were allotted to the types randomly, this shouldn't effect the results between the types of questionnaire. I also recorded the length of time each visitor spent answering the questions, but chose not to use this because the number of questions answered is a more valid proxi measure for engagement. The time on-line could be affected by various events happening around each user.

Results

The responses for each questionnaire were ranked according to the number of questions answered. The most striking difference between the questionnaires was that those with a sketch achieved greater engagement (measured by the final question answered) than those with a photograph.

	With Photographs	With Sketches
Number who stopped at Question 63 or higher	22	29

Of the fifty-one respondents who stopped at or after question 63, twenty-two had responded to photographic versions and twenty-nine to versions with a sketch. This is not the difference I was seeking to measure, but does show what scale of effect can be expected from relatively small changes to the questionnaire.

The results for 24 respondents who left the system without answering the first question were discarded, on the assumption that these were accidental participants who left because they did not mean to be there in the first place: their leaving would not relate to the type of questionnaire they had encountered. For each questionnaire, the median of the responses was found: if for example there were 81 responses, the number of questions answered by the 40th ranking respondent was taken as the engagement score for that type of questionnaire. If there were 80 responses, the average of the questions answered by the 39th and 40th respondent would be the score. This gives the following results:

For Questions 1 -72	Median for the final question answered for charged content	Median for the final question answered for neutral content
Photograph	23	24
Sketch	24.5	23

Table 1

These differences are not significant, given that the number of questions answered is necessarily a whole number. It is notable that the engagement for the photograph and sketch variants also do not differ, although the distribution of the most tenacious respondents (22 versus 29, described above) indicates that this is a large factor. This suggested that uninterested respondents may click on a number questions before leaving, rather than just one, the number not relating to the content or design of the questionnaire. If we discard all the responses which stopped at or before question 9, the picture is quite different:

For Questions 10 - 72	Median for the final question answered for charged content	Median for the final question answered for neutral content
Photograph	32	30
Sketch	40	36

Table 2

Here it appears that the engagement scores for the versions with sketches are higher than those with photographs, and also that the two scores for the versions with charged content are both higher than those for the same design but with neutral content.

I then recorded the number of responses for those stopping between question 1 and 15

Final Question Answered	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Type 1	4	3	1	4	2	1	4	2	1	4	2	0	2	0	2
Type 2	2	2	1	4	3	2	1	2	5	2	2	0	0	0	2
Type 3	7	3	3	5	1	1	7	2	1	1	1	2	2	2	1
Type 4	1	0	2	5	4	4	2	1	3	3	2	1	1	1	1
Total	14	8	7	18	10	8	13	7	10	10	7	3	5	3	6

Table 3

There is a marked drop off in responses from Question 10 or 11 onwards, so to test the sensitivity of this analysis, I did the same analysis as above but started with results for Question 16 onwards which gave the following results.

For Questions 16 - 72	Median for the final Question Answered for Charged content	Median for the final question answered for neutral content
Photograph	38	32
Sketch	50	47

Table 4

These results show a similar pattern as for Table 2: it appears that socially charged content may well be a factor in achieving greater *sustained* user engagement, although it is considerably less important than design features. Neither aspect had a detectable effect on *initial* engagement.

If we return to the most tenacious respondents, those who stopped at Question 64 or higher, we see that 22 had answered questionnaires using photographs, and 29 had answered questionnaires with sketches. The breakdown (see the Table below) for socially charged versus neutral content, for the same 51 respondents is, surprisingly, almost the same.

	Socially charged captions (Type 1 + 3)	Neutral captions (Type 2 + 4)
Number who stopped at Question 64 or higher	26	25

The higher median scores for socially charged captions are not reflected in this last grouping. Why not? One answer is that 51 respondents is a fairly small group to give results. This is the advantage of using median scores: they show the engagement of all the participants included rather than of the most engaged group. But another answer is that socially charged content gives greater engagement in the middle range – ignoring the results of the first 9 questions – but for really sustained engagement, to the bitter end, use Art! The drawings were much more effective than the photographs.

Summary + Conclusions

I was surprised to discover in the questionnaire that sketches had such a significantly positive influence on the engagement, while the "socially charged"captions had a modest positive effect on median scores, and did not significantly affect the numbers who continued to the very end of the questionnaire. The sketches, in general, were more or less copies of the photograph, so I considered this a minor change in the design of the system. This indicates that this questionnaire

method is quite sensitive to variants in the questionnaire.




Question 61, Socially charged caption:	*Question 61, Neutral caption:*	*Question 14, Socially charged caption:*	*Question 14, Neutral caption:*
In 1965 Stephanie Kwolek invented **Kevlar**, a synthetic fiber used in bullet-proof vests, boats, airplanes, ropes, cables, tires, etc.	From her mother, first a homemaker and then by necessity a career woman, she inherited a love of fabrics and sewing.	Tim Berners-Lee, who invented the World Wide Web, poses in his MIT office Oct. 2, 1995 www.time.com/time	He has just gotten up and is about to have some breakfast. Then he will go to work. The date is October 2nd, 1995.

The much better scores for the sketches confirm that mediation – the visibility of the medium as opposed to its invisibility – is a positive factor. Put the other way, a more realistic simulation could have a negative effect on engagement. Perhaps, as imaginative beings and symbol-users, we actually like filling in the gaps and seeing the hand of the maker in the signs presented to us?

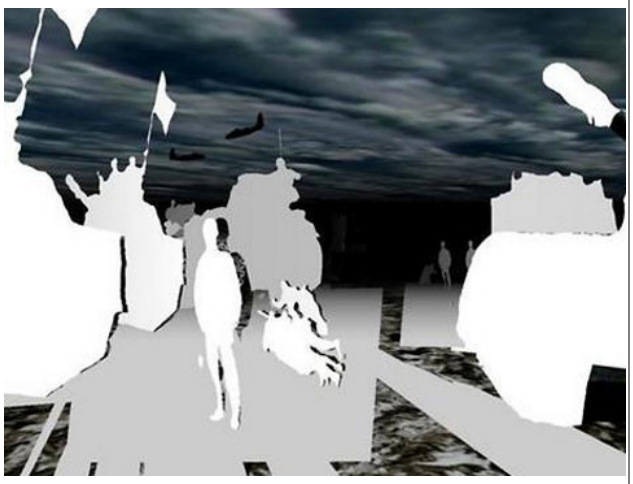
I also had expected that initial curiosity would result in a drop out after one or two questions, but the results showed that this did not occur until about question 9. This could be due to the aesthetics of the questionnaire or the interest people might show towards close-ups of faces.
I came across a few comments in the literature suggesting that the general public today reads more visually (via videos, film or poster design) than in the pre-digital age, and this is a topic that could be pursued in the future. [More screenshots and details about this questionnaire are at http://www.sonjavank.com/faces]

Potential Ramifications

The questionnaire showed there is some significance in relation to charged or meaningful content when it comes to (relatively) sustained engagement. This was what I was interested in: an engagement that goes beyond user interaction. I chose to test an aspect relating to content because my critique in the development of interactive media was not focused on issues of interactivity or even immersiveness per se, but on purpose, content and emotional effect. This is in part a reaction to the focus on technique that seems to be a popular trend among practitioners in digital arts worlds. It seems to be me almost an uncritical approach. It is our subjectivity that makes things interesting and sustains engagement.
I am perfectly happy to play with interactive artworks for about 10 minutes or so, 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 had, 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 without leading us to a critique of its justice or implications. 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[53], I agree with Oliver Grau that "(i)mmersion can be an intellectually stimulating process"[54]. More than that, it can also extend an individual in terms of social engagement.
To conclude I describe two works which I think use the materiality of immersive technologies successfully to engage critical reflection.

In the CAVE project, "World Skin" by Maurice Benayoun, one person was assigned the role of "bus driver", who determined the route everyone took by moving a joystick inside the virtual war zone, while the each of others 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 then was transformed into colourless cardboard cutouts.
The snapshots were weapons of erasive. 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."[55]
The work is a convincing illustration of how engagement can be achieved by drawing on imagination and socially charged content using immersive technologies.

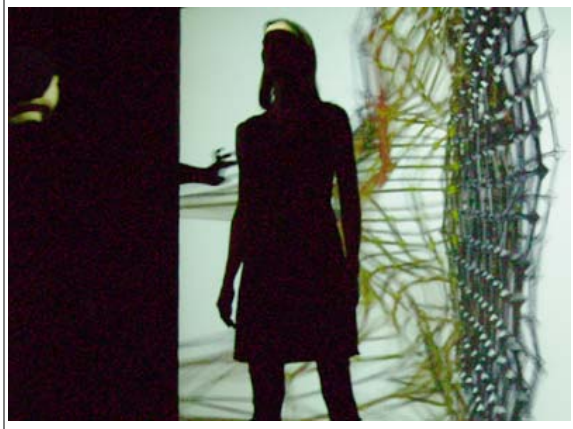


Two images from "Worldskin", a CAVE experience by Maurice Benayoun, with a soundscape by Jean-Baptiste Barrière, 1997. www.benayoun.com

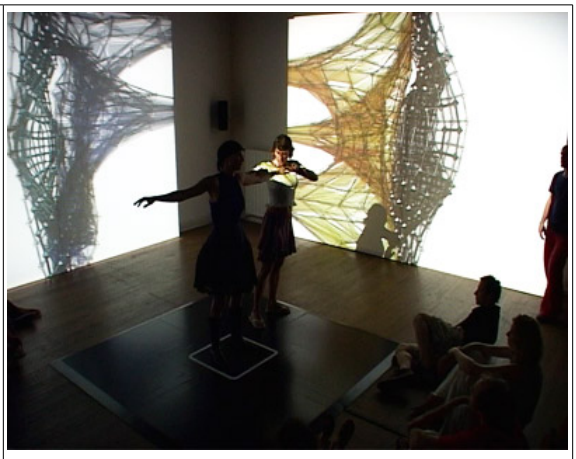
Is the implication here that when we sit (in safely in our bus) to watch the news that we are like war-tourists? Is this a fair critique, is this just? The artwork presents our interest in the world as passive participants. So the work is effective to the extent that this presentation of ourselves is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

53 Cubitt (2007) p 6, "Considered as interpretation, knowledge produces not actuality but potentialities..."
54 Oliver Grau (2003) p. 13
55 Cully (1998)

In the artwork, “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 system. If you come close or touch this person's body, it affects the abstracted images and soundscape. The experience I had 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).

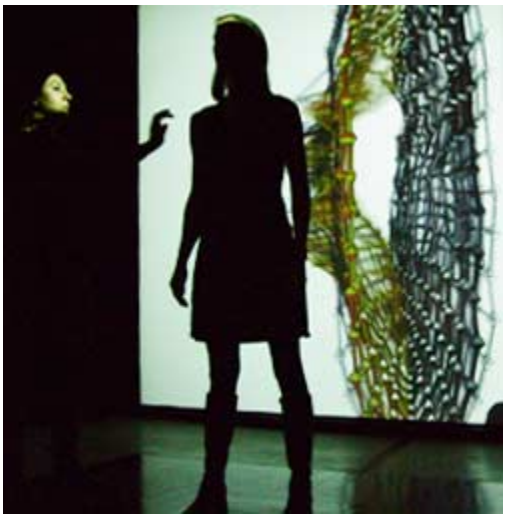


The implications of this work are complex. Is it that we are aware of the person as a lively web of electromagnetic energies. But then why is this a woman and why does she have to be passive?
Or is it a visualization of human-to-human touch (or proximity)?
Or is the woman being treated simply as an object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



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

“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



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