

MATERIALITY AND DESIGN: VIDEO GAME AS THE KEY TO NEW CULTURE

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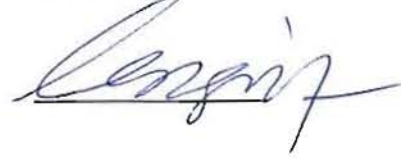
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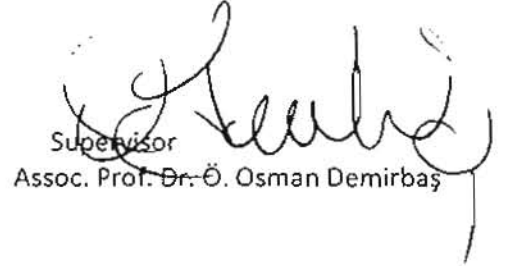
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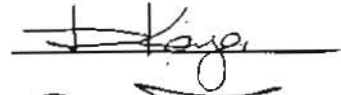
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“The games of a people reveal a great deal about them. Games are a sort of artificial paradise like Disneyland, or some Utopian vision by which we interpret and complete the meaning of our daily lives...When cultures change, so do games.”

Marshall McLuhan.1994. *Understanding Media: The Extensions of Man* (1964).
Massachusetts: MIT Press. 238-9.

ABSTRACT

MATERIALITY AND DESIGN: VIDEO GAME AS THE KEY TO NEW CULTURE

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This thesis analyzes the concept of materiality with respect to four contemporary philosophers, with particular reference to computer mediated communication and video games. Video game objects are discussed as they relate to abstraction and representation. Such issues as interactivity, interconnectivity and immersion are studied as significant aspects of video game materiality and how it overlaps with cultural phenomena. Latest technology pertaining to design are also studied, particularly their relation to our daily lives and cultural practices. Examples from films, novels, video games, posters are provided to clarify the different aspects of the thesis. Particular emphasis is given to the video game entitled *Dungeons and Dragons* with reference to embodiment and materiality.

Keywords: materiality, design, video games, immersion, simulacra, posthuman, ludology, embodiment, spimes, RFIDs, Dungeons and Dragons.

ÖZET

MADDESELLİK VE TASARIM: YENİ KÜLTÜRÜN ANAHTARI OLARAK BİLGİSAYAR OYUNLARI

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Bu çalışma, kültürel bir ürün olarak bilgisayar oyunlarını, onların ard alanı olan felsefi ve teknik konuları tartışmayı hedeflemektedir. Bu amaçla kültür eleştirisi alanından dört önemli eleştirmeni özellikle maddesellik bağlamında tartışmakta ve bu tartışmayı teknik, tasarım ve felsefi olarak bilgisayar oyunlarını örnekleyerek bağlamaktadır. Karşılıklı etkileşim, karşılıklı bağlılık ve gömülüm gibi kavramlar bilgisayar oyunlarının önemli özellikleri olarak tartışılmakta ve özellikle de kültürel bağlamlar açısından örneklenmektedir. Film, edebi eser, afiş ve başka kültürel ürünler yanısıra bilgisayar oyunları ve özellikle *Dungeons and Dragons* isimli oyun bedensellik ve maddesellik açısından irdelenmektedir.

Anahtar Kelimeler: maddesellik, tasarım, bilgisayar oyunları, içkatalım, yapay, insanötesi, oyun kuramı, bedensellik, spime, RFID, Dungeons and Dragons.

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1. INTRODUCTION

The scene opens with the close up of a man with eyeglasses, reading a romantic letter, which the computer later signs “Loretta” on the screen. He is Theodore, a professional letter writer who works at Beautiful Letters Dot Com, a company that writes personal letters for people who have no time to write them. The office environment and the urban views point to a very futuristic world scene. A lonely and introverted man, Theodore goes to his lonely apartment in some tower to play a video game, which is in hologram form and can be played without a keyboard or joystick.

Upon seeing an advertisement, Theodore purchases an operating system (OS) for his computer and installs it on his personal computer to find out that the OS is a woman called Samantha who flirts with him in a seductive voice. Samantha helps Theodore run his business and private life; she even helps him be a better video player by giving him tips. “You feel real to me, Samantha” he says. They even have intimate moments together and inevitably fall in love. The unexpected turn in the film is that when Theodore mentions to his friends that he is “seeing” or “dating” this “person”, they do not think it strange. Their acceptance of a non-reality is casual. Theodore even goes on a double date with another couple where they have a picnic on a blanket and the “four” of them chat and have a good time. This is the ultimate challenging scene in the film; the fact that Samantha is only a voice coming from a cell phone does not disturb the other three people. Everyone feels that this is normal. In fact, throughout the film, Samantha and Theodore have a full love affair, going from a passionate relationship to finally breaking up, just like any other couple.

All these and much more happen in a film called “her” written and directed by Spike Jonze (2013). Recipient of many important awards including the Best Writing and Original Screenplay award of the 2014 Academy Awards, it depicts a world where reality is redefined as a mixture of the material and the simulacra. This theme of an amalgamation of material and simulacra runs very

parallel to the messages provided by Jean Baudrillard and Bruce Sterling. Also, Vilem Flusser seems to be concerned with similar issues because he mourns that man is reduced to his fingertips and even those are becoming redundant fast. Last but not least, Catherine Hayles asserts that the erasure of embodiment and becoming post-human is the main reality of Western cultural norms, which may also put the film “her” into the discussion of the central problematic of this thesis. Although generally received as escapist and even dangerous fun, video games are an important cultural artifact of our times and reflect the technical and cultural zeitgeist and philosophical trends of our cultural background. This thesis aims at tracing and discussing these trends using “materiality” as its focus point.

The film “her” (Jonze, 2013) seems to be a good introduction to a thesis on the issues clustered around materiality, particularly as they relate to computer-mediated cultural artifacts, especially video games. It refers to some key concepts such as simulacra, being totally immersed in video games, thinking about embodiment in different ways in an age of materiality. Steuer asserts that presence is related to how we reference our perceptions to the space around us if we are talking about our immediate, real, physical environment. Such presence is perceived through our five sensory organs.

However, when perception is mediated by a communication technology, one is forced to perceive two separate environments simultaneously: the physical environment in which one is actually present, and the environment presented via the medium. . . . Telepresence is the extent to which one feels present in the mediated environment, rather than in the immediate physical environment. . . . Telepresence is defined as the experience of presence in an environment by means of a communication medium. . . . In other words, ‘presence’ refers to the natural perception of an environment, and ‘telepresence’ refers to the mediated perception of an environment. This environment can be either a temporally or spatially distant ‘real’ environment (for instance, a distant space viewed through a video camera), or an animated but non-existent virtual world synthesized

by a computer (for instance, the animated 'world' created in a video game (Steuer 1992, 76).

Steuer is one of many cultural critics who feel the need to separate physical, five-sense reality or materiality from the reality that we experience through a computer, a mediated perception.

The beginning of the interest in materiality as relates to the human body that led to the research in this thesis started during 2012 as a result of the graduate coursework where the students were expected to problematize materiality with respect to various cultural artifacts. As the theoretical work progressed, I tried to visualize examples of what concepts like "materiality" and "disembodiment" meant to a student outside of the theory books and class work. The moment of understanding came when I was waiting for a doctor's appointment in May 2012 at the primary health care center number 5 at Atakent where I kept staring at two posters hanging there:



Figure 1. Posters hanging in health care center. Photo by Emre Kirtunç

In the right hand poster, informing the public what to look for in cases of tuberculosis, the human body was reduced to an image of an x-ray showing ribs, and even those were only a representative number, not the whole chest. In the left hand poster, the post-humanization was taken even one step further: the human body, for which the government organized the whole cumbersome and expensive system of health care, was no longer visually present at all.

The stethoscope (signifying the health care professional) was at center stage, one leg of the tube connected to the mouse (signifying the new, advanced, computerized appointment system) and the other leg connected to the receiver of a phone (signifying the medium through which the patients can reach the system). The human body, the main object for which all of this system existed, was no longer represented in the poster. This representation in the poster was what Catherine Hayles meant by the loss of the human body, the post-human condition. A real life cultural artifact, the poster designed for public information services, connected the theory of the graduate coursework to everyday practices.

The problematization of what is real and what is not with respect to electronic media was first brought forth by Marshall McLuhan in his groundbreaking book *Understanding Media*, where he talked about how the human body has learned to reach outside its physical limits through electric media. In *Understanding Media*, McLuhan starts with discussing electricity and how it has impacted our lives. He asserts that the fundamental social result of the introduction of electricity is "decentralization" (McLuhan 2001, 39). This decentralization works across temporal and physical barriers and constitutes the most essential relationship we have with reality (McLuhan 2001, 39).

To show how this works from the point of McLuhan, Jeff Heydon provides an example: Imagine that you are looking out of a window into a street and noticing the cars, trees, people and other things existing on the street at that moment. Then, imagine that the same street view is now broadcast to you by the use of a camera and you are in a position to observe both the real street

(live) and what the camera provides at that moment. Heydon asserts that the observer is dissociated from the real street as he watches what the camera shows him. Although superficially both images are using the same material (the street view), one is the observation of the real while the other is a mediated image. Heydon says that the two cannot be the same. As we are watching the screen, “the perspective belongs to the machine we have placed in the window to capture the image for us. We do, however, experience the image on the screen as though it were immediate. In so doing we are split between two places at the same time. The properties of electronic communication require a recognition of immediacy that cannot be reconciled with the location in which the signal is experienced” (Heydon 2013, 532-39). This is what McLuhan meant by the electronic media pushing the human mind to reach further than its physical limits, or the argument that “the body is expanded outside of the corpus with the introduction of electronic media” (Heydon 2013, 538).

This awareness of the corpus and how it interacts with the outside brings us to a discussion of materiality. Materiality is a key concern for the contemporary world of art and science. Many facets of art, design, film and cultural products problematize materiality with respect to what it means and how it matters in our daily lives. This thesis will discuss the broad aspects of materiality with respect to four contemporary philosophers / theoreticians and then use examples from video games to exemplify some issues with respect to materiality.

To be able to discuss video games within the context of materiality, some questions should be asked: Composed of software codes, representational elements and formal set of rules, is the video game an object? Furthermore, are objects that exist within games objects themselves? In the perspective of the authors discussed within this thesis, it seems that video games are increasingly gaining the status of “objects” in world’s ongoing meta-history.

Video games are still considered by some mere entertainment, delegated to child play and not taken seriously as electronic media. In his well-known book

on video games, researcher and video game designer Ian Bogost says that “Videogames are considered inconsequential because they are perceived to serve no cultural or social function save distraction at best, moral baseness at worst” (Bogost 2007, viii). Although the medium is now accepted as serious material and is the subject of close scrutiny, in some circles it is still struggling for legitimacy. Bogost feels that as the academic and journalistic community learn more about how video games work, they will start accepting them as “expressive cultural artifacts” (Bogost 2007, viii).

Jesper Juul in his much-quoted book *A Casual Revolution* asserts that an immense number of people are interested in and actively play video games. He reports that The Entertainment Software Association figures show that in 65 percent of all US households games are played; in fact, an incredible 97 percent of the age group 12 to 17 plays some form of video game. He even goes so far as to claim that in the Asian and Western World, video game players outnumber the non-video game players (Juul 2010, 7-8). Juul defines video games in a very inclusive way; he says that all are digital games including the “arcade games and games played on computers, consoles and cell phones” (Juul 2010, 5).

Along with the necessary theoretical background this thesis will mainly concentrate on *Dungeons and Dragons* franchise to point out and discuss the issues of materiality. *Dungeons and Dragons* games are primarily table-top fantasy games played by wide audiences across the world. In these games, players gather around to narrate and play an imaginary tale, where they impersonate fantasy roles to sort out different play situations that arise within the story, within a system of rules that dictate certain courses of the play. *Dungeons and Dragons* games have also been incorporated into digital software as computer/video games. The specific example to be discussed in this thesis is the “*Dungeons and Dragons: Online – Stormreach (DDO)*” launched in 2006 by Turbine, Inc. DDO lends itself to be a suitable platform to discuss materiality of video game objects since it features a great number of objects for players to keep track of, collect, mine, steal, protect, etc. DDO also features a

fully 3D world, and the main course of the gameplay is played out through navigating this 3D world, pointing out to the possibility that players will be feeling stronger presence and immersion within this digital world, thus bringing their experiences closer to the real life “material” experience that human beings experience in their everyday lives in terms of materiality.

Any study of game materiality with respect to both theory and specific games themselves will have to focus both on techniques of game play through the diverse but intersecting considerations of game hardware, software, game play, and other practices appropriating game technologies along with theoretical issues that define materiality in general. With this in mind, this thesis will first try to explore some issues of materiality by focusing on four prominent contemporary philosophers and theoreticians: Vilem Flusser, Catherine Hayles, Bruce Sterling and Jean Baudrillard. The following sections will try to explore some topics that can be considered when discussing video games, such as interactivity, interconnectivity and immersion. Also, game materiality will be discussed with reference to some video games and the technology that designs them. Finally the video game *Dungeons & Dragons* will be discussed as a case study where all of the above concerns will come together to form a meaningful whole. By discussing relevant theory as a background to video game reality, this thesis aims at contributing to the ongoing debate about what materiality may mean in relation to a significant cultural phenomenon. It may also be a humble contribution to application of theory to understanding cultural products.

2. CULTURE OF OBJECTS

2.1. The Metahistory of Object Culture

“Objects” of various types, as we have come to know them have always been an integrated part of human culture. Whether tools of survival from early times of human history, or elaborate works of art from contemporary times, our culture’s development could be said to have developed in the shadow of the objects. Objects of our making, at our disposal, to serve our means. To trace this correlation, one only needs to look at major literature that traces the main highlights of the history of human culture.

The standard Eurocentric version of human history, or the grand narrative of how mankind has changed and developed over the ages typically starts with hunter-gatherer societies (Lenski and Lenski 1987, 34) and goes on to describe how they eventually settle down to simple subsistence farming societies. Some of these societies existed by moving their herds from place to place and some grew fruits and vegetables by slash and burn methods that cleared away the land. Eventually the surplus food led to division of labor among the society members and they settled down for extended periods of time. While creating a timeline for the chronology for the human race, Bruce Sterling names the objects used in these early times as “artifacts” (Sterling 2005, 10). Vilem Flusser, in his book *The Shape of Things*, calls these “tools” and places them at the very bottom of developmental history which heralds “a new form of human existence” (Flusser 1999, 45). Artifacts are the objects of the hunter gatherer societies, and they are produced without blueprints that will warrant the reproduction of the object in the same exact form and material.

The agrarian societies and the first large settlements were thus formed. Social stratification became more complex and eventually the production was protected by specialized military forces. Under feudalist arrangements, the land was worked by peasants and the vassals gave them protection.

Between 15 th and 16 th centuries, the production started to be privately owned and the goods exchanged on a free market, the beginnings of the capitalist system. Meanwhile, new lands were discovered overseas and their riches were brought back to the European markets, making the market and the exchange of goods very profitable. By the end of the 16 th century, machines were being used to make work more profitable and hence the pre-industrial, feudal society came to an end (Lenski and Lenski 1987, 206-8).

The 17 th century brought about the use of water and steam power and the employment of machinery. According to Raymond Williams “a new social order based on major industrial change” was established and every aspect of life underwent great transformation (Williams 1983, 56). The 18 th and 19 th centuries saw the great machine age of production and societal change. In Sterling’s terms, this epoch marked the passage from artifacts into machines (Sterling 2005, 9). Contrary to the artifacts of the previous eras, machines were mass produced with similar material characteristics, and they included complex machinery that allowed these objects to do much more complex tasks for their owners. Machines were also different from artifacts in terms of power they needed in order to operate: Artifacts were essentially human powered tools, which drew their power from the human muscle power. Machines on the other hand, relied on some non-human power support to operate their sub-parts (Sterling 2005, 10).

The social anthropology canon of Western Europe then goes on to describe how by mid twentieth century postindustrial societies (Bell 1999, 134) became prominent, where the economy generates more wealth by providing services than by producing goods. Also called post-Fordist economy or information society, this new mode of production is based not on things but on ideas and knowledge and expertise. This is the point at which materiality and its consequences become a topic of interest for cultural critics and philosophers.

2.2. The Thing and the Birth of Non-Thing

Materiality is widely challenged as well as being defined by philosophers, cultural theorists and designers alike in our culture. Vilem Flusser, Bruce Sterling, Katherine Hailes and Jean Baudrillard are the four important philosophers / cultural theorists that seem to place materiality at the center of their discourse. The contribution of these theorists will be briefly discussed with reference to the main idea of this thesis so as to form the theoretical outline of the analysis.

2.2.1. Manufacturing the Immaterial: Vilém Flusser

The first of these philosophers, Vilem Flusser suggests that the 16 th century is characterized with the concept of “virtue”, the 17 th by the term “nature”, the 18 th by the “reason” and the 19 th century is closely linked with the concept of “progress”. Flusser also maintains that our age should be identified with the term “program” due to the strong impact of technical apparatus in all aspects of human life (Novaes, 2013, xii). He is among many philosophers who problematize man’s reaction to having created a life in which the human body and spirit are about to be taken over by machines.

In his well-known book *The Shape of Things*, Flusser asks if there is any sense in trying to distinguish between nature and culture when one is dealing with the world (Flusser, 1999, 85). He goes on to comment that it was comfortable to live in a world of things because to live meant to proceed toward death. Problems on the way had to be solved so the road to death could be easier (Flusser 1999, 85-6).

He answers his own question by saying that this has changed: we are no longer surrounded by things but by non-things which is the information. We have always had information (books, newspapers, etc.) but this new information is in non-material form. The news on TV screen, data stored in computers, film, microfilms, holograms, programs and software are examples of these.

According to Flusser, the environment we live in on a daily basis is nebulous, ghostly and spectral (Flusser 1999, 87). And it is becoming ever more so. Although Flusser has not lived to see the mindboggling technical changes of the last decade, what he proposes foreshadows the very current changes he has not been able to witness: Nowadays, we have cloud storage for storing files and data, whereas previously, one needed to possess the data storage digital device which was in material form. Even the term “cloud storage” is enough to suggest the ephemeral quality of the new world.

We are less and less concerned with possessing things than we are of consuming information. The service sector is growing fast. Instead of new furniture and clothes, we want better schooling for our children, a better holiday, or to attend an expensive concert, all services rather than things.

The working classes who work in the production of **things** are becoming a minority whereas the managers and apparatchiks, producers of **non-things** become the majority. More and more things become **immaterial** in our environment.

Having faced these changes, Flusser asserts that things lose their value and turn into junk and this will continue to be even more so in the future (Flusser 1999, 88). All material things will lose their value and only information will be of value. This is the meaning of new imperialism: humanity is becoming dominated by those who have access to and control over information. They have the power to sell this information at inflated prices to humanity. Rather than hardware, symbols, codes and models are the things of value now in our world.

Flusser points out similar historical phenomena. He says that something similar happened during the Industrial Revolution. The importance shifted from cows, horses, land, artisans and farmers to machines. This was the new world which, until today, was the norm. Flusser suggests that we are closer to a farmer of the 18 th century than we are to our children who are playing with electronic gadgets (Flusser 1999, 88).

However, Flusser suggests that this is no cause for concern: perhaps this material world should be rejected as our children tend to do, and as many cultures tend to believe. (Flusser 1999, 89). Man no longer “makes” things; he does not need his hands anymore, just his fingertips. He just plays with things. He is no longer *Homo Faber* but *Homo Ludens*. He is not in search of action but sensation, experience and enjoyment. The human existence has been made possible by the human thumb that has been able to oppose other fingers: human beings can grasp things. Things he can grasp are “world of nature” and things he cannot grasp but can inform are information. So, the movement is not just from nature to culture; it is also from nature to culture and then to waste. Waste at the end also turns to nature.

Flusser maintains that today we are witnessing an attempt to produce a culture without things. Computer memories are an example of this (Flusser 1999, 91). Computer memories, electronic images and holograms are non-things (they cannot be held in the hand). Flusser calls this the liberation of non-things from things, or the liberation of software from hardware. Non-things are expanding in our daily existence; there are more and more of them.

In such a world, the hand has become redundant. Things are produced by programs, by non-things, artificial intelligence and robots. Human being has become unemployed. Therefore, Flusser who called the maker of things *Homo Faber* now asserts that the hands have become redundant and can atrophy. However, he asserts that this is not true of the fingertips. To benefit from information, we use our fingertips. To create programs, or to play with programs, we push keys with our fingertips. In the future, Flusser projects, man will exist by his fingertips (Flusser 1999, 93).

In his book *Post-History*, Flusser asks the question “What is the fundamental structure of reality?” and answers it as such: The question is naïve and basically unanswerable because “the fundamental structure of reality is the one programmed by the program-maker” (Flusser 2013, 104-5). The ontological

consequences of this stance are immense, of course. Flusser sees almost no difference between what is real and what is only a game:

The symbolic games of which we take part do not represent any universe of concrete experience, but on the contrary, this concrete experience represents games. We live our concrete experience in function of games. Games are our ontological ground and all future ontology is necessarily game theory. Everything is fiction, nothing is real. We are chess players who are aware that it is a game, but for whom to live means to play chess (Flusser 2013, 105-6).

So, for Flusser, the next step is to inquire existentially: what happens when one presses keys? By pushing keys, we do not make free decisions; we employ what has already been programmed under that key. The freedom of decision of pressing a key is actually a programmed freedom (Flusser 1999, 94). Obviously, this is an ideological stand and Flusser is very direct about it: He maintains that the society of the future without things would be split into two classes, those programming and those being programmed, players and puppets. In other words, a society of programmers who are programmed. He worries that we have escaped from work but this is programmed totalitarianism because the keys (or the possibilities) at man's disposal will be so numerous that he can never touch all of them. (Flusser 1999, 94)

He ends his nightmare scenario by saying that by having pushed the right keys man would assume that he has made a free choice whereas in reality this is just totalitarianism in disguise (Flusser 1999, 94).

Reiterating the same idea, Rodrigo Maltez Novaes, the translator of Flusser's book *Post-History*, suggests that the post-industrial society is a society of artifice, of lies and of surfaces. In this 2012 Introduction, Novaes asserts that:

...by subjecting ourselves to a world of technical ecstasy, which is the reality of a society of fully operated apparatus systems, a post-industrial, cybernetic society, we would then be not only taking a step back into a

world of absolute, dualistic moral values, but also into a world where apparatus could take over the process of decision-making from human intervention, which in fact is already happening. (Novaes 2013, viii).

To prove his point, Novaes then provides an example from a recent application, one which was not observed by Flusser because he died in 1991: In the large stock exchanges of the world such as New York Stock Exchange, there is a program called High Frequency Trading where sophisticated computer algorithms are written so that the computer can buy and sell stock within microseconds, without the interference (or the decision-making) of the stockholder (Novaes 2013, viii). No doubt Flusser would have been very happy to see that his projections were coming to life if he could have lived long enough to observe these programs.

Flusser is a severe critic of consumer culture and contemporary cultural trends. He is a moralist who claims that mankind has lost the ability to think seriously about his situation because the material world has poisoned his environment. He asserts that man consumes not just what is produced specifically as entertainment but everything from history to art to science and to politics. Even events with serious consequences for man like hunger, sickness and oppression are seen and devoured in seconds and are then forgotten. He calls this environment living absurdly (Flusser 2013, 113-4). Within this framework, video games belong very much to what Flusser foresees because they are purely computer programmed and designed in such a way that materiality is only on the screen, and the player accesses it by his fingertips.

2.2.2. Erasure of Embodiment: K. Katherine Hayles

K. Katherine Hayles's book *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature and Informatics* was published in 1999. To be able to understand the central concern of the book, becoming post-human, one needs to understand what the concept means. Katherine Hayles explains "becoming post-human" in this way:

Imagine that you are sitting in front of two flickering computer screens that are connected to two different rooms. You cannot see the persons in front of the computers and you do not know if they are a man, a woman or an intelligent machine (another computer). Communicating with each entity and asking them questions, you are supposed to guess from their answers whether they are a man or a woman or a computer. This test was designed in the 1950 s by Alan Turing. Katherine Hayles calls this situation “erasure of embodiment” (Hayles 1999, xi) which is a key concept throughout the book. Erasure of embodiment means that the real, actual human body is erased and is no longer necessary “so that ‘intelligence’ becomes a property of the formal manipulation of symbols rather than an action in the human life-world” (Hayles 1999, xi).

The Turing test was important in the later artificial intelligence (AI) research that tried to produce machines that could think. Hence, “erasure of embodiment” became more and more of a reality with the advance of artificial intelligence research. In the 1990 s, another researcher, Hans Moravec, designed another test similar to the Turing test that demonstrated that machines can now be pools that store human consciousness, which means that machines can now actually **be** human beings, making a human into a cyborg and a cyborg into a human being (Hayles 1999, xii).

Katherine Hayles suggests that when a real-life person sits in front of a flickering computer screen to communicate with the screen in any capacity, he/she has become post-human because he/she is at that moment communicating with a computer interface. This idea of “becoming post-human” and “erasure of embodiment” (the loss of the real-life human form, replaced with an interface) are two key factors in understanding Hayles’s work.

Hayles’s main contribution to the discussion on materiality is her idea of “materiality of informatics”. Hayles suggests that when human beings look back at our time from a future date, they will be very surprised because they will notice that during these postmodern times, the material human body has been considered primarily as a linguistic and discursive construction. This way of

looking at the human body is called “ideology of disembodiment”. To prove her point that the body is considered as dematerialized, Katherine Hayles gives examples from some prominent cultural critics:

(a). Foucault sees the human body as a play of discourse systems.

(b). According to Jean Baudrillard, the body is no longer flesh, blood, organs and tissues but something much more “because today everything is concentrated in the brain and the genetic code” (Hayles 1999, 192).

(c). Arthur Kroker and Marilouise Kroker assert that the human body no longer exists and try to prove this by saying signs of fashion and even tattoo have taken over the body.

O. B. Hardison, on the other hand, says the human body is slowly disappearing because just like the caterpillar that metamorphoses into a butterfly, the human body is becoming the silicon devices it is creating (Hayles 1999, 193).

Katherine Hayles does not agree with these cultural critics and says their ideas certainly do not prove that the human body has totally dematerialized; she asserts that a certain kind of subjectivity has emerged and that we need to think about embodiment differently in an age of virtuality. She says that we need to be aware of the construction of the body as a discourse and yet not be trapped into that idea. She says we need to construct “a new, more flexible framework in which to think about embodiment in an age of virtuality” (Hayles, 1999, 193). To be able to do this, she says she will set up a theoretical framework which is made up of two interacting polarities:

(a). “The first polarity unfolds as an interplay between the body as a cultural construct and the experiences of embodiment that individual people within a culture feel and articulate”.

(b). “The second polarity can be understood as a dance between inscribing and incorporating practices” (Hayles 1999, 193).

The differences between these polarities are not absolute but depend on a trial and error kind of knowledge. The author says she is trying to explain the connections between an ideology of immateriality (how the body came to be considered no longer material), and the material conditions that produce such an ideology. She says that she will use this connection to explain postmodernist writer William Burroughs's 1962 novel *The Ticket That Exploded*.

The novel is the second book in *The Nova Trilogy*. In this novel, Burroughs discusses many forms of mind control. He tears out pages from the previous novel as well as this novel, cuts them up and uses them in the pages of the novel. Burroughs thinks that language is a virus and says a social revolution can be achieved through technology. The cut-up method he used in the novel proves that writing is a random and mechanical act, the writer is nothing but a splicer of texts and the result is similar to the "collage" work in visual arts. It is noteworthy that Burroughs and his friends Rion Gysin and Ian Sommerville also experimented with cutting up pictures and sounds using audiotape.

In the novel *The Ticket That Exploded*, instead of discourse dematerializing the body, the body materializes discourse (by cutting up random pages and mixing them up to form new texts). To explain how this happens, Katherine Hayles goes into a theoretical discussion section by employing Foucault's idea of the panopticon:

Hayles says that Foucault's "panopticon" is a powerful idea because it puts the observer into such a position that he is not observed himself, and can observe secretly. Thus the disciplinarian is no longer a "person", and becomes a non-identifiable force and his corporal body is no longer present. Technology makes this disappearance possible. As an example, we can give the fact that surveillance by closed-circuit television (CCTV) is now becoming widespread in urban areas in Turkey. Also, identity numbers of people are being connected to everything from the tax office to the health services in today's Turkey. This brings to mind George Orwell's dystopia *1984*, where The Big Brother can watch all citizens without being observed. In a totalitarian system, surveillance

is a powerful tool of submission because the observer is no longer a person but technology and cannot be targeted as easily.

Hayles says Foucault's idea is correct but does not explain how certain practices spread throughout society (Hayles 1999, 195). It is easy to see how bodily punishment (materiality, embodiment) has now been replaced by surveillance (discourse), but Hayles says Foucault fails to discuss the technology of how this happened. Hayles says we need to go beyond Foucault and look at "inscription, technology, and ideology" (Hayles 1999, 195). She feels that it is important to know how humans interact with the material conditions in which they live.

Hayles then discusses other theorists to help her prove her ideas: Elizabeth Grosz feels that the Western philosophy has strictly divided "the mind" from "the body" (Hayles 1999, 196). Philosophy has no consideration for the body, and even when it does, it considers only the male body. She says that such writers as Freud, Lacan, Nietzsche, Foucault, Deleuze and Guattari do not consider the case of the woman at all, and to overcome this situation, Grosz suggests using a Möbius Strip where the outside becomes inside and the inside becomes outside. A Möbius Strip is a thin rectangular paper strip that has been twisted around itself 180 degrees and pasted together at both ends so that one side of the paper loops around itself.

To show how this works, she explains how the body structures the psyche, and how the psyche shapes the body (Hayles 1999, 196). She says the body is shaped by race, caste, religion and class. Hayles finds this description has limitations and proposes her alternative: she says that bodies are shaped by an interplay of two intersecting axes. To explain this, she tries to define what "embodiment" means: Embodiment is how the actual, real-life human body is represented in a certain kind of discourse. For example, the human body will look like a colorful, two-dimensional interplay of surfaces in a PET scan, a medical imaging technology, which is different from how Michelangelo has portrayed the human body in making David, the idealized human male form.

Hence, the body is an idealized form, but embodiment is a special way of looking at the body that shows “the noise of difference” (Hayles 1999, 196). It is an excessive and deficient way of looking at the body. The PET scan, for example, is used to determine what is different in the patient’s body, what is defective and not “normal”. Therefore, the human body can be said to be “normal”, but embodiment always points out at what the norm is and how that specific case deviates from the norm.

To further explain “embodiment”, Hayles gives a very good example: During the first half of the 20 th century, figures like Freud and D.H.Lawrence insisted that the women should have a vaginal orgasm. Women’s experiences of embodiment were various in the face of this insistence: some forced themselves to have vaginal orgasms, others were unable to do so and thought of themselves as “defective”, and yet some others thought this idea was not true at all because it did not match their own sexual experiences. Thus the hegemonic cultural construct (all women should have vaginal orgasm) saw resistance because embodiment is personal, and there is tension between a personal experience and what the culture asks or expects you to experience (Hayles 1999, 197).

Hayles thinks that this shortcoming is true of any theory because theory has to use generalizations to some extent. For example, Michel de Certeau points out that individual reactions to cultural embodiment always exist, and that these individual differences are “strategies for resistances and subversions, excesses and deviations” (Hayles 1999, 198). To move out of abstractions, Hayles argues that the body and the embodiment should both be articulated.

Hayles then tries to explain the difference between the body and embodiment by using two opposing techniques: inscription and incorporation: Imagine a real person waving his hand to signify a “goodbye” motion. When you look at the actual person doing the waving, you are observing “incorporation”. But if you draw the person in that pose and use lines around his hands signifying a waving motion that is an “inscription”. Hayles says that “as the body is to embodiment,

so inscription is to incorporation. Just as embodiment is in constant interplay with the body, so incorporating practices are in constant interplay with inscriptions that abstract the practices into signs” (Hayles 1999, 199). That means the PET scan cannot exist independent of the person to which it belongs; for the person entered the machine so that the PET scan could be made. And the PET scan always shows the deviation from the norm. A PET scan certainly does not look like the person to which it belongs and yet represents that person in a medical way. It also shows what is “wrong, not normal” about that person, whether he has a tumor, or an internal problem. One way of understanding the inscription and the incorporation then is to look at the connections between them.

To exemplify, Katherine Hayles discusses Paul Connerton’s distinction between inscribing practices and incorporating practices. An example of an incorporating practice is a person typing a text. He has made a habit of typing and it has become habitual. His fingers, his body has learned it. But this does not mean he can read and understand what he has typewritten because he may have typed a text in a language he does not understand. Therefore, what he has produced (embodied knowledge) has got nothing to do with his ability to use a keyboard (incorporating practice). Conversely, a person may read a page of typewritten text but do not have the skill to type it on a keyboard.

The author says this to prove her point that “Characteristic ways of sitting, gesturing, walking, and moving are culturally specific, just as are characteristic ways of talking and writing” (Hayles 1999, 200). The body produces culture at the same time that culture produces the body. One example of this is the difference in how boys and girls are taught how to sit in public: Boys tend to sit with their legs apart and take up more space than a girl does. A girl is expected to sit with her legs closed together and will be reminded to close them if she carelessly opens them because “girls don’t sit like that”. Such body language issues are cultural and constitute gender codes within a given culture. However, in these situations, there are also personal differences. “Incorporation emerges from the collaboration between the body and embodiment, between the

abstract model and the specific contexts in which the model is instantiated” (Hayles 1999, 200). Hence, there is no such thing as the coherent self.

In discussing materiality, Hayles also uses the example in *What Computers Can't Do* by Hubert Dreyfus who argues that some human behavior cannot be written into an interface so a computer can copy this behavior and perform it. This is similar to a baby learning to pick up a cup in front of it: he will try and fail, and after a few tries, he will finally pick up the cup. However, this does not mean the baby understands how his muscles and bones performed so he could pick up that cup. Dreyfus points out three functions that are characteristic of embodied learning and are not present in computer programs:

- (a). Ability to anticipate what may happen before it happens
- (b). Ability to use this anticipation in similar situations
- (c). The transferability of such anticipation from one sense modality to another.

Human beings know a lot more than they think they know. Also, this type of knowledge is in fluid form and can be programmed into explicit decision procedures. Katherine Hayles connects this idea into robotics by saying that mobile (embodied) robots are superior over “computer programs, which have no capacity to move about and explore the environment” (Hayles 1999, 202).

Another example Hayles provides is Pierre Bourdieu who also considers embodied interaction with the environment. This means that even if one can “write” a program that can translate embodied knowledge to analytical categories and explicit procedures, it would not be fluid like its original form but be solid and similar to simple instructions. He says that unnoticed changes occur when embodied knowledge is expressed through analytical schema. As an example, he uses the seasonal rituals of a Berber tribe in Tunisia and Algeria. The Western anthropologist will see the Berber life as dualities: hot-cold, male-female, etc, but to the Berbers themselves these abstract concepts are not important; they live according to daily rituals that become habits as they are practiced (Hayles 1999, 202).

According to Bourdieu, embodied knowledge can be structurally elaborate and coherent without being cognitively recognized as being such. For example, a child trying to pick up cup is doing very elaborate motor actions with his arms and hands but does not know how difficult this motor coordination is. Bourdieu calls this type of learning “habitus” because embodied actions are habitual. These are not a set of unchanging rules but are fluid and “subject to circumstances and durable enough to pass down through generations” (Hayles 1999, 203). For the Berber tribe, living in the space that they live, the way their homes and other spaces are arranged determine how they use their bodies. And, how they use their bodies influence their thought processes.

This is a radical idea that goes against what Descartes has asserted, that the body determines the knowledge and the conscious thought.

In "Eye and Mind," Merleau-Ponty says something similar to Bourdieu. He points out that the body is not just a matter taking up space but that it is “an intertwining of vision and movement” (Hayles 1999, 203). Context is important for the human condition; man is not just a computer program with a flesh to operate.

In *How Societies Remember*, Paul Connerton makes a link with embodiment and memory. He says that in rituals and religious ceremonies, the body learns something through the reenactment of the repetitive actions. Gestures and movements accompany words and therefore they are embodied practices. This means that by enacting the ritual, one accepts the context of the ritual as well. That is why, Connerton asserts, that to force a patriotic person to insult his flag is to violate that person. A good example of this is the Muslim custom of prayer where the body bends down numerous times as one says his prayers. To draw the parallel here, the body acknowledges servitude to God as the person goes through the designated moves of prayer.

Bodily practices have this power because they sink below the conscious level of the mind into habitual actions and movements. By sinking deep into the mind so they are below conscious awareness, they become resistant to change.

Hence, habitual actions have political implications: When a new regime takes over, immediately it attacks these deeply rooted habitual actions because the resistance to change lies there. Bourdieu says that a society that wants to create a new man should “deculturate” and then “reculturate” its citizens by changing its bodily practices. That is why revolutionaries insist on small bodily changes be done because they know that cultural resistance is embedded within the bodily practices. Bourdieu says that the change is not intellectual but bodily. He also asserts that bodily learning is crucial for education and discipline.

Katherine Hayles then summarizes five distinguishing characteristics of knowledge gained through incorporating practices. These are:

- (a). Incorporated knowledge has improvisational elements that make it contextual rather than abstract, that keep it tied to the circumstances of real-life situations.
- (b). Incorporated knowledge is deeply written into the body and is resistant to change.
- (c). Incorporated knowledge is not easily noticed by the conscious mind because it is habitual.
- (d). Because it is contextual, resistant to change, and not observable to the conscious mind, it has the power to define the boundaries within which conscious thought takes place.
- (e). When changes in incorporating practices take place, they are often connected to new technologies that influence how people use their bodies and how they experience space and time (Hayles 1999, 205).

Human beings create technology but then they themselves are in turn created by the technology. This means that when technological innovations happen, they help create incorporating practices, which, in turn, create new discursive practices.

Hayles also discusses another aspect of the relationship between incorporating and inscribing practices by concentrating on Mark Johnson's *The Body in the Mind*. Unlike most theoreticians that claim that discourse writes the body, Mark Johnson claims that body writes the discourse. To prove his point, he uses the vertical position of the body: we say that someone is "upright" in the ethical and moral sense, "the top" refers to people high on the social and the economic scale, and "upscale" markets are where the more expensive merchandise is sold. On the contrary, the word "down" is used for unpleasant or unwanted situations: Depressing events are referred to as a "downer", if people are economically disadvantaged, we say they are "down on their luck". When someone starts a job at the entry level, we say he is "at the bottom of the ladder". Other expressions like "a higher truth" and "getting high" have similar references in body being vertical and UP being better than down. Johnson says that the hierarchical structures expressed and constituted through these metaphors, have a basis in bodily experience that reinforces and reinscribes their social and linguistic implications. That means that the body writes the discourse. Other bodily expressions such as in/out, front/ back, contained/uncontained have similar references in discourse (Hayles 1999, 204-5).

Johnson asserts that "the body is an important part of the context from which language emerges" (Hayles 1999, 206). This means that embodiment is encoded into language through metaphors and other aspects of speech. The obvious repercussions of this strong idea should be in gender politics but Johnson never touches that issue.

Katherine Hayles takes the discussion further by saying that "when people begin using their bodies in significantly different ways, either because of technological innovations or other cultural shifts, changing experiences of embodiment bubble up into language, affecting the metaphoric networks at play within the culture" (Hayles 1999, 207). This means that when a new technology comes into use, it creates a connection between incorporation, inscription, and technological materiality. Man creates technology, which

creates bodily changes, which gives rise to new language features. One example of this is human bodies that are operating tools of technology and are being physically affected by them: Sitting in front of a computer screen for long periods of time causes lower back problems. Developing repetitive strain injury in one's forearm and fingers because of using a computer mouse is another. Since gamers typically remain in front of their screens for extended periods of time, this physical aspect of materiality is a major issue in video games.

Katherine Hayles next goes into a section where she will be discussing how the emergence of magnetic tape industry, that is the innovation of recording human sound as it came out of the body, was crucial in the theoretical discussion of William Burroughs's novel *The Ticket That Exploded*. This discussion and exemplification is important in understanding Hayles's notion of the post-human:

In his book *Reading Voices: Literature and the Phontext*, Garrett Stewart asserts that when we read silently, reading actually takes place in our body, particularly in the vocal apparatus that produces subvocalization. The sound is suppressed, obviously, but this process is crucial in our understanding of what we read. This is similar to the times when we have an interior monologue running in our mind. Since the part of the body that houses "subvocalization" creates meaning and comprehension when we read silently, what happens when the sound comes from outside of the body as in the case of an audiotape? (quoted in Hayles 1999, 208). Katherine Hayles problematizes this case where the audiotape technology changed the relation between the voice and the body. She says this kind of drastic change in technology is how we became post-human and she discusses this in relation to Burroughs's novel.

The audiotape is a passé technology; it was effective in the market between the years 1950-1990. It has been replaced by CDs, hypermedia, etc. Burroughs wrote his novel in the early 1960s when the audiotape was a revolutionary technology. Similar to telephone, radio, and the phonograph, the audiotape made it possible for the voice to exist out of the body and out of time (recorded

voice could be played at any time). Voice could be taken over any distance and could be played at any time. Different from the phonograph that came before it, audiotape technology made it possible to record and erase and rerecord sound over the same tape. At this point, Katherine Hayles goes into the history of the discovery and the development of the audiotape, a story which follows the guidelines of international capitalism (Hayles 1999, 209).

The audiotape was first produced as a steel tape and later in 1935 as a plastic film tape. This was crucial since the tape could be easily cut, spliced and remixed as wanted. Especially after high frequency bias was introduced in 1938, and only in 1948 was the American patent issued to audiotape as we know it today (so it is a fairly recent development). The revolutionary aspect of this technology was that anyone could record, make changes, erase and rerecord sound in his home. Also anyone could make interventions in what he recorded which radically altered its form and meaning. Even the novice amateur now became a producer. Roy Walker who made audio recordings for the BBC explains what a strange feeling the audiotape technology could create:

“Cuts and transpositions can be and are made. Halves of sentences spoken at different times can be amalgamated to let a speaker hear himself say the opposite of what he knows he said. Hearing oneself say something and continue with something else said half an hour earlier can be peculiarly disconcerting” (Hayles 1999, 210).

Katherine Hayles asserts that when voice was displaced from the body onto tape, the body did the same thing and continues to discuss this assertion using William Burroughs’s novel *The Ticket That Exploded*.

In *The Ticket That Exploded*, Burroughs suggests that the body be cut up just like the tape can be cut up and glued together in different ways. He says that the internal monologue that makes a man continue living can be recorded, and taken outside of the body and played back to the owner of the internal monologue. He even suggests that different internal monologues of different people be recorded, then cut up and mixed, and then the human beings be

literally cut into pieces to reflect the spliced tape recorder. He says the internal monologue is the story that the self tells itself to assure himself that it exists. Also, the lies that the society create is woven into the internal monologue; society keeps the individual under control by these lies. So, as the tape is spliced and mixed, the body will be cut up and mixed, a grotesque image of reducing human body to splintered flesh. The social conditioning that a person receives through the lies the society pressures on him can then begin another mutation in a body that has been patched up from many torn bodies. This visual imagery is, of course, horrible; Burroughs wants to call attention to the particularly terrible social conditioning of upper middle class of Mid-Western mothers that result in sexual frustration and humiliations (Hayles 1999, 211). Burroughs is viciously attacking prerecordings by social upbringing that socializes a baby into community norms and makes him an obedient citizen. The body is divided, made up of parts of strangers; it has no unity and is occupied by viruses. Language is one of these viruses, "the other half of the body" (Hayles 1999, 212).

The interior monologue we all experience is (to Burroughs) this parasitic invasion and the virus trying to take over the body: "Modern man has lost the option of silence," he asserts. "Try to achieve even ten seconds of inner silence. You will encounter a resisting organism that forces you to talk. That organism is the Word" (Hayles 1999, 212-3).

Burroughs wants the reader to be able to salvage himself from the infection of the inner monologue, the "Other Half", and has different suggestions, all using one's voice on a tape recorder and then doing things with the recorded material. He is also aware of the fact that as a writer, he might actually be spreading the virus he is trying to combat. One way he plans to prevent this is the cut-up technique for which he is famous. He wants to splice language so it loses its virus quality. He also jumps from one kind of linguistic system to the other so there is no logic or connection and hence no convincing factors between words and things. He also sees the body as a tape recorder, cuttable

and pastable, erasable and rewritable like synthetic tape. “The flesh will not continue unchanged” (Hayles 1999, 214) comments Katherine Hayles.

The novel opens with a narrator who informs the reader that he is reading a science fiction book called *The Ticket That Exploded*. In the book, the earth has been invaded by horrible creatures called the Nova Mob who are not three-dimensional but invade the bodies of humans, sometimes many of them together, to get a third dimension. Just like a virus, they invade human flesh and string together humans, similar to a sentence that has many words. To stop this violence the Nova Police use weapons such as tape recorders, radio static and camera guns that destabilize images by using supersonic speed. When police catch the criminals, sometimes they blow them apart, and sometimes they “rewrite” them, turning them into “nice” creatures. Humans try to record their body sounds and then splice them with someone else’s body sounds for protection, but even this tactic turns into a virus that may take over the body. Nothing is safe.

Burroughs disrupts words that are created and he also rubs the tape against the head of the tape recorder to create unintelligible, mechanical “words” or “sounds”. Katherine Hayles says this technique reminds one of the famous words of Marshall McLuhan “Medium is the message” (Hayles 1999, 216). By this experiment Burroughs intends to create a language that is not created by the human mind but by a mechanical audiotape. Hayles says Burroughs actually tried these experiments by holding the tape recorder to his own throat to record his subvocal speech.

Burroughs wants not just to record already existing speech but wants to create a totally new, mechanical speech, which means that technology can articulate new subjectivities. This idea is quite revolutionary. He was interested in this technology because an audiotape can both record sound and make it permanent, and it can erase and make it disappear. In an Exhibition scene in the novel, words fall from the sky like snowflakes. Burroughs anticipates in advance that the same can be done one day with visual material, a videotape

which was not yet created at the time. Here is what the text is like in that section:

"Word falling-Photo falling-Time falling-Break through in Grey Room"; "Shift lingualsCut word lines-Vibrate tourists-Free Doorways-Pinball led streetsWord falling-Photo falling-Break through in Grey Room-Towers, open fire" (TTE, p. 104); "cut all tape"; "Break through in Grey Room' Love' is falling-Sex word is falling-Break photograph-Shift body halves" (TTE, p. 105). (Hayles 1999, 217).

The Exhibition room is shaped like a loop and as the spectators pass, they are recorded by audiotapes and then the recorders mix all this with metal music, sounds in another room, etc. The reactions of spectators are also recorded and mixed with previous sounds, and then split again. Total chaos. Where reality ends, and where representation starts is not clear and everything is deconstructed. Bodies, inscriptions, sound bites are all sliced lengthwise and reconstructed, illusion spliced up with reality. The human form has become post-human.

Burroughs calls this experiment "the reality studio" and says that the humans would rather be in it than outside it because on the outside, there is nothing but death. "For Burroughs, the emphasis remains on subversion and disruption rather than creative rearticulation. Even subversion risks being co-opted and taken over by the viral word; it can succeed only by continuing to disrupt everything, including its own prior writing" (Hayles 1999, 220).

Katherine Hayles says that she is interested in Burroughs's work not because it is an early harbinger of the post-human but that his work is a site where body/embodiment and inscription / incorporation are in constant interaction, much like a Möbius strip where "in" becomes "out" and then "in" again. Hayes says that just like Philip K. Dick and Humberto Maturana, Burroughs thought that there is no "external" world out there and that humans had already been made post-human by new advances in technology. Also, in her 2012 book entitled *How WeThink: Digital Media and Contemporary Technogenesis*,

Catherine Hayles says that the physical book form itself is on the verge of death because more electronic books are now sold than traditional paper books: “The Age of Print is passing, and the assumptions, presuppositions, and practices associated with it are now becoming visible as media-specific practices rather than the largely invisible status quo”. (Hayles 2012, 2). Since it is not possible to stop the advances in technology, becoming post-human seems inevitable to Hayles.

The point of view that Hayles brings into a discussion of materiality is hence very significant in considering video games. Particularly in discussing immersion (and to some extent interconnectivity), the difference between what Hayles calls “external reality” and experienced reality of the video game is such that the gamer truly becomes post-human. He is there but he is also part of the action on the screen. He is being represented by the action hero he has designated himself to be to play the game. This is particularly true of video games that have a very fast pace; the gamer’s flesh of his hand almost become the plastic of the joystick he is holding as he whirls through the game.

Katherine Hayles’s idea of the “post-human” is worth discussing in relation to some films that came out at about the same time that the Hayles book did. Also, in contrast, it is worthwhile to discuss the notion of the post-human with a much older film in mind, *One Flew Over the Cuckoo’s Nest* (1975) by Milos Forman. In the Forman film, the human body is “snatched” by other humans who act as intermediaries between disciplining institutions such as a mental health care institution. The setting is claustrophobic, of course, because the inmates, having had problems adjusting to the rules and regulations of society, need to be kept “in”. The institution is symbolized by a Nazi-like Nurse Ratched who is intent on establishing her total control over all patients using all kinds of abuse and degradation.

The characters in the film find different ways to deal with being kept in: some cannot compromise with the system and commit suicide; some become walking vegetables because of the forced lobotomy done on their brains, some

refuse to talk with others and have voluntarily escaped “in”, inside their own minds (Indian Chief). The system crushes their bodies as well as their souls. McMurphy, the criminal who has ironically “escaped” into the institution to avoid punishment in the hands of law, tries to make the inmates revolt but is crushed by a forced lobotomy. The final scene of the film is iconic; the huge Chief picks up a stone water fountain, throws it against the guarded window, splinters everything that keep their “bodies” under total control and escapes, carrying the crushed McMurphy “out” of the system.

The significance of this film with respect the Katherine Hayles’s “post-human” argument is that in the mid 1970 s, when the freedom movement and the counterculture was yet in the air; the human body was seen as capable of being imprisoned only by physical bonds such as a mental hospital. As soon as you were “in”, the system did everything it could to crush you. And yet there was hope: If the individual was physically strong enough to blast through those walls and gates, he still had the power to save his body and soul, get “out” from where they kept you “in”. The human body had not become post-human to the extent that even mind-control could defeat the individual. The zeitgeist of the 70 s was such that “the individual” was still the hero.

In the 1982 film *Blade Runner*, Ridley Scott shows a world where the difference between real humans and replicas no longer exists. Rick Deckard, a cop ready to retire, is given the mission to track down and annihilate six “replicants”, human clones created to be used as slaves outside the earth. It is very difficult to identify these replicants because physically they are just like the humans; they have even been given a virtual past that is embedded with human-like memory of childhood events. In an apocalyptic Los Angeles of 2019, Deckard hunts down each replicant who has developed emotions and does not want to be killed.

Ridley Scott’s version of reality is such that the human beings have created cyborgs to take the work load off their shoulders but are not ready to want these “bodies” to have a reality of their own outside of human command and

control. Cyborgs are meant to live short lives of constant work and then are recycled for future work. When cyborgs resist this master plan, their bodies become game animals to be hunted and killed.

In the late 1990s, however, virtual reality was so much in the air that the human body was no longer significant physically, as can be observed in the three films from that time. In *The Truman Show* (1998) by Peter Weir, Truman Burbank is an insurance salesman whose life goes on under a geodesic dome that has been designed like an idealized American small town. Truman does not know that his daily life is recorded with 5000 cameras and broadcast live to the world. His body has been created for this specific purpose and a life has been constructed for him using hundreds of actors. This is virtual reality beyond virtual reality: the real human body of Truman has been “served” to a worldwide audience on screen, making him a toy for world entertainment. The weather is simulated, emotions are simulated, people are simulated, and Truman’s life is the ultimate simulation where the only motivation of capitalism is to make money off his back. His life has been junked; he has been made and used for others’ entertainment with the help of technology.

Jean Baudrillard in his book *Simulacra and Simulation* (1983) cites an example which constitutes a wonderful parallel (and a forerunner) to *The Truman Show*. He quotes the case of a reality TV show that was broadcast in 1971 in the US: It was the live broadcast of the Loud family and lasted for an uninterrupted seven months. By the end of the broadcast, the family broke up. Baudrillard calls this “the American TV verité experiment” a perfect example of simulacra because the long broadcast was the new form of “lived experience - exhumation of the real in its fundamental banality, in its radical authenticity”. He even goes so far as to ask whether the family broke up because of the broadcast (Baudrillard 1994, 18). In an age where “reality shows” are very popular, a sad and disappointed Truman questions his essence as a human being and an agent that can make his own decisions.

In *eXistenZ* (1999) by David Cronenberg, Allegra, a famous game designer, tests a new virtual reality game she has designed called “eXistenZ”. She is attacked by an assassin and the pod that has the only copy of the game eXistenZ is damaged. She asks her bodyguard Ted to accept the insertion of a gameport into his body so they can play the game together. From that moment on, Ted’s body becomes a computer and the audience cannot determine what is reality and what is game. The device implanted into the body makes the body into a cyborg and all reality becomes virtual. The human body merges with a device and the two interact seamlessly. This is a fearful case of becoming post-human.

In *The Matrix* (1999) by Andy and Lana Wachowski, the main character is Thomas Anderson who is a computer expert by day and a hacker known as Neo at night. Another hacker, Morpheus, shows him reality: mankind has been made into slaves by machines that live off the humans’ body heat and electrochemical energy. This race of machines enslave humans by giving them pills that make them believe life is livable, an artificial reality so they could keep human rebellion under control. Here as in *eXistenz*, the human body is manipulated by an outside agent to prevent its reaction to totalitarian control. Neo, representing human freedom, must fight against supercomputers who want to exterminate him as well as the human race. In this film, Neo is a superhuman and his fight is to prevent becoming post-human.

In these films, as well as other cultural artifacts of the 1990 s, the dilemma that faces man is the uneasy co-existence with what he has created, virtual reality, artificial existence and the agents of destruction that have refused to obey man’s orders. The human body as well as the discourse it creates is a site of warfare as man moves into a New World where old truisms are no longer effective. This is why Katherine Hayles’s work is important: The post-human condition is taking over our lives in ways we could and could not foresee and the information revolution is picking up speed every day. One aspect of this revolution is brought forth by the popularity and pervasiveness of video games which create and propagate virtual reality more than any other medium.

2.2.3. Human-Object Relationships: Bruce Sterling

In his well-known book *Shaping Things*, philosopher and visionary Bruce Sterling questions the current and future relationships between objects, modes of production and materiality. He starts out his premise by saying that new forms of design and modes of production are being discovered every day which are unprecedented in human history. He also asserts that new modes of production are not sustainable and need to be modified. His objection is highly ecological: he says that these new modes of production use archaic forms of energy which will be depleted soon. Also, these toxic energy types harm the climate and destroy any hope for a livable future. Coming from an industrial design approach, he lays down the rules of that discipline early on in the book: safety, utility, maintenance, cost, quality and appearance (Sterling 2005, 6).

Bruce Sterling then goes on to describe his own terminology as to how materiality can be classified within human history: He lists five distinct terms and production modes which form the basis of his later discussions: artifacts, machines, products, gizmos and spime.

An artifact is “a simple, artificial object, made by hand, used by hand and powered by muscle” (Sterling, 2005, 9). He dates these simple devices to the time of hunters and farmers. Machines are “complex, precisely proportioned artifacts with many integral moving parts that have tapped some non-human, non-animal power source” (9). He claims that men have passed from the age of artifacts to the age of machines, a point from which there is no voluntary return. He dates that crucial passage to the machine age to 1500s, when the Mongol culture that used bows and handmade artillery (artifacts) was no longer able to overwhelm the human societies. The technoculture as of that date, according to Sterling, is spearheaded by the West that has developed machine technology (Sterling 2005, 10).

The third era is the time of products, “widely distributed, commercially available objects, anonymously and uniformly manufactured in massive quantities, using a planned division of labor, rapid, non-artisanal, assembly line

techniques” (Sterling, 2005,10). This is the era of consumers, which, he says, starts around World War One.

The fourth era of production starts in 1989: the advent of the gizmos, “highly unstable, user-alterable... multifeatured objects, commonly programmable, with a brief lifespan” (Sterling 2005, 11). They are linked to network service providers. The end users or the people who use the gizmos are constantly troubled by upgrades, grooming, security threats and other maintenance issues. Computers are an example of gizmos.

The last and the most advanced artifacts in Sterling’s developments in technoculture are spimes, “manufactured objects whose informational support is so overwhelmingly extensive and rich that they are regarded as material instantiations of an immaterial system” (Sterling, 2005, 11). Spimes are data designed on screens, fabricated digitally and existing only in such mode. Sterling dates the dawn of spimes to 2004 when radio frequency ID tags were first used. Sterling projects that the use of spimes will overwhelm human life within 30 years, which, to him, is a great cause for concern because spimes can be used in surveillance, spying, intrusions into the privacy of personal lives and other such meddling with personal and social space.

Sterling’s anxiety about the spimes have turned out to be very real: To date, such issues as the 2007 Wikileaks scandal unearthed by Julian Assange especially with respect to non-ethical uses of military power by the US in the Middle East have been major issues and have made headlines. The more recent espionage into the National Security Agency (NSA) of the US by Edward Snowden who claimed that the Agency spied on no less than 122 public Office holders including heads of state like Angela Merkel (Poitras, *Spiegel Online International*, dated March 29, 2014 and accessed March 30, 2014) has caused harsh debate. Also, the local upheaval just prior to the March 2014 elections in this country as regards the releasing of secretly taped material incriminating public figures in the government are prime examples of how Sterling has a

point in seeing the new technology, particularly spimes as potentially unsettling.

As can be seen from this classification of Sterling, technoculture has passed from what has been made by hand (human body) to the manufacturing of materials that are proudly announced as “not touched by human hand”, on to spimes that exist only as non-materials, as digital programs that exist only in cyberspace. Sterling sees great concern in relation to this technological development.

Bruce Sterling, an activist, futurist and design theorist lists some human reactions to technological change, starting with the very personal. He uses the term “metahistory” to mean a social construction that explains what has happened, what will happen and what all of this might mean (Sterling 2005, 37). He says that “future metahistories would be grand narratives about time that are as yet inconceivable, and can’t as yet be held by anybody... Metahistories have limited time spans” (Sterling, 2005, 38). To exemplify this notion, he uses the example of the Russian society which he says is disintegrating even after the collapse of the Soviet regime because “metahistorical collapse proved fatal to them and their culture” although they are seen as having been saved from the said regime (Sterling 2005, 40).

Sterling’s strongest claim is that climate change is the main challenge that threatens our future existence. He feels that other possible threats to human civilization such as deforestation, over-fishing, and depletion of world’s natural resources as well as toxins in food, water and soil herald a dismal future for mankind. He says that an imminent intervention is necessary but without the “grim mania of totalitarianism” (Sterling 2005, 42). Therefore, to create a sustainable society, we need to reinvent a progressive, 21 st century metahistory, with a more fluid character, much like a search engine. He says that we need a “designed metahistory” and that we need to do this with spimes (Sterling 2005, 43). To Sterling, spimes are not just simple barcodes and

ID chips; they are everything that can be utilized for a “synchronic society” (Sterling 2005, 44).

Sterling’s definition of a synchronic society is a modern, contemporary society, not an old fashioned retreat where modern technology is shunned in blissful ignorance. No society can now exist in such a state now even if it is sustainable because sooner or later, time will catch up with it. A truly sustainable society needs to have resources to meet future, unforeseen demands, and do so very quickly. This is where spimes can help a society: through data storage and superb archives that can be accessed by pressing a button, a society can have the wealth of storing both its successes as well as the results of the experiments that failed, so that those can be avoided in the future (Sterling 2005, 47). Spimed objects are digitally protected and saved data fields, man’s total experience.

This is the point at which Sterling moves to the notion of materiality:

A SYNCHRONIC SOCIETY has a temporalistic sensibility rather than a materialistic one. It’s not that material goods are unimportant_ materials are critical_ but material objects themselves are known to be temporary, obsolescing at a slower or faster pace. A SYNCHRONIC SOCIETY conceives of its objects, not as objects qua objects, but as instantiations, as search-hits in a universe of possible objects. Embedded in a monitored space and time and wrapped in a haze of process, no object stands alone; it is not a static thing, but a shaping-thing. Thanks to improved capacities of instrumentation, things are no longer perceived as static-they move along a clocked trajectory from nonexistence to post-existence (Sterling 2005, 49-50).

Sterling then goes further to explain and problematize materiality: he says hardware (all material objects) are prehistoric, and, in that sense, older than people. “We humans are what tools made of us. The human body, human perception, human intelligence, they are all the outcomes of two million years of hominids interacting with hardware” (Sterling 2005, 55).

Man is a toolmaker; he is unique among other species because he can creatively work on making tools for long periods of time (Sterling 2005, 56). By the act of making tools, man has created a lot of rubbish. Civilizations come and go but they always leave their rubbish to the future generations, “our premier cultural export to the future” (Sterling 2005, 58). Sterling is particularly worried about two types of dangerous rubbish that we are currently leaving to the future generations: radioactive waste and junk satellites wandering around in space-both very long living. Sterling is ideologically opposed to any manufactured item or production mode that consumes vast amounts of exhaustible, non-renewable fuels and is always aware of the ecological dangers caused by human society. This is his main caveat related to materiality.

As an example of how materiality affects each and every one of us, he traces a simple wine bottle, contents and the glass bottle itself, to show how much has gone into the manufacture of each, including “topsoil loss, tractor exhaust, chemical fertilizer, insecticide sprays” and the like (Sterling 2005, 73). By tracing this simple production, he aims to discuss alternative, more ecologically responsible types of production such as “transparent production”. Even then, the ethical question of what to do with the empty bottle bothers the writer whose uppermost concern is sustainability. Sterling’s approach to materiality is a clear call to humanity to seek better human-object relationships than the ones we employ now.

Sterling’s main argument rests on how spimes will change our lives. A spime is a set of relationships; it may or may not be an object. It has a tractable identity and after you purchase it, its unique ID code is tractable by the seller, which is a documented process. “In an age of spimes, the object is no longer an object but an instantiation” (Sterling, 2005, 79). Barcoding is the system by which objects are kept track of and circulated throughout the economy. Almost all objects that permeate our daily lives have barcodes on them. Barcodes were first employed in 1975 but have grown 50 times in scale after they came into the market. The barcode is a great industrial advance but has served its time; the new tracking system is called EPC or “Electronic Product Code” wrote Sterling in

2005. Ironically, the used copy of Sterling's book *Shaping Things* which I bought from the Internet came with a new ID code system pasted right onto the back cover of the book, right over the large barcode the designer used on the back cover as a design feature. A design feature that made a statement in 2005 when the book first came on the market. However, between 2005 and 2013 when I bought my used copy, a new ID code system, the QR code, has come into effect and this new barcode was pasted on to the used copy like a surcharge (see photo). Sterling would be amused to see that within a period of eight years, the fashionable barcode system was already replaced by a new barcode system that can now be read with smart phones.



Figure 2. Back cover of Sterling book now with QR code. Photo by Emre Kirtunç.

QR codes are already being used in video games as well, especially in games that use world-simulations by employing maps. For example, one company has created a game called *Munzee* in which QR codes are provided on plastic tokens or stickers. The players place or stick these “feelies” on physical objects in the real, physical world and other players can then “quick read” these signals

and navigate accordingly. In fact, the Munzee Company advertises itself as a system, “a three-headed monster that blends geolocation with socialization, gamification and marketing”. As a result, gamers can actually go into actual stores and exchange their QR codes that they have captured during the game with T-shirts, tags and other merchandise (Jones 2014, 110-111). This is a very recent example of how the real, embodied world and the digital world meet through an interface to create a third kind of hybrid or virtual reality.

These new identity coding and tracking systems seriously disturb Sterling who questions their possible future use (or abuse) such as the obligatory use of Radio Frequency IDs (RFIDs) for human vagrants, gypsies, the “wrong” ethnic minorities or political opponents (Sterling, 2005, 87). RFIDs are “essentially chips with radio-wave antennae that beam their identity for readers to pick up. No human operator has to manually apply an optical scanner to RFIDs_no machine either, for that matter. The scanner that picks up the signal just has to be in the immediate vicinity of its radio signal” (Jones 2014, 125). Sterling feels that RFIDs, or “arfids” as he calls them, and other such electronic spines may bring new ways of treating materiality, anything from espionage to secretly stealing data from somebody else’s arfids (Sterling, 2005, 90). He calls this nightmare scenario where things inform each other “an Internet of Things” (Sterling 2005, 91).

Global Positioning Systems could then track every object with ease. This means you no longer have to inventory your objects or even remember where you put them. All that information will be readily available: “So I no longer hunt anxiously for my missing shoes in the morning. I just Google them” (Sterling 2005, 94). He feels this aspect of new technology will provide ease for materiality (Sterling 2005, 94).

This idea of “an Internet of Things” has become a reality in a recent Project called Thinglink by a small design company called Aula Design Oy. The Project involves artists, craftsmen, designers of unique artwork. “It is an open database where makers can register their work for free and create labels for their

products. The physical object will have a thinglink product-label attached to it. The information that one enters on the website will be publicly accessible” (Beloff 2006, 14).

Sterling has received some criticism about the ease with which he celebrates RFIDs. For example, Victor Margolin, in his article entitled “Design, the Future and the Human Spirit” (Margolin 2007, 12) says that the RFIDs will raise many privacy issues that are cheerfully overlooked by Sterling. The fact they may be implanted in human beings will create severe problems socially and ethically. Margolin says that RFIDs are already being used in Europe by young people instead of credit cards. “The VeriChip Corporation, which owns the patent on the implantable chip, is presently promoting its use for multiple purposes ranging from medical surveillance to homeland security. Many... are enthusiastic about RFID technology. But RFIDs also open the door to far more serious issues of personal privacy and control of one’s body” (Margolin 2006, 13).

To further exemplify how materiality has been affected by technology, Sterling provides the new modelling technique: Instead of making real, material models out of clay, chicken wire or plastic, the designer can now sit at his keyboard and create a three dimensional model of an object, rotate it, modify parts of it quickly and send the model halfway across the world without ever leaving his keyboard. Materiality is no longer modelling clay but 3-D software. “The physical object itself has become mere industrial output. The model is the manager’s command-and-control platform. The object is merely hard copy. In a spime world, the model is the entity (Sterling 2005, 96).

Thanks to advanced spime 3-D modelling programs, one can now draw models with finer grain and detail than the real physical objects themselves. Sterling calls this “there’s more stored in the map than there is in the territory” (Sterling 2005, 96). The real, physical, material objects now are inferior to their “maps” which are their 3-D models. Sterling even goes so far as to say that sometime in the future, “reality will be historicized to the point of collapse” (Sterling 2005,

97). In the world of video games, this seems to be happening sooner than elsewhere in daily life.

At this point, Sterling questions his mock-complacency of having applauded the end of materiality and asks, "But what about their environments?" (Sterling 2005, 98). Smog, magnetic fields, toxins, environmental hazards have not been taken care of while materiality has been smugly "overcome"! He says spime monitors using silicon chips will be able to solve all such problems by themselves. The human-object interaction, according to Bruce Sterling is unsettling but has potential nonetheless. Sterling thinks it is about time we outgrow materiality and go beyond it.

Sterling also brings up the topic of "fabricators" with respect to materiality. These are devices such as "3-D printers" or "rapid prototypers". "A fabricator in a spime world is a spime that makes physical things out of virtual plans, in an immediate, one-step process" (Sterling 2005, 102). Sterling then goes on to speculate how a 3-D printer might work and what materials it might use (plastic, starch, cellulose, etc.). It is noteworthy that 3-D printers are now in use especially in areas of medical science, anything from hip replacement to face reconstruction (Myall 2014, 1)

Bruce Sterling asserts that the relationship of humans to objects has changed and this change will accelerate. However, man needs to take into account the damages and unsustainable modes of production that harm us and our ecosystems (Sterling 2005, 130-1). He proposes "revolutionizing the interplay of human and object" by "bringing more attention and analysis to bear on objects than they have undergone". He says this should also involve taking into account the human body, its health and its comfort (Sterling 2005, 132).

Unless humankind decides to change things dramatically, says Sterling, we will all be victims to "an industrial system that cruelly sacrifices human flesh for the sake of dysfunctional machinery" (Sterling 2005, 133). The way of overcoming this is by employing "biots", which are defined as entities that is a person and an object at the same time. Hopefully, biots can lessen the amount of

ecological damage to the human body and the environment which have been exposed to toxins for the last two hundred years. “A biot is somebody who knows about this and can deal with the consequences. He is in a position to micromanage and design the processes that shape his own anatomy” (Sterling 2005, 135). This technology is several decades away; Sterling speculates it will be effective around 2070.

The technologies that will make biots a reality are cybernetics, biotechnology and cognition. Available technology today has the basics for the upcoming research and development. Then the human condition will change so much that going back will be impossible.

However, Sterling is not like some other futurists: he does not believe in “Utopia or Oblivion” scenarios. He says that man has the power to creatively change the future for the better. He just needs to overcome archaic ways of thinking. The right approach is hope and a sincere belief that man is capable of correcting the many mistakes he has already committed (Sterling 2005, 141). Unless he does that, man’s future is bleak, and his descendants will face irreparable damage. Old technologies are not sustainable and we urgently need to develop new approaches to technology.

Bruce Sterling proposes three basic kinds of technology that may prevent future doomsday scenarios, and none of the three are available as yet: 1) a self-biodegradable or auto-recycling technology, 2) technology that is made to last many generations (he thinks this is not feasible yet), and, 3) “fully documented, tractable, searchable technology” that goes to the junkyard by itself when its time is up (Sterling 2005, 144). Sterling proposes this third type of technology for a better future for humankind.

Sterling’s concern for the interaction between man and objects is reflected in real life, nine years after his celebrated book has come out. Consumers are now more aware of littering their lives with physical commodity items and are looking for ways to change that. One example of this is how people in the US use the services of internet companies like Netflix to buy music or films that are

located in a cloud service rather than purchasing CDs or DVDs. They prefer to access these materials for a monthly fee rather than owning the physical materials, which take up space in the home and create trash.

Considered from this particular point of view, video games are the perfect example of what Stirling calls a temporalistic society and one that creates no trash. Video games “exist” only within a monitored space and time, they are computer programs, they are not static, they are played and therefore consumed but are never exhausted.

Shaping Things is “a lethally subversive text for confronting tomorrow” (Schlage 2006, 67) and has been inspiring for the designer community as well as producers, ecocritics and policy makers. Since we live more and more in what Anthony Dunne called a “Hertzian space_the complex soup of electromagnetic radiation” (quoted in Jones 2014, 134), not just academia but all of humanity needs to know the basics of what they interact with every day, 3G phones, Bluetooth, Wi-Fi and other spimes that have permeated our daily lives.

2.2.4. “There is No Spoon”: Jean Baudrillard

Jean Baudrillard is another philosopher who has problematized the nature of what reality is and how we conceive it. In his famous book *Simulacra and Simulation* first published in 1983, he asks significant questions about the distinction between true and false (Baudrillard 1994, 3). He asks the reader to imagine a map that is drawn with such detail and on such a large scale that it covers the same area as that of the physical territory. In such a case, the map has become reality itself. “Today abstraction is no longer that of the map, the double, the mirror, or the concept. Simulation is no longer that of a territory, a referential being, or a substance. It is the generation by models of a real without origin or reality: a hyperreal” (Baudrillard 1994, 2). Jeff Heydon says that Baudrillard “suggested that the culture of mediation, the endless cycle of representation in the contemporary landscape, altered our understanding of

authenticity. In short, the saturation of representation, of duplication, had placed the primacy of the copy in front of the original. The map suddenly preceded the terrain” (Heydon 2013, 535).

Rushkoff uses the same example to point out that people mistake the abstraction (or the symbol) for the reality. “There is the real world, then there are the metaphors and maps we use to represent that world, and then there is yet another level of activity that can occur on those maps—utterly disconnected from the original. This happens because we have grown to treat the maps and symbols we have created as if they are the underlying reality” (Rushkoff 2013, 113).

In such a case, the terms “real” or “unreal” lose their original, operational meanings. Baudrillard calls this “its own pure simulacrum” (Baudrillard 1994, 4). The true, lived experience, the object and substance have disappeared (Baudrillard 1994, 4). In their article discussing the hyperreality of the Google Glass experiment, Encheva and Pedersen interpret Baudrillard as such: “If the invention of objective reality is already a representation, the following stage naturally is that of the ‘simulacrum’ as the representation of representation or the copying of a copy, which conceals the absence of the real or the original (Encheva and Pedersen 2014, 239).

Baudrillard says that all white societies, particularly those living in metropolises are living “in a world completely catalogued and analyzed, then artificially resurrected under the auspices of the real, in a world of simulation, of the hallucination of truth, of the blackmail of the real” (1994, 6). To exemplify the meaning of simulacra, he uses the example of Disneyland, probably the most fetishized form of simulacra. With its subsections that are based on themes (the Pirates, the Future World, the Frontier World), it attempts to create a history, a significant past for Americans to hang on to. In fact, Disneyland “exists in order to hide that it is the ‘real’ country, all of ‘real’ America that is Disneyland. Disneyland is presented as imaginary in order to make us believe that the rest is real” (Baudrillard 1994, 8). According to Baudrillard, Disneyland

provides yet another hypertext for creating a hyperreal existence, or as he says in his book *The Intelligence of Evil*, “the trap with these plural identities, these multiple existences, . . . is that once the general equivalent has disappeared, all the new possibilities are equivalent to one another and hence cancel each other out in a general indifference” (Baudrillard 2005, 58).

So, on a daily basis, how is one to differentiate between the real and the illusory? Is there, in fact, such a thing as illusory when the real and the illusory fall under the same category? Baudrillard answers these questions by asserting that “The impossibility of rediscovering an absolute level of the real is of the same order as the impossibility of staging illusion. Illusion is no longer possible, because the real is no longer possible. It is the whole political problem of parody, of hypersimulation or offensive simulation that is posed here” (Baudrillard 1994, 13). The ordeal is obvious; we have no choice but to “prove the real through the imaginary” (Baudrillard 1994, 12), which, he thinks is our major crises. Ideologically, this leads to the premise of not being able to differentiate the real from the simulacra, which leads to the suspicion that “law and order themselves might be nothing but simulation” (Baudrillard 1994, 13). Baudrillard calls this the hysteria of our times (Baudrillard 1994, 15).

When there is no way left to differentiate the real from the represented, Baudrillard says, the logical conclusion is what he calls “Integral Reality” in his book *The Intelligence of Evil*. Since the copy is now just as “real” as the original, the authentic no longer exists. All reality, then, is a copy of other copies; everything is real and everything is simulacra. “The sequences of texts that make up the contemporary landscape all have previous referents. Additionally, those original texts can only be reasonably understood by calling on other referents that may sit anywhere in the sequence of the production of texts. According to Baudrillard, everything is real” (Heydon 2013, 537).

The film *The Matrix* is a good example of how Baudrillard’s concepts work. In the film, a young bald boy known as the Spoon Boy gives the main character Neo the spoon for him to bend it. Then this conversation ensues:

Spoon boy: Do not try and bend the spoon. That's impossible. Instead... only try to realize the truth.

Neo: What truth?

Spoon boy: There is no spoon.

Neo: There is no spoon?

Spoon boy: Then you'll see that it is not the spoon that bends, it is only yourself. (Wachowski and Wachowski , Dirs. 1999)

This is, according to Baudrillard, “the omnipotence of simulacra” (Baudrillard 1994, 3). The dialogue points out to a sensibility that is very old, running through ancient texts, from agnostics to the cave allegory of Plato where the shadows on the walls of the cave are deemed to be real world referents rather than their reflections. As Baudrillard says, “it is now impossible to isolate the process of the real, or to prove the real” (Baudrillard 1994, 14). In fact, this same allegory of a cave has been utilized by McKenzie Wark in his 2007 book called *Gamer Theory*. In a hypothetical video game saloon in a neighborhood, people play with video games to the exclusion of everything else. So much so that they are completely saturated by the images and sounds of the environment: “Here gamers see the images and hear the sounds and say to each other: ‘Why, these images are just shadows! These sounds are just echoes! The real world is out there somewhere.’ The existence of another, more real world of which The Cave provides mere copies is assumed, but nobody thinks much of it. Here reigns the wisdom of PlayStation: *Live in your world, play in ours*” (Wark 2007, 2). McKenzie Wark’s reference is to the real world not being of any significant value when contrasted to the vitality of the video game world. In fact, he goes so far as to say that for a gamer who has been so immersed in the game, the “real” world is nothing but a video game too, having the same working principles and value systems (Wark 2007, 8).

Baudrillard says that even tragic events like aircraft hijackings and holdups are considered simulation because the media broadcasts them all in the same

manner, so much so that the broadcasts have become ritualized and the discourse is based on a predictable pattern (21). Hence, if you have seen one, you have seen them all; “they function as a group of signs dedicated exclusively to their recurrence as signs” (Baudrillard 1994, 21).

If Baudrillard would have deemed video games as subjects worthy of writing about, one assumes that he would have very little to say positive about them. Baudrillard makes a great issue of how history has been reduced to a state of mellow stories “emptied of substance and legalized in its superficial exercise, **with the air of a game and a field of adventure**” (Baudrillard 1994, 43) (Emphasis mine). No doubt he would have mourned the loss of the strength of real history vis a vis the hyperreal history and mythologies employed in video games, criticizing such use because “they no longer resemble anything, except the empty figure of resemblance, the empty form of representation” (Baudrillard 1994, 45).

In a video game reality is represented on the screen by symbols, to such an extent that the symbols begin to become cliché or develop a language of their own. This is pure simulacra, a copy of a copy. Baudrillard (1994) would not even try to distinguish between real and illusory because in a video game the two are intertwined to form a world of its own. Much like the Disneyland which Baudrillard (1994) is so critical of, video games conspicuously pose simulacra as their internal reality. In fact, to be able to play any video game, the gamer chooses to dissociate himself from the physical surroundings and to immerse himself into the world of the video game. Baudrillard’s (1994) conclusion that “everything is real and yet everything is simulacra” is the basic premise of the video game world, which is exactly why Baudrillard was chosen as one of the theoreticians for this study.

Reconsidered within the context of this thesis, Baudrillard’s work contrasts vividly with more recent work such as Bruce Sterling’s. One particularly striking example is this: In his book *The System of Objects*, first published in 1968, Baudrillard refers to “gizmos” which he defines as newfangled objects for which

our civilization has little need and no specific name, such as “the toaster with a nine-level browning control, or the electric cocktail swizzle stick” (Baudrillard 2005, 124). Coming from a post-Marxist background, he is concerned with objects to the extent that they define our daily lives. With respect to gizmos, he says “Words like ‘gizmo’ now cover all those things which, on account of their specialization and because they answer to no true need, cannot be referred to as machines, and thus assume a mythological character” (Baudrillard 2005, 124). Baudrillard questions materiality by asking what it is that makes objects mysterious.

The two key words in that chapter are “gizmo” and “machine”, which are also key words in Bruce Sterling’s book *Shaping Things*. However, the two philosophers have totally different approaches to these two concepts because there is a time difference of 22 years between the two books. Whereas Sterling uses these words / concepts as referents to stages through which materiality has passed, Baudrillard is yet clearly based in the materiality of real objects as opposed to the augmented reality issues that Sterling problematizes.

Baudrillard mourns the loss of a symbolic order, or rather, the smug reordering of nature “in accordance with the technical reality principle: a total simulacrum of an automated nature” (Baudrillard 2005, 125). Sterling, on the other hand, salutes the new issues that arise with relation to materiality and design in the 21st century. “Baudrillard’s ideas on the disappearance of the symbolic order can point towards an explanation of the diminishing distinction between contemporary ‘realistic’ and ‘fictional’ genres of representation, as well as the common understanding of real and imaginary”. (Encheva and Pedersen 2013, 245). Where Baudrillard complains and criticizes the proliferation of objects in our lives, Sterling tries to provide sustainable solutions to problems of materiality with respect to natural resources and issues of 21st century.

3. VIDEO GAME OBJECTS: THE ABSTRACTION AND REPRESENTATION OF GAME MATERIALITY

When considering the topic of materiality in video games, three subtopics come up. Whereas the first two are more technical, the third, immersion, is psycho-social in nature:

3.1. Interactivity: As the player is playing his video game, he is involved with what is on screen, in a continuous feedback / replay mode. He designs his course of action in close interaction with what the program of the game provides for him. Therefore the embodied player is interacting with a digital code that he sees on the screen (also material). This can be said to be true of other computer-mediated communication but particularly in the case of a video game which may take hours and hours to play, the human agent is active for long periods of time in response to the digital code which provides the visual material on the screen. The game is designed in such a way that the interactivity between the algorithm (non-material) and the player (embodied entity) is carried on through commands on the keyboard (material).

Digital ludic culture is a space for social organization for players where they “meet” and share interests. Sometimes players chat with other players through the microphones they wear or, using the keyboard, they write in dialogue boxes. Thus, they interact with the community of other players playing the same game. Thus, shared identities and online communities are created. Elias thinks that this creates another sort of reality where the player escapes into a cyberworld from the dangers of the real world:

The need for utopian spaces, the crisis of gestures, of real presence, the hazardous urban streets, the electronic entertainment evolution, lead the userplayer to immerse into “moving-images” in which it is able to rescue him from the solids crisis, the weight of reality. Adhering to virtual communities, the need for an escape from the primary social tissue and the expansive cyberculture, plus loneliness, make sharing identities in the ludic cyberspace somewhat possible, as long as it is a technical place where a certain social, ludic

and psychological component still remains. Sharing online identities allows us to euphorically practice our personality, as well as it does permit to exit the known map, to go out of the enlightened terrain, roaming across unknown paths. Such is the reason behind online gaming in cyberspace, considering too its social potential, a space which everybody looks for, as dangerous and volatile as well (Elias 2009, 106).

3.2. Interconnectivity: By accessing online video games, the player requests the computer to connect him to a hyperlink which exists as a digital (non-material) program on some server (material) that hosts the desired video game. So instructed, the computer then creates a digital connection to the server, retrieves the requested data and transports it back to the player's screen (material). Therefore, both software and hardware are involved in the operation and they are interconnected via the network.

Some critics express a sense of caution, especially for the case of young children who are exposed to computer interconnectivity before they learn to formally read and write. The danger lies in the fact that a child may actually learn to type words on the computer keyboard and yet never bother to learn to write in the classical sense, with pencil and paper.

The computer has become the new cultural symbol of the things that Rousseau feared from the pen: loss of direct contact with other people, the construction of a private world, a flight from real things to their representations. With programming, as for so many other things, the computer presence takes what was already a concern and gives it new form and new degree. If our ideas about childhood are called into question by child writers, what of child programmers? If childhood innocence is eroded by writing, how much more so by programming?(Turkle 2005, 92) .

3.3. Immersion (Flow State, Presence): This term is used for the emotions or the reactions of the player as he is playing the game. Immersion can be considered under two subheadings. The first one is the kinesthetic of the game,

the way the player's body, particularly his hands and fingers and how he coordinates them as he plays. According to Bogost, kinesthetic is part of the genre of the game:

Procedural genres emerge from assemblages of procedural forms. These are akin to literary, filmic, or artistic genres like the film noir, the lyric poem, or the science fiction novel. In video games, genres include the platformer, the first-person shooter, the turn-based strategy game, and so forth. When we recognize gameplay, we typically recognize the similarities between the constitutive procedural representations that produce the on-screen effects and controllable dynamics we experience as players (Bogost 2007, 14).

Therefore, procedural representation which is embedded into the algorithm as code (non-material) results by the game player's kinesthetic (real body movement, materiality) actions. The move is made; the algorithmic merges with the kinesthetic. "In computational systems, code is regulated through software and hardware systems. These systems impose constraints, but they are not subject to the caprice of direct human action" (Bogost 15). That means the code is written by the maker of the game as commands and the player needs to recognize these commands and act accordingly. The player's decision about how to act in a particular situation in a game is circumscribed; his acts are limited by the code that has been put in. If the code demands that he make a right turn of a maximum of 80 degrees, the player can only act within this limit.

Kinesthetics is a very significant aspect of game playing according to Sherry Turkle who asserts that being immersed in the game is akin to transcendental meditation or similar mind-control techniques. It takes concentration and discipline.

To master a video game, conscious playing is not enough. You have to 'think with your fingers.' As in sports, mental and physical action have to come together. An athlete thinks with the body. You feel the skis as part of

you, you know their relationship to surrounding space, objects, and obstacles in the direct way that you feel your body in space. Call it 'muscle memory,' call it 'flow,' call it 'trusting your instincts'—the experience of feeling a continuity between mind and body is part of the inner game of any well-played sport. Skilled video game players experience this immediacy of knowing their game with more than their head, and the experience is exhilarating (Turkle 2005, 84).

The second aspect of immersion is the psychological aspect of the player, his sense of being so immersed in the excitement of the game that he is carried away. So much so that sometimes the real world is the world of the game he is involved in. In such a case, the body, the physical aspect of the player recedes as the fantasy world overtakes his emotions. Janet Murray describes “immersion” as the suspension of disbelief (quoted in Frasca 2014, 1). This means that the player momentarily forgets that he is a free agent involved in gameplaying and enters the fantasy world of the narrative of the game. Apart from immersion, Janet Murray also cites “agency (the ability of the computer user to participate in simulations) as two of the desired effects that interactive narrative designers should incorporate in their products” (quoted in Frasca 2014, 1). Through immersion and agency, then, the player loses his critical distance from the game and becomes a part of the game.

Alison McMahan asserts that immersion happens at two levels, the diegetic level (player being caught up in the story), and the nondiegetic level, which means that the player loves the strategy of the game so much so that he becomes a part of the strategy (McMahan, 2003, 68). At the diegetic level, the factors that make the player forget real life are such things as the game being a 3-D game, and the visual and sound systems being exceptionally lifelike, a kind of perceptual realism. At the the nondiegetic level, however, the players are immersed in the game because of “gaining points, devising a winning (or at least a spectacular) strategy, and showing off their prowess to other players”. The player’s constant attention to the ongoing narrative and the strategic calculation he needs to make every moment pulls him into the world of the

game. Such an exaggerated level of being totally immersed in the game is called “deep play” (McMahan 2003, 69). Deep play is indicative of a certain amount of game expertise as well as personal enjoyment:

According to Diane Carr, the term deep play, as used in gaming magazines, refers to “a player accessing/accumulating layers of meaning that have strategic value . . . like ‘deep play’ in a *Dungeons and Dragons* [board game] context would mean knowing all the monsters and the different schools of magic, for example, whereas ‘shallow’ play would mean more ‘up and running hack and slash’ style of play. The term deep play, when referring to video games, then, is a measure of a player’s level of engagement”. (McMahan 2003, 69).

Jesper Juul has a somewhat different definition for immersion which he calls “a flow state”. Using Mihaly Csikszentmihalyi’s theory on aspects of flow experience, he says that flow is a mental state of enjoyment that is felt by people playing chess, climbing rocks, composing music or any such activity that requires expertise and control. “According to the flow framework, the player will enjoy playing if the challenges match the player’s abilities and thereby lead to a state of flow. If the game is too hard, the player will experience anxiety or frustration. If the game is too easy, repetition or triviality of choice will make the player bored” (Juul 2005, 112). Being a game designer himself, Jesper Juul also says that it is up to the game designer to design the rules of the game such that the strategies used by the players lead to such pleasure (Juul 2005, 91).

Immersion has connotations that are outside of the world of gaming as well. Some games have been accused of being addictive, and leading to trance-like, hallucinatory states of mind. Some games have even been blamed as being the cause of crimes as was the case of Columbine shootings (McMahan 2003, 70). Particularly first-person shooter games are used in research concerning virtual reality because they afford a higher degree of immersion or presence (McMahan 2003, 71). This would be the result of a high level of psychological immersion in the game. In fact, there have been accusations about some video

games having a detrimental effect on the psychology of players. Although it is beyond the scope of this study to explore the relationship between video games and aggression, let it suffice to say that much research is done in the area and they mostly base their focus on psychological immersion in virtual reality. One study in particular, published by Nicholas L. Carnagey and Craig A. Anderson, entitled “The Effects of Reward and Punishment in Violent Video Games on Aggressive Affect, Cognition, and Behavior” , published in American Psychological Society calls attention to the fact that certain games that reward violent actions do in fact increase aggressive behavior (Carnagay and Anderson 2005, 882).

Sherry Turkle sees more than just immersion in the attraction that the video games held for players. She asserts that video games were always associated with controversy from its very early days on: “... the games’ holding power provoked people who saw it as a sign of addiction to become alarmed. The controversy intensified as it became clear that more than a ‘games craze’ was involved. ...By 1982 people spent more money, quarter by quarter, on video games than they spent on movies and records combined. And although the peak of excitement about the games may have passed with their novelty, video games have become part of the cultural landscape” (Turkle 2005, 66).

The sense of being alarmed the effects of video games is partly due to the fact that new technologies sometimes estrange people who feel that they cannot keep up with the accelerating innovations in their worlds. Therefore, what others call immersion, Turkle calls “hypnotic fascination” or the” holding power of video games. “The experiences of video game players help us to understand this holding power and something else as well. At the heart of the computer culture is the idea of constructed, ‘rule-governed’ worlds” (Turkle 2005, 67). It is philosophically worthwhile to speculate on the attraction of a rule-governed world versus a world where no such rules provide comfort.

4. From the Embodied to the Digital: Changes in Design and Technology

A working definition of a video game appears in an article by Edo Stern entitled “A Touch of Medieval: Narrative, Magic and Computer Technology in Massively Multiplayer Computer Role-Playing Games”: “A game is a voluntary interactive activity in which one or more players follow rules that constrain their behavior, enacting an artificial conflict that ends in a quantifiable outcome” (Stern 2002, 258). Jesper Juul claims that “most computer games project a game world and to play them is therefore to engage in a kind of pretense-play: you are both ‘yourself’, and you have another role in the game world” (Juul 2002, 132)

Henry Jenkins, in his article “Game Design as Narrative Architecture” claims that when the first personal computer kits came on to the market in 1974, they were identified as entertainment devices rather than work tools. He also adds that video games, just like the movies, were not taken seriously but are now receiving scholarly attention

(Jenkins 2004, 118). This scholarly attention led to what is now called “ludology” which means “a study of games and game play” and was first used by Gonzalo Frasca in his book *Cybertext Yearbook* that came out in 1997 (Jenkins 2004, 129).

Technically speaking, the video games of today actually started as pinball machines that were first situated in public places like restaurants and bars for the players to enjoy themselves. The next development was arcade cabinets that were technically a little more advanced and took up less space (Jones 2014, 84). In the 1980s, books and other media were used extensively along with digital, on-screen materials and were called interactive fiction (IF) games. These were basically “command-line text-only interface, played on a PC and loaded from disquettes, with only some very basic graphics” (Jones 2014, 84). In these games, of course, the player had to use his imagination to co-construct the game along with the program.

Such games came in boxes along with physical objects which were called “feelies”. A “feelie” is a term that refers to extra materials that came with the boxed versions of interactive fiction (IF) computer games. These were rulebooks, plastic figures of the game characters, maps, postcards, manuals, dice, etc. and differed with each version of the game. These documents and objects served also as “copy protection” so the company could protect its intellectual rights of ownership because if the player did not possess these “feelies”, he was unable to play the game online. Intellectual property rights were thus protected and pirated copies were minimized (Jones 2014, 84-5).

The term “feelies” is worthy of attention here: as opposed to non-tangible computer programs that could only be accessed on a screen, “feelies” were real objects that could be touched and experienced through the five senses. This is an early signal of the duality of the gaming experience: the tangible versus the non-tangible realm, a hybrid reality.

The word “feelies” has an interesting history: In Aldous Huxley’s iconic novel *Brave New World*, “feelies” refers to movie houses where the film on stage is being enhanced by sensory stimuli that the viewers experience:

The other night, I experienced something I never have before. Lenina took me out to The Feelies (a kind of movie theatre that incorporates the senses into a movie). Well, we got to the place and sat down in the big chairs. Soon enough, the lights went down and out of nowhere red fiery letters appeared in front of us. In order for me to get the ‘feely effects’ Lenina told me that I had to hold on to the great metal knobs that were located on the arms of my chair. The second I took hold of those knobs I felt a a strange tingly sensation on my lips. Then, the very realistic images of two people stood in front of us. It was astonishing just how actual and real the image was. It was almost as if the actors were standing right next to us. Meanwhile, something called a scent organ released a smell that tied into the film. Before I knew it, the movie was over. (Huxley 2007, 73).

It is significant that as early as 1931 when *Brave New World* was published, the idea that an embodied world (the five senses) could be enhanced by a non-embodied experience (the film) was in the air.

From the 3.5 inch disquettes to CD-ROMs of the 1990s, it was a quick step. These CD-ROMs are rarely being used today and gaming has become almost all net-based. “The late 1980s and 1990s was a period of mixed-media, mixed-format electronic publishing” (Jones 2014, 86). There were games that combined hypertext, CD-ROMs, disquettes and even music tapes to be played during gaming. Also, rule books or guide books continued to be published well into the 1990s.

In fact, Jones feels that images of books overwhelm the gaming world; they appear everywhere in different formats, magic books, religious texts, etc. that may sometimes even be opening to other worlds, a case of an “iconic physical object” merging with a digital image (Jones 2014, 88). The gaming medium did not give up on the book connection very easily. When the famous video game *Myst* came out in its second version in 1995, the storyline was published in an ancient-looking, fake leather book with fake water stains and scratch marks on it. The book (physical object) was given the role of preparing the gamer for the digital world of the game.

The interaction of the embodied object and the digital, virtual world can be seen in very new video games such as *Skylanders* which came out in 2012 and became a best-seller immediately. In this game, the video game players use plastic figurines that are placed on a glowing platform called “Portal of Power”. The portal lights up and the plastic figurine also lights up and that same character appears in the video game. The video player can then move the character around and maneuver it in the digital environment. When he wants to pass on to another character in the game, all he needs to do is remove the previous figurine from the portal and place a different figurine, which, in turn, lights up on the screen and is ready to go (Jones 2014, 140).

In fact, *Skylanders* went further: each figurine carried its updated status and could be taken to other localities and other consoles to be played there. For example, a figurine could be played on “Xbox or Wii or PC to the handheld 3Ds, to an online game world, *Skylanders Universe*, or a mobile game, *Skylanders Cloud Control*” (Jones 2014, 144). This example shows us the extent to which the digital world platforms are being interconnected to each other as well as an immense overlap of the embodied world and the digital.

Another aspect of materiality, or the sense of the game being real, is discussed by Herlander Elias in his book *First Person Shooter: The Subjective Cyberspace*. Elias claims that First Person Shooter (FPS) games have caused an audiovisual breakthrough in the electronic gaming industry (Elias 2009, 6). His standard for the sense of reality in a video game is the virtual environment created by the designer. He says that the virtual environment (called ‘architecture’ by Elias) makes it possible for the game to be experienced as life-like (Elias 2009, 10). In fact, he says that the player “accepts the entrance into the trap of the virtual” (Elias 2009, 3). He deems a game is realistic if it looks cinematic rather than computerized. The player should observe his surroundings as if he were physically there. This sensation of presence in the virtual world is created by a first-person perspective which reinforces the player’s sense of being psychologically immersed in the world of the game (Elias 2009, 5-13). Such virtualization is the key factor in the sense of “being real”:

A sense of presence in a virtual world derives from feeling like you exist within but as a separate entity from a virtual world that also exists. The differentiation and experience of self may be enhanced if other beings exist in the virtual world and if they appear to recognize that you exist. It may be enhanced if the virtual environment itself seems to acknowledge your existence (Carrie Heeter quoted in Elias 2009, 14).

Herlander Elias thinks that new developments in the design and production of video games makes it possible for the games to “mimetically resemble” scenery that is employed by cinema (Elias 2009, 15, 22). That means the graphics of the

game need to be at “photorealism” level (Elias 2009, 17). Another interesting point he makes is that the user-player in the game becomes so immersed in the game that he is following his own self after a while. This causes a “dangerously seductive” sense of what Marshall McLuhan calls “Narcissus Narcosis”, a kind of self-hypnosis syndrome “whereby man remains as unaware of the psychic and social effects of his new technology as a fish of the water it swims in” (quoted in Elias 2009, 26). Thus, the immersion of the player is very strong because he is actually following his own self in the narrated story of the game.

Later, in the early 1980s, an important figure came on the scene; William Gibson whose seminal book *Neuromancer* was published in 1984. Gibson was the first writer to use the term “cyberspace” and the word “Matrix” (Elias 2009, 89). With the use of cyberspace, Gibson meant a new dimension into which the embodied world could immerse itself. Like Catherine Hayles, he imagined cyberspace to be all around us, no longer a separate entity into which we enter and exit at will, but a reality that has exploded to include the embodied world around us. There was no reality without taking into account the cyberspace and what it included (Jones 2014, 23). Jones interprets Gibson’s attitude to the new media as “a willing relinquishment of the bodily and the material in order to go to another place, another plane” (Jones 2014, 27). Gibson himself called it “consensual hallucination” (Elias 2009, 128).

This trend in the early 1980s also influenced the zeitgeist. Or, to put it in other words, it became the zeitgeist. Steven E. Jones claims that a number of media-studies specialists had identified the coming of such a phase as of the mid-1980s:

...from ‘virtuality’ to ‘mixed reality,’ to environments in which physical and virtual realms merge in fluid and seamless ways. This is the most recent shift in what Hayles sees as the history of cybernetics: moving from homeostasis (1943-1960), to reflexivity (1960-1985), to virtuality (1985-1990s), and now, to mixed reality: ‘A decade or two ago there was much talk of virtual realms as ‘cyber’ locations distinct from the real world’ she

says, as embodied in the VR helmet of the 1980s. Such rigs have been replaced, now, by the graphical user interfaces (GUIs) of computers of various form-factors, increasingly experienced via the 'persuasiveness, flexibility, and robustness of ubiquitous media' (Jones 2014, 22).

These changes in design and technology made it possible for the constant, daily merging of the online experience and the offline, the mundane world. As Nathan Jurgenson phrases it, "...we live in an augmented reality that exists at the intersection of materiality and information, physicality and digitality, bodies and technology, atoms and bits, the off and the online" (quoted in Jones 2014, 24). What Jurgenson called "enmeshed or augmented reality", Hayles called "mixed reality". Coleman called the same merging of the two worlds "x-reality" and Greenfield called it "everyware" (Jones 2014, 25). No wonder video games became so extensively popular during the 1980s and onward; the medium they provided was the closest metaphor to what the zeitgeist presented.

Also, technically, the video game design and the computing technology that made them viable were mostly developed at universities. The popularity of video games is a unique example of a medium developed by the universities and then reaching millions of users on the Internet. To underline the role of the universities in the design and proliferation of video games, Eric Zimmerman claims that "Academic journals, conferences, and courses about computer-based storytelling, digital interactivity, and gaming culture have flourished like a species of virulent weed in the manicured garden of the university". (Zimmerman 2002, 154).

Steven E. Jones says that "...video games are simply the most prominent and influential form of new media today, and so it should not be surprising that they help to illuminate the larger culture's relationship to technology". In fact, he claims that "video games are significant cultural expressions; worthy of study in their own right" because they are "designed to structure the fluid relationship between digital data and the game world, on the one hand, and

between digital data and the player in the physical world, on the other hand” (Jones 2014, 33).

Getting back specifically to video games, and the medium in which they exist, one cannot help but notice the wealth of mediums in which they can be played: in real world settings as around a table, even using GPS clues to make the game tenable, on the Internet alone or with thousands of other gamers, using what Gregersen and Grogal call “physical control interfaces”: “keyboards, mice, joysticks, gamepads, motion-sensing devices such as the Wii-remote, steering wheels, trackballs, paddles, flight yokes, and, less often, dancing mats, plastic guitars, and other custom devices” (Gregersen and Grogal 2009, 69). In fact, one can say that the video games world has become pervasive as of the first decade of the 21st century. So much so that many critics of the video games assume that the game playing experience is a total immersion into a different world, a cyber-space that is no longer based in materiality. Katie Salen and Eric Zimmerman claim that such an approach is not believable; “that the goal of any new media experience is to transport the user into a sublime and disembodied virtual world” is not based on facts (Salen and Zimmerman 2004, 112). Some players might be too immersed in the game at times, but this is only a “hybrid consciousness”, not really “pining for immersion” as claimed by some (Jones 2014, 34).

Therefore, it is difficult to claim that video games transport players to a totally virtual world. Rather, video games are systems that bring together algorithmically processed data with designed, new models of created space (dungeons, forests, islands, etc.) where the real world exists as physical realities (trees, fire, oceans) which co-exist with designed artifacts of the game (weapons, tools, magic wands, etc.). Although game theorists such as Jesper Juul claim that the new media which includes video games has led to a new instance of materiality called total immersion, other theorists such as Steven E. Jones claim that this is a fallacy and that what others call virtual reality is actually “a system for connecting digital data and the physical world via the embodied player” (Jones 2014, 34-5).

He also claims that during the 1990s, theoreticians of the human-machine interaction exaggerated the role of the machine over the human factors, as if one day the machines would totally dominate the world. As of 2004, when social networks such as Google, The Agrippa Files Network, Facebook and Twitter totally transformed how humans interacted with data networks, the human factor has risen in the hierarchy of the Internet world. Jones holds the introduction of Web 2.0 which made all of the above technically possible, to be the defining moment in that revolution (Jones 2014, 83).

Video games are important in the sense that they are the most widespread complex mixed-reality systems that exist as networks at this time in history. Jones thinks that they are important also because video games are “useful models of the combined human-computer interactions by which all meaningful computing gets done” (Jones 2014, 36). Video games are a showcase where humans, that is real-live persons in the real world (artifacts), interact with algorithmic programs (data network) each and every day in a very widespread realm.

5. A CASE STUDY: DUNGEONS AND DRAGONS

The video game entitled *Dungeons and Dragons* (D&D) was first put on market in 1974 and is therefore celebrating its 40th anniversary this year. D&D is considered a very important, almost archetypal video game because it gave rise to what are called MMORPGs (Massively Multiplayer Online Role Playing Games) such as Ultima Online's "Britania", Everquest's "Norrath", and Asheron's Call's "Derreth" (Stern, 2002, 258). Lars Konzack claims that Gygaxian game design has been very influential and that many games are "based on Gygaxian principles, having good and evil races fight against each other in dualistic, cosmological battles" (Konzack 2009, 36). In fact, *D&D* is well known for its instrumentality in creating the video game culture: "...the early version of the famous computer game *Adventure* was first written for the PDP-10 computer in 1972 by William Crowther during his research stint at the US Department of Defense's ARPANET Project. It is perhaps here that the connection between *Dungeons and Dragons* (D&D) and computer culture was first established" (Stern 2002, 259). Eddo Stern in fact claims that "the technical evolution of MMORPGs goes back to the pen and paper *Dungeons & Dragons* games of the early 70's" (Stern 2002, 260).

At this point, it is necessary to mention that *D&D* first came out in 1974; it was designed by Gary Gygax and Dave Arneson (Mona 2007, 1). It first came as a supplement in book form to Chainmail's Fantasy Supplement and introduced many characters and concepts that have endured over the years. Three years later, Chainmail's Fantasy Supplement brought out three booklets entitled *Dungeons & Dragons: Rules for Fantastic Medieval Wargames Campaigns Playable with Paper and Pencil and Miniature Figures* (Mona 2007, 1).

Gary Gygax was not satisfied with the format of the game and in 1977 a new form of the game came on to the market; it was called *Dungeons and Dragons Basic Set*, in a "more visually attractive boxed set that sought to introduce new players to the concept of role-playing by focusing on only the first three levels of play, thereafter directing interested players to the much more expansive

Advanced Dungeons and Dragons game” (Mona 2007, 1). New editions followed this one and the game evolved from a niche product to a mass-market phenomenon it later became. This is how role playing games have been invented and became very popular (Mona 2007, 1).

However, with respect to the inception of *Dungeons & Dragons*, Ron Edwards does not think there was a single game with a single set of rules. He says that many different manuals were being used in those early days and therefore many different formats were in use across the US. There were tournaments held in many centers, universities, hobby clubs and even military bases. “Full unification never occurred” says Ron Edwards. “There never existed a single, original D&D” (Edwards 2003, 1).

Paul Mason claims that alongside the official game, *Dungeons & Dragons* was always a video game that was elaborated on by its fans, sometimes taking it to horizons not imagined by its makers. In fact, the players were so creative and imaginative that they created their niche games. “It is possible to argue that it was this moment—the abandonment of the zero-sum contest—that role-playing games in the *Dungeons & Dragons* mold began. At this point, players were already associated with individual characters, with individual goals, continuing across a number of games. The formative spark that produced RPGs occurred when players did things their own way, running counter to the expectations of the designer and transforming the experience to suit themselves” (Mason 2012, 2). As Steve Darlington wrote in 1998,

The impenetrable rules forced players to invent their own rules and interpretations, and to begin thinking about rules systems and their design. It was here that the future RPG designers were being born. Secondly, players were focusing not on the game itself, but the idea behind the game. Though the rules were far from perfect, people recognized the potential of the new and incredible concept around which the game revolved. D&D is perhaps the first game that players purchased

with the knowledge that at least half of the rules would have to be discarded or seriously altered (quoted in Mason 2012, 3).

In that sense, *Dungeons and Dragons* set a precedent for the gaming community to follow, fans becoming designers themselves. Richard Rouse III also claims that the players have always used some core values while they created an endless number of scenarios for D&D (Rouse 2005, 477). Sherry Turkle (2005) approaches the topic of rules and rulemaking from a more psychological stance. She does not think it is important that the rules were made by designers or the players themselves. The fact that games were rule-based is in itself significant for Turkle. “The *Dungeons and Dragons* way of thinking, with its thick books of rules, seems more exciting and more challenging than history or real life or fantasy play where the rules are less clear” (Turkle 2005, 82).

Sherry Turkle (2005, 80) says that the universe of the games is such that everything is determined by certain rules; among these rules, everything is possible but nothing is arbitrary. “You can postulate anything, but once the rules of the system have been defined they must be adhered to scrupulously. Such are the rules for creating ‘rule-governed worlds.’ They are known to every computer programmer and are now being passed on as cultural knowledge to a generation of children. The aesthetic of rule-governed worlds is passed on through *Dungeons and Dragons* and science fiction before most children ever meet a computer”.

Another critic, Lars Konzack (2009), calls attention to another aspect of rules of *Dungeons & Dragons*, the ethical aspect. He calls D&D “an ethical system based on dualisms” and says that “this system does not only relate to player characters but also to non-player characters, races and creatures in the game world” (Konzack 2009, 36). So according to this philosophical system of rules, if you are born into an evil race, you have no power to change it. This is a form of determinism which makes the player not question the slaying of evil races and

characters. This aspect of the game has caused concern ever since it first became popular.

Dungeons & Dragons is a video game that has been associated with somewhat notorious misgivings, making it an archetypal role playing game (RPG) to be targeted for many negative accusations ranging from demonism, ritual cult abuse to suicide. One early and well known example of such accusations is based on the case of a lost youngster Dallas Egbert III, a student at Michigan State University campus who disappeared during the exam period of August 1979. The campus police could not find him so his uncle hired a private detective who investigated the case and said that the student was lost as he was playing *Dungeons & Dragons* under the Michigan state campus” (Cardwell Jr. 1994, 158). The story of the lost student who was playing *Dungeons & Dragons* in the university steam tunnels became an urban legend and gave a bad reputation to the video game.

The name of *Dungeons & Dragons* was further reviled when it was associated with the suicide of Irving (Bink) Pulling whose mother claimed that there “was a curse placed on Bink’s game character during a school game. She claimed that this curse compelled him to kill and that he heroically sacrificed himself rather than carry out the curse” (Cardwell Jr. 1994, 159). The mother lectured about the event and blamed the *Dungeons & Dragons* on TV shows for four years. She even created her own media organization called “Bothered About Dungeons and Dragons (B.A.D.D.) to further revile the game. Later, other video game players were accused of placing evil spells on others (Cardwell Jr. 1994, 160). For years, *Dungeons & Dragons* was associated with satanic, occult or ritualistic crimes as a result of such media hype. This interaction of the D&D and the real world is ironic if one considers how real-world circumstances can get tangled with unreal, even so-called paranormal activity through a connection with the world of video games.

In fact, there are recent suggestions that the terms “real”, “imaginary”, “material” or “non-material” within the context of video games are considered

to be “philosophically slippery terminology” and should be altogether avoided in favor of a new concept “sub-creation studies” (Wolf 2009, 384). The term was originally coined by J.R.R. Tolkien and refers to any media (film, video games, television, comic books, etc.) created by man rather than God. In such a classification video games are considered a world with their inner consistency and their own ontology and rules. The players learn and use these consistencies and hence inhabit the worlds in which the game takes place. In that case, discussions of materiality become unnecessary. “Examining video games through a sub-creative approach produces a more holistic view of a diegetic world and one which is not limited by medium or narrative or by the player’s experience” (Wolf 2009, 385).

Finally, it should be noted that *Dungeons & Dragons* can be examined under computer-mediated communication theory with respect to its materiality. One example of this would be to look at how adding various materiality items to video games can make a difference in enriching playing experience. It has been shown that adding a voice element or a chat element into the game can significantly upgrade the enjoyment of the game (Consalvo 2009, 337). Similarly, it has been found that the avatars players choose ground the game in materiality and provide a further dimension to the game-playing. “...avatars might be a valuable tool for contextualizing social interaction and relaying non-verbal information, rather than simply providing a high-resolution transmission channel for visual information” (Consalvo 2009, 337). Further research into these areas can yield significant findings related to how materiality and game playing overlap in interesting ways.

6. CONCLUSION

Playing video games necessitates more than just simple hand-eye coordination as has sometimes been suggested by non-players who tend to simplify the game; either they do not understand it, or they do not play themselves. They also say that children are better at such motor skills and coordination, adding more insult to insinuations of belittlement. However, one needs much more to be successful at video games. “Working out your game strategy involves a process of deciphering the logic of the game, of understanding the intent of the game’s designer, of achieving a ‘meeting of the minds’ with the program. The video games reflect the computer within—in their animated graphics, in the rhythm they impose, in the kind of strategic thinking that they require” (Turkle 2005, 68-9).

We are currently living in a world where the merchandise we buy at the supermarket is protected and tracked with QR codes and barcodes, our cars go through tracking devices as we pass through certain gates and entrances, our consumer preferences are kept track of in the web pages we access, we do most of our reading and information gathering on the net, and even our social networking is being monitored and at times restricted. We can track our cargo, pay our taxes online by using CAPTCHAs and purchase merchandise off the Internet. Radio Frequency ID codes, or RFIDs already inform others of our actions and preferences. 3D printers are being used in medical sciences and engineering. Wearable computers are being developed that will create their own energy sources as they are being worn by humans. There is no going back. For better or worse, we have already entered an environment where the analog world or the embodied objects are closely interacting with a digital interface every moment of our lives.

This is the new world where the new media makes it possible what Vilem Flusser mourns as “a cult without things” or a world of “non-things”, a pessimistic philosopher who feels that humankind is at the brink of “programmed totalitarianism” (Flusser 1999, 6-8). The same or similar

sentiment is voiced by Katherine Hayles who feels that embodiment is under erasure in our age. She asserts that humans create technology and then are in turn re-created by that very same technology, which leads to new discursive practices. She thinks that to be able to decipher the new age, one needs to look at how humans interact with the material conditions in which they live (Hayles 1999, 10-22).

Yet another pessimistic philosopher is Jean Baudrillard who asserts that the real can no longer be differentiated from simulacra. He sees most contemporary urban human environments as copies of copies, or simulacra, where the maps have become larger than real territories that they were supposed to represent.

Bruce Sterling is no less pessimistic in calling attention to the fact that we need to reinvent or redesign progressive and sustainable ways of interacting with materiality. He is the only philosopher scrutinized under this study who seems to show hope for the future of mankind in the sense that he thinks man will be able to find better human-object relationship patterns soon.

An important scholar of the digital world, Bethany Nowviskie claims that the digital and the physical worlds have merged to such an extent that we can no longer separate the factors of the multimodal world. She calls these changes a major technological shift and foresees that “momentous cultural and scholarly changes will be brought about not by digitalization alone, but by the development of ubiquitous digital-to-physical conversion tools and interfaces” (Nowviskie, author’s blog, Jan. 4, 2013). The physical and the cyber worlds continuously interpenetrate each other.

Ian Bogost feels that video games are instrumental in changing fundamental attitudes and beliefs about the world “leading to potentially significant long-term social change. I believe that this power is not equivalent to the content of video games, as the serious games community claims. Rather, this power lies in the very way video games mount claims through procedural rhetorics. Thus, all kinds of video games, from mass-market commercial products to obscure art

objects, possess the power to mount equally meaningful expression” (Bogost 2007, ix).

Design is an area of theory and its applications. Video games are an area where design principles can be contextualized. The world of video games is a popular area where general principals of design can be shown and practiced. Also, video games can be studied as to how well they portray principles of design. Similarly, video game designers can use the general rules of design as guidance in their work. This way, they may be both reflecting and perhaps challenging design principles hence formulating and challenging the parameters of contemporary design.

In conclusion, then, video games reflect the state-of-the-art of their contemporary technologies. They also reflect how the society in which they exist look at “reality”, in this case a society where the ‘principle of reality’, as Baudrillard would say the result will vanish due to the nature of virtuality, and will eventually replace the real. “Simulacrum is preceding the real because the real cannot compete with the virtual ever since the discourses of technical competence have emancipated and improved the generalized technical literacy, in a cultural way, from where video games came” (Elias 2009, 51). Video games have the potential to reach multiple aspects of human culture and be an agent of change as well as a showcase or a signifier of the zeitgeist in which our culture exists. Many discussions from philosophy to psychology, from medical sciences to computational systems, from ethics to art can be considered in a discussion centered around aspects of video games. Interdisciplinary studies of video games have a way of reaching out and touching almost all aspects of human culture. Ludology, or the study of video games, has made a firm place for itself in the 21st century.

Culture is in a continuous flow of change and the video games reflect the parameters of that change as much as any other technology. Just like Marshall Mc Luhan has said in an interview in 1994, the nature of the electronic-information revolution is so fast that it has the tendency to break human

culture into decentralized tribe-like communities (quoted in Elias 2009, 51). This phenomenon can be observed in the world of the video games where reality and virtual reality merge in ways that change the nature of human interaction as we knew it thirty years ago. In that sense, this new electronic-information revolution mentioned by Mc Luhan can be said to add a new dimension to the discussion of the nature of reality that has been going on ever since Plato's allegory of the cave.

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