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Continuities and Discontinuities in Ethical Reflections on Digital Virtual Reality

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❑ *This article considers the ethical implications of digital virtual reality (DVR) within the context of the place of virtual reality in general in human life and development. This is elaborated through a comparative analysis of the continuity and discontinuity between virtual reality in other mediated forms and DVR. The important role played by virtual reality in human creativity and adaptation sets the context for considering the ethics of DVR in 4 main areas: epistemological questions, questions of distraction and displacement, the content of DVR, and questions of power.*

The term *virtual reality* is often used quite capriciously in common practice, so in thinking about ethics of virtual reality it is important first to define what we mean by the concept. The initial impulse is commonly to consider virtual reality from within a frame of unreality, illusion in effect. Virtual reality is often seen as pseudo reality, a deception that mimics the real—in Baudrillard's (1993) terms, a simulation, a substitution of the false for the real. This approach suggests that major issues arising in any consideration of virtual reality are questions we would ask of illusion or counterfeiting. Questions of virtual reality, however, are much more complex than that.

It is inadequate to see virtual reality as unreality. The term itself connotes the virtual as a form, one of the forms, of reality. We talk of virtual reality, not unreal virtuality. Webster's Dictionary defined *virtual* as "being in essence or effect, not in fact" (p. XX). John Wood (1998) described the virtual as "anything that is the case, although not in the fullest sense" (p. 4).

So the question arises, what would need to be added to virtual reality that would make it "the fullest sense" of reality? Or to use the Webster definition, what needs to be added to the essence to make it a fact? A number of alternatives can be identified, none of them necessarily discreet from each other.

- One is *physical reality*—where emphasis is placed on what is added by the constraining boundaries of the human body or that challenge in some way our physical existence and functioning.

- A second is *material reality*—where the focus is on reality defined and constrained by material resources and access to them.
- A third is *actualized reality*—a set of conditions "defined" or typified by concrete and specific instances in time and space.

One of the issues to be addressed in thinking ethically about virtual reality is that in practice it is difficult to identify clear boundaries between the actual, physical, or material and the virtual. Although modern thought has sought to elevate such binary distinctions, for much of human history, then and now, a clear boundary between the material and nonmaterial has not been as readily accepted or practiced.

The idea that we can only describe as "real" that which has actual material existence or situated embodiment has never been held in human history by any but a small minority of thorough-going materialists. Margaret Wertheim has pointed out that throughout human history all cultures have had parallel "other" worlds, which were not separate from, but continually intersected with the world of bodily experience and were more real than the constrained material reality within which they were living (Wertheim, 1999). Flesh passes away but the spirit lives forever—material existence is the illusion.

So it is mistaken to contrast the virtual to "the real." The virtual is more properly understood as one of the forms of reality we inhabit, along with but also merged with the actual, physical, material realities.

Characteristics of the Virtual

The virtual suggests that what is conjectured is real enough and close enough to a set of material conditions or actual experiences that we can say it is "as if" it were the situation itself. Yet it is sufficiently different from it that we need to qualify ourselves by saying "but it is not the situation itself." Virtual reality has the character of being "as if" but "not quite."

Because it is not constrained by the limitations of a specific actual instance, virtual reality plays a crucial role and regenerative role in our being human and in developing ourselves beyond the specific constraints of individual situations. So Pierre Lévy (1998) saw the virtual as "a fecund and powerful mode of being that expands the process of creation, opens up a future, injects a core of meaning beneath the platitude of immediate physical presence" (p. 16).

Reality, understood most fully, therefore, is not just an immediate, actual, or material condition, but also its accompanying virtualities. Lévy (XXXX) gave an example of a seed, which is more than its immediate material form, even though that constitutes a good part of its existence. What gives a seed its meaning and name are the interplay of its actual reality and

its virtual reality. The material reality of a "seed" is its cellular composition; the virtual reality of a seed is the bush or tree that it can become. What distinguishes a eucalyptus seed from a piece of eucalyptus wood carved in the shape of a seed is not so much their material difference but their virtual difference.

So reality is not a fixed singularity; it is a dynamic process of constant movement and interplay between the dimensions of virtualization and actualization. Within an actual situation, the press is towards identifying a virtual reality, as a way of escaping from the confines of the specific instance in fixed time and space. We enter the virtual in order to identify and explore other possibilities, in order to create new actualities. The press from within the virtual, the dreaming, is towards the actual, as a way of concretizing the loose, of converting and experiencing the dream within bodily experience, and testing and implementing identity.

We enter the virtual … to create new actualities.

Far from being unreal, the virtual is a crucial dimension of our humanity and in practice the boundaries between the virtual and the actual are extremely fluid and undefined. In everyday life, in many different ways, we are constantly moving between actual situations we are living in and virtual possibilities evoked by those situations almost on a moment by moment basis. A simple example of this is self talk, or that range of behaviors that Goffman (1971) described as offstage rehearsal.

Lévy (1998, p. 97) identified three main processes of virtualization that have characterized and led to the emergence of humanity:

- *Virtualization associated with signs.* Language leads to a virtualization of real time through a process of detaching ourselves and events from the immediate time and space in which they occur and intensifying the immediate experience through questioning and stories.
- *Virtualization associated with technology.* Technology produces a virtualization of action, of the body, and of the physical environment. Humans have always sought means to extend themselves beyond the practicalities of their immediate situations in the process both of survival and of making meaning. Technology has always been one of those means.
- *Virtualization associated with social relations*. For Lévy, ritual, religion, morality, law, economics, and political regulations are social mechanisms for virtualizing violence, and for dealing with relations of force,

impulse, instincts, and desires. An agreement or contract is a virtual reality, a means of defining and ordering a particular situation in terms of a reality that are independent of the particular situation.

The virtual can be seen as fulfilling a number of important functions crucial to human life.

- *Creation.* It is first in virtual space that we generate virtual new realities that become the basis for testing and implementation in actual new realities. This is made possible through a transformation from a particular solution within the confines of the actual situation into a more general problematic in the virtual situation that is amenable to more fluid imagination, experimentation, and transformation (Lévy, 1998). Drama in its many forms fits in here. Dramatic storytelling creates a virtual reality through a sympathetic exploration of other experiences.
- *Exploring potential and testing limits.* In addition to being a site for creation, the virtual is the deterritorialized space in which we explore alternatives, potential, and limits in a situation free of the confines, demands, and requirements of the actual situation.
- *Safety.* The virtual is a device we use in search of safety and control in the war against fragility, pain, wear, and mortality. Theory is a virtual reality we construct and participate in as a device for countering the potential of chaos. Culture likewise is a virtual construct comprising "a range of material practices and technical and intellectual works, also reflected in individual ideas, desires, and aspirations" that serves to "shield us from the brute reality of certain aspects of our embodiment" (Hillis, 1999, p. xvi).
- *Hope.* An important function of virtual reality is to provide a space in which we can explore the possibility of a situation in which the threats, frustrations, and limitations of our actual life do not exist, as a basis for believing that our actual life may one day be free of those threats, frustrations, and limitations. It is no accident that most of the religious theologies of hope, for example, are strongly eschatological in character, offering people hope based on a future virtual reality.

It is these important functions that distinguish virtual reality from artificial and pseudorealities. Pseudorealities are imitations or counterfeit situations that simulate the actual. As such, artificial and pseudorealities are diminishments and worthy of the sort of dismissal offered by such as Baudrillard (1993). Virtual realities do more than just mirror or imitate. They are also creative: They have not just an "as if" but "not quite" character, but also a "what if" quality as well.

What makes this creativity possible is that virtual reality is not bound by the constraints of a specific time or place. The essence of virtual reality is that it is deterritorialized and dehistoricized: It is a reality unconstrained by specific time-bound and place-bound demands and limits. For that reason, virtual reality space plays an important role in the development of identity. We develop a continuing narrative of our self through a continual process of conceiving optional realities, testing those options through performance, and reviewing those performances in relation to the ongoing virtual narrative.

Technological Virtual Realities

When considering the ethics of digital virtual realities (DVRs), it is important to locate our consideration within this broader framework, for one of the crucial ethical questions is in what ways do DVRs relate to the crucial roles that virtual reality, in general, plays in the construction and development of the human.

There is value also in locating an ethical analysis of DVR within a broader historical perspective of other technological virtual realities. A historical perspective is a valuable corrective both to those who fear that computers are unlike any other technological device in their impact, and those who conversely see computer-generated virtual realities as having the potential to solve the problems of the world.

In many ways, DVRs are simply continuous with other technologies of virtual reality, and the reactions and concerns are primarily those of novelty and adaptation that accompany the emergence of all new technologies. In every period of new technological development, there are numerous instances of those who saw the new technology as the harbinger of social destruction and those who saw it as the means of social salvation.

However, the question must be asked: Is there something paradigmatically different about DVR that places it in a different category than previous technologies or virtualities, or is its difference simply that of novelty, reinforced by the absence of retrospect and historical perspective?

Hillis (1999) defined DVR as "an individual experience constituted within technology" which "draws together the world of technology and its ability to represent nature, with the broad and overlapping spheres of social relations and meaning" (p. xv) Hillis, for his purposes, distinguished between DVR and digital virtual environments, which he saw as "spatialised realms of digitally coded information … made possible by virtual technologies … . They use iconographics, which are more conducive to collapsing experiential differences and distances between symbols and referents, or the virtual and the real, than text-based applications" (pp. xiv–xv).

If there are differences in DVRs, those differences may be located in a number of characteristics and their combination.

- One is the iconographic nature of DVRs, with questions of immediacy and nature of representation that are associated with visual apprehension;[1]
- A second is the extent to which the technologies are interactive, involving the user as a producer of reality, not just as a consumer;
- The third is the level of immersion involved. These can range from the basic level of a keyboard or lever to extensive bodily immersion in a constructed virtual environment, where the user dons a head mounted device and attaches exoskeletal devices that provide sensory stimulation apt to the virtual environment as well as providing feedback to the computer in a way that serves to reconstitute one's perception and body movements as an active element in the virtual environment.

Is there anything really new about the "menace" of digital virtual media?

There are some who argue that the level of physical immersion created by DVRs make them qualitatively different than previous ones, yet this may reflect no more than cultural chauvinism. David Morgan, an art historian, commented:

> For me (a historian) the more interesting question is this: is there anything really new about the "menace" of digital virtual media? New media wonks (who seem to be about 98% of media studies people, almost all of whom are unrepentantly presentist in their working assumptions) appear to accept as a given that Internet is new, all new, and nothing but new. It is quite important to realize that virtuality is NOT new. It is as old as representation, which is pretty old. (personal communication, September 3, 2002)

It is possible, for example, that through its openness and invitation to imagination, a book may be as immersive a media technology as a computer generated environment. In similar vein, Anne Friedberg (1993) recounted the impression made by visual stimulation of the redeveloped Palais Royale, one of the first arcades in Paris in the 18th century. One visitor in 1789 declared, "One could spend an entire life, even the longest, in the Palais Royale, and, as in an enchanting dream, dying say, 'I have seen and known it all'" (p. 68).

When considered historically, one can readily see continuities between questions being asked of DVR and broader questions both of virtual reality and earlier technologies of virtual reality, such as writing, books, photography, cinema, radio, and television. Continuities can also be identified with other social practices, such as tourism and shopping centers (Friedberg, 1993; Holmes, 2001b).

Yet there are also discontinuities, primarily in the capacity of computer-generated virtual realities to physically reproduce and manipulate the sensory experience of actual situations through the ability of digitalization to dissect and categorize a sensory reading of a situation, and through the volumic capacities of computerization to manipulate and reproduce that reading in different forms. Whether these represent a paradigmatically different technology of virtual reality, or simply a new one, remains an open question.

Ethical Perspectives and Issues

The mind boggles a little, therefore, when one considers what approach to take in thinking abut the ethics of DVR. If one accepts, as I have proposed earlier, that in thinking about DVR one actually has to engage all the issues involved in the relationship of virtuality and actuality in being human, the scope is limitless.

One possibility is to approach the task from the perspective of identifying what frameworks are applicable to an ethical analysis of DVR (Forester & Morrison, 1997). Another is that of identifying what ethical principles are fundamental in approaching an analysis (Christians, Fackler, Rotzoll, & McKee, 2001; Christians & Traber, 1997; Keown, 1998). One can approach the issue from a critical perspective, similar to that taken by Ellul (1985), or feminist critics such as Judy Wajcman (1997), Rye Snejen and Jane Guthrie (1994), or Dale Spender (1995). One could build an ethical analysis around the applications being made of these technologies, given that technologies of virtual reality are now used in a wide diversity of applications: entertainment, scientific, medical, military, financial, corporate, and educational.

In what is primarily an exploration, I want to identify what I think are four areas of ethical consideration in DVR: some epistemological questions, the issue of displacement, questions of content, and finally questions of power. In doing so, I want to hold in tension two perspectives: that of the place of the virtual in general in creating and expanding our capacity to be human; and historical perspectives that identify similar concerns and issues raised about earlier technologies. If there is a guiding ethical perspective, it is the question of "the good:" To what extent do DVRs contribute to

the creation and expansion of our capacity as humans, individually, communally, and in relation to the earth as a companion living organism?

Epistemological Questions

The first set of questions float around what might conveniently be called epistemological issues, issues that hover around the boundary between virtual and actual reality. A couple of issues come to mind.

The first relates to the cultural construction and meaning of place and space.

Much of the character and distinctiveness of virtual reality comes from its deterritorialization: its dislocation of event from specific time and specific location—to what extent does this dislocation lead to alienation? Some see this "dislocation" as potentially dangerous and dysfunctional. Lévy (1998), while acknowledging the creative benefits of virtual reality, also cautioned that we need to beware of "its alienating, reifying, and invalidating caricatures" (p. 17). Hillis (1999) was also cautious of uses of virtual reality technologies that separate us from the realities of our material existence.

However, time and place are not simple entities. Pierre Lévy (1997) in his book *Collective Intelligence* breaks a singular sense of space into four primary spaces: earth, territory, commodity, and knowledge. Likewise, we do not recognize just one concrete sense of time. There is both work time and leisure time, both of which are given quite different characters and meaning. Even present time is not just that, but is a crossroads of the past and future.

What we are experiencing in the current technological shift is a reworking of culturally determined concepts and experiences of time and space. Margaret Wertheim in her book *The Pearly Gates of Cyberspace* (1999) provided a provocative perspective analysis of the changing character of space in Western thought and experience since the Middle Ages. Wertheim argued that the medieval worldview encompassed both "a physical and a spiritual realm" that incorporated "a genuinely dualistic cosmology consisting of both a physical and a spiritual order" that intersected each other and were influential in the shaping of human life (p. 33). One of the effects of the scientific revolution was to change this cosmology into a monistic physicalist worldview, in which "physical space came to occupy *the whole of reality*," extending to infinity. "Conceptions of terrestrial and celestial space underwent a revolution, with celestial space being reconceived in terms of mundane physical forces and mathematical laws" (p. 39). One of the major effects of this was "to write out of our vision of reality any conception of spiritual space, and along with that any concept of spirit or soul" (p. 39). The materiality of the physical became a significant touchstone of ethical evaluation.

In the 20th century, that monistic materialist worldview began to change. Among other things, the concept of nonmaterial space "has assumed an ever-greater role in the scientific vision of reality, until now it is seen by many physicists as the primary element of existence itself" (Wertheim, 1999, p. 39). Wertheim used this framework as a context for examining the contemporary significance of virtual reality, or cyberspace in the construction of meaning. She proposed that the virtual reality of cyberspace needs to be understood within the context of recovery of a "new space of 'spirit' … a kind of immaterial space of mind" (p. 41) that fulfils today a similar function to the medieval cosmological worldview. She locates the attraction of virtual environments and experiments with virtual reality within the shortcomings of the materialist offerings of the West and the spiritual yearnings those shortcomings are producing. "In this climate I suggest that the emergence of a new kind of *non-physical space* was almost guaranteed to attract 'spiritual' and even 'heavenly' dreams" (Wertheim, 1999, p. 40).

What Wertheim (1999) suggested about cyberspace has some parallels in Victor Turner's (1969) concept of liminality, intense threshold experiences and their role in the shaping of individual and communal identity that occur within a quite different cultural space. Ethical analyses that place excessive importance on the nonmaterial nature of virtual reality may therefore miss the significant social transitions and spiritual dynamics that may be part of the phenomena.

The Medieval spiritual realm … was highly ordered by shared … theological understandings.

One difference between contemporary virtual reality in technological contexts and medieval experiences of the virtual lies in the relative contemporary absence of defining metanarratives. The medieval spiritual realm may well be seen as a virtual reality, but it was a virtual realm that was highly ordered by shared communal theological understandings which were seen to be validated in resultant material conditions. It was also a realm that was seen to have its own transcendent autonomy.

It is dubious if one could say the same about DVR. To the contrary, DVR is strongly self-generated and controlled, consumer oriented, and individually centered. Hillis (1999) saw this as a concern. He viewed virtual reality within the framework of "(Lorenzo) Simpson's assertion that postmodern desire 'is the demiurgic desire to be the origin of the "real"'" (p. XX).

> Enter VR as the technico-cultural fix invented by a postmodern sensibility both as a bulwark against uncertainty instigated by the perceived death of the real and as an uncanny artefact created by a later-day nostalgic Dr. Frankenstein in search of a means of producing a seemingly vanquished (meaningful) reality. In all of this, VR suggests that a premodern realism can be recuperated through using modern conventions of representation. (pp. xxix–xxx)

So one ethical question centers around the question of space and the body in being human. This revisits the question of to what extent is self-consciousness and self-awareness an inescapable aspect of being human. If our physical senses and consciousness are not merely being extended by technology, in a McLuhan (1964) sense, but are being technologically substituted, when do we stop being ourselves? In addition, if technologically constructed pseudorealities that contribute to our meaning and identity construction are totally divorced from the material aspects of our being, to what extent are they inherently alienating?

At this point DVR enters the debate that has run through centuries, and has been resurrected in some postmodern theory, that "the body is a fiction, a decorporealized subjectivity sliding fluidly among a variety of positions" (Friedberg, 1993, p. XX). I do not accept that. I have spent too much of my life fighting a theological fight to reclaim the importance of the body and the material from those who promoted the primacy of the disembodied soul to want to simply say "The body isn't important." Our bodies are important, yet at the same time we need to see that our bodies are more complex than simply their biological functions.

A second question centers around the relationship between technologically mediated information and virtual reality.

When a computer generates a constructed visual and auditory environment that you place yourself within and interact with, what is virtual about it and what is actual? The machine is constructing a context that stimulates your physical senses, so there is a sensory embodiment; you interact with the machine in a specific place and time in your life; and the constructed environment you are interacting with has limitations generated by the limits of the program that you cannot do anything about. So it could be argued that what is called DVR is not genuinely a virtual reality: It is more like a pseudoreality constructed by a programmer using a machine that re-territorializes experience rather than deterritorializes it.

This would be a semantic point except for the fact that there is significant ideology constructed into the parameters of the programmed pseudoreality. There is ideology enacted in what problems and issues are included, ideology in how those problems are identified and set up, and ideology in the options that one is given for dealing with the issues. For ex-

ample, a number of women I have spoken to are quite uninterested in computerized reality programs, not because they are technophobes, but because they find the situations presented, and the way in which the situations are constructed and presented so limited in imagination and opportunity. After exploring one program, a woman said to me, "I really would have been interested in doing this (trying a particular strategy) but the program wouldn't let me."

In a study of the online computer game EverQuest, a game that allows for social interaction with other gamers, one of my students found that the opportunity for unstructured social interaction that the game made possible was a highly significant factor in its popularity. Consistently, more than three-quarters of players named social interactions such as chatting with other gamers, helping novice gamers, and trading with other gamers as very important in their participation (Wong, 2000).

Given the important roles that virtual reality plays in our construction of ourselves as human, and the creative possibilities facilitated by virtual reality's distinctive characteristic of deterritorialization, to what extent is DVR not a genuine virtual reality that facilitates human creativity, but a technologically constructed artificial reality that inhibits rather than facilitates human development?

Virtual Reality as Distraction or Displacement

A second series of ethical questions arise around the issue of the extent to which engagement with virtual reality becomes a distraction from addressing issues of practical reality.

There are two dimensions to this. One is the issue of the amount of time spent in participating in the virtual that takes away from doing one's personal and civic duties. To a certain extent this displacement effect can be understood in terms of the time given to a new activity either because it is new or because of the time required in mastering a new skill. David Morgan wrote:

> I wonder if some of the concerns about the negative effects of digital media aren't comparable to anxieties raised by Christian parents and moralists in the 18th and 19th centuries regarding novels: that they exert a dissipating effect on readers by stirring the passions and absorbing leisure time. New media are perhaps most noticeable in everyday life by their commandeering of time. In order to learn their new protocols, users must spend a great deal of time focusing on the new apparatus. And once learned, new media by virtue of their novelty and the enthusiasm shared by one's cohort—especially among the young—quickly claim leisure time and squeeze more time from other parts of the day. (personal communication, September 3, 2002)

As Morgan (personal communication, September 3, 2003) noted, similar concerns can be found in precursor media. *The Victorian Catholic Advocate* in 19th century Australia expressed serious concerns about popular novel reading because it produced "lukewarmness, indifference, and neglect of religious duties" (Askew & Hubber, 1988, p. 115). One of the early television researchers, Paul Lazarsfeld (1948) proposed that one of the social effects of television viewing was what he called a "narcotizing dysfunction," in which viewing came to substitute knowing for doing, leading to an eventual diminishment of social involvement and engagement.

A second dimension is that of the escape provided by DVRs—whether the essential characteristics of virtual reality as a reality in which the frustrations and disappointments of the actual world do not exist, will inevitably lead to a diminishing desire to live in the actual world. So, instead of learning the disciplines of living with or changing one's individual or communal environment, one finds it easier to escape into a reality where those practicalities do not exist. Sherry Turkle (1997) noted in *Life on the Screen* that life on line is often preferred to real life for a number of reasons: It is safe, it facilitates a highly mobile gaze, you can leave the environment at any time; it can be engaged with in a physical environment of the person's own choosing, as well as attendant physical comforts.

Again DVR is not distinctive in this. One of the earliest novels, Cervantes' *Don Quixote,* is an entertaining critique of a member of the leisured class who spent so much time in the virtual world of chivalric novels that he had lost the capacity to engage the actual world in its own terms. Yet it is also a subtle exploration of the interaction between the virtual and the actual, and the capacity of the virtual, albeit fractiously, to transform the mundane.

Don Quixote … spent so much time in the virtual world … he lost the capacity to engage the actual.

Ethical discussion around this issue needs to engage not just individual behavior but also broader cultural issues. DVRs link into broader social movements in advanced capitalist societies that reflect changing relationships between the individual and the community. These include a growth in leisure time, an increase in media-structured urbanization leading to changing patterns of accessing and processing information, development in detachment encouraging "the gaze" as a position of engagement with society, and the development of commodification and consumption as eco-

nomic structures. So texts such as those of Friedberg (1993) and Holmes (2001a), for example, see DVR as continuous with growth in other virtualities such as the city, shopping malls, and tourism.

To what extent do practices of DVR simply reflect changing cultural patterns and practices rather than a departure from presumed desirable ethical outcomes that have been shaped around previous cultural configurations? A lot of critiques of young people's engagement with cyber activities are premised on the belief that time they spend at a computer is time spent alone, and time taken from community involvement. However, this behavior can equally be seen not as a withdrawal from community, but as a reformation of community patterns and involvement, a point made strongly by people such as Dale Spender (1995).

The Content of DVR

A third locus of ethical reflection is the content of DVR. Given that virtual realities play an important part in the construction, testing, and performance of identity, it is a fair ethical question to ask, therefore, what are the typical contents of these constructed realities, how diverse are the opportunities they present to participants, and what is the nature and possible consequence of the constraints placed by these constructed realities?

These questions are not specific to DVR, but continuous with questions raised about all mediated material. We construct meaning as the basis for action not just from concrete material conditions, but also from the matrix of symbols that is available from within the culture for interpreting those material conditions. Questions asked about the content of DVR and its consequences are continuous with other contexts, such as Plato's restrictions on those who could tell stories to children, the medieval church's control of the content of icons during the 8th century, extensive research programs and social arguments about television violence in the second half of the 20th century, and more recent debates about possible links between violent video games and school murders in the United States. Obviously there is no one or simple answer to these questions, which are questions about representation, and which have been going on for millennia, but several aspects can be considered.

The more significant issue may not be specific aspects of content, but rather the repetitive patterns reflected in particular genres of DVR, and the mythic structures reflected in those patterns. One of the theoretical perspectives to emerge from the various debates and alternatives in the media violence literature, spanning almost four decades in the 20th century, was George Gerbner's (1973) concept of cultural cultivation. He proposed that the bigger issue in questions of media and violence were not individual contents but the repetitive narrative patterns of power and violence within

programming that created a mainstreamed view of the world within which particular behaviors became appropriate and justified. Gerbner was concerned also to identify the ways in which these particular mythic structures reflected the political and institutional interests of those who controlled the means of production.

Similar questions can be asked about whether there are typical contents of DVRs, and in what ways these reflect and reinforce social realities and power structures. A good example is that of digitized pornography, significant because it is one of the few businesses making money on the Internet. Those promoting representational pornography as a safe virtual experience argue that it is quite different from actual abusive behaviors toward women. Feminist critics legitimately point out, however, that representational pornography is neither fiction nor virtual: Actual exploitation and violence of women occur in the production of the representations. Likewise, the fictional narratives constructed in pornography so closely parallel actual behaviors experienced by many women that one cannot say that pornography is fictional. If aspects of the content of a constructed virtual environment mirror the power relationships of the actual world, for whom is it "virtual?"

A second question arises in relation to the constraints or limitations of the virtual environment and the ideological nature and consequences of those limitations. As with all cultural representations, virtual reality simulators reflect the life world of their creators, "recreating" the world in the image of those few who command the technology. This applies not just to what is presented in the content, but also what is excluded.

Since men dominate in the construction and consumption of DVR, one of the issues is the strongly biased male character and interests of its content. Hillis (1999), for example, reflecting on his participation in an ARL (military) virtual environment, noted, "In trying out the A.R.L. application, I found it impossible to ignore the lack of women. Men design a killing and testing ground for other men" (p. xxvii).

"Men designed a killing and testing ground for other men."

If DVR reflects dominantly male interests, to what extent does it construct a virtual reality in which only certain male preferred models of social interaction are possible, and thus perpetuated (e.g., those that emphasize unrestrained freedom, and segmenting and sequentualizing work by narrowing tasks and restricting interruptions). So to that extent, rather than

facilitating genuine creation and problem solving, Hillis (1999) argued that some DVRs may be maladaptive:

What is lacking in arguments advanced by those promoting this profoundly individuated virtual "freedom" and "pleasure" to play with identities, subjectivity, and geographies is a sustained consideration of the meaning and context of self-control of our actions, along with any sustained interrogation of the consequences for social relations beyond the scale of individual access. If, as users, we are truly to be so fragmented within the "play" of virtual environments, then *which* aspect of our identity is it that will morally inform our actions so that we do not inadvertently hurt or damage those people and things we care for in this unbridled free rein of identity? (p. xxvii)

A third issue of content revolves around the question of the suspension of disbelief. All virtual realities require a suspension of disbelief to take place in order to participate in the virtual. This is true for DVR as well. Hillis (1999), in one of his experiences in a virtual environment, stated, "I fairly quickly suspended my sense of disbelief, that I was walking in an image, even as I remained aware that this was so" (p. xxvii).

Those who are concerned about DVRs often focus on this characteristic and its possible psychological and social effects, though this has been characteristic of earlier media as well. Exemplary of this is the19th century controversy in colonial Australia referred to earlier called "the fiction question," when social guardians expressed severe concern about the social effects of "the indiscriminate reading of novels and cheap sensational literature." (Askew & Hubber, 1998, p. 115). It is sobering to realize that the fiction, the damaging virtual reality being referred to, were largely English Victorian novels such as those of Charles Dickens and Walter Scott!

Suspension of disbelief is characteristic of participation in a range of human settings, including rituals, theatre, and play. Suspension of disbelief needs to be considered in relation to processes of genre reading and cultural literacy. Genre studies suggest that participants in a virtual reality, whether that be comic books, cinema, or whatever, may become quite skilled at reading the genre and responding to the virtual reality within the terms characteristic of the genre. When thinking about the ethics of content, therefore, it is important to maintain awareness of the difference in perspective that may be gained by somebody looking in from outside a situation and trying to understand what is going on inside the situation, compared to someone who is in the situation itself.

Questions of Power

The final dimension of ethical implications to consider is that of the power issues raised by virtual reality technologies. Media and technolo-

gies are central sites of power in any culture, and changes in media and technologies inevitably create power struggles and a reordering of social power structures. Those in positions of power frequently attempt to defend their vested interests by distancing arguments from their personal stake and attempting to relocate debate within more general "ethical" concerns. I have on occasion defused church leaders' fears about electronic media by highlighting similar concerns expressed by church leaders about manuscripts in the first and second centuries (Osborn, 1959).

Nevertheless, questions of power and technology are important. In relation to technologies of DVR, I think there are two areas in which debate is needed. One is access: Who has access to these technologies and the benefits they bring, with what consequences; and who is excluded, with what consequences? The second is construction: Whose narratives, world views, and political and economic interests are the source of these digital realities; and whose narratives, world views, political and economic interests are excluded, with what consequences?

What does it mean, and what are the practical consequences, of the fact that the power of access and narrative construction within DVR lies in the hands of a relatively few Western developed countries; and within those countries primarily a relative small elite class; and within that class primarily the men; and within that a limited range of applications. This is crucial, because in negotiating a plausible narrative of who we are (Hoover, 2002), we continually negotiate between a range of cultural offerings, meanings, objects, values, symbols, practices, and material circumstances made available within our environment.

Dale Spender (1965) in *Nattering on the Net: Women, Power, and Cyberspace* noted how women are commonly worse off after revolutions, including media revolutions. She argued that women now find themselves significantly disenfranchised as a result of the computer revolution. Although differences in the ratio of women to men accessing the Internet has significantly narrowed in advanced capitalist economies, access to and exclusion from technologies is a significant site for the definition of social power. Spender cites Australian research to illustrate how this exclusion of women from prestigious technologies begins very early, as "three-year-old boys in pre-school insist that the computers are the boys' territory, and the girls are verbally and physically driven away" (p. 167).

Women find themselves significantly disenfranchised [by] the computer revolution.

The significance of this limited circle of creators and participants, on a global scale, lies in the fact that the creation of "virtualities" has become an important hermeneutical and resourcing concept, with virtualities such as "globalization" becoming important influences on social, economic, and political policy. Technologies have developed to such an extent that concepts and actual practices deriving from deterritorialized and dehistoricized virtual realities enabled by technology are beginning to displace material realities of social, economic, and political life grounded in time and space. The business and finance systems of the world now operate within virtual economies that deterritorialize and desynchronize behaviors and institutions from the actual world.

One characteristic of virtual realities is that they are very transient and unstable. Virtual corporations and virtual economies run a major risk of creating uncontrolled havoc with the lives of the world's populations. Two examples may be cited. One is the impact of the 1997 economic downturn, which had devastating consequences on the lives of people in vulnerable regions in Asia and Africa, yet appears to have been triggered solely by electronic maneuvering of virtual wealth and currencies. The second is the ironic phenomenon of the dot.com collapse, a comic opera if ever there was one. I understand the dot.com collapse as a fable of virtuality, in which emperors were exposed as having clothes but no bodies, which would be amusing except that there are millions of people whose welfare has been badly affected by it.

Both of these illustrate the dangers inherent in the virtual as transient and lacking temporality. Perhaps the quite rapid financial sobriety that appears to have come out of the dot.com collapse is a precursor to a new longer-term future rapprochement. I hope that we are approaching the stage where much of the mystique of technological-based virtual realities are being demystified and sobered. As with the cultural adaptation of new technologies in the past, perhaps we are moving towards a situation where a new integration between the virtual and actual is beginning to emerge.

Notes

1. For Hillis (1999) iconographics increase the significance of sight and the gaze compared to text-based applications: "(VEs) use iconographics, which are more conducive to collapsing experiential differences and distances between symbols and referents, or the virtual and the real, than text-based applications" (pp. xiv–xv).

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