The stability of cyberspace[1]

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Abstract

The lack of a suitable understanding of reality experienced by human beings hampers the discourse on social and cultural phenoma triggered by information and communication technologies (ICTs). This lack generates misunderstandings which accumulate in the notion of ICT-induced realms as a *Gegenwelt*, either in the form of an utopia or dystopia. The majority of the studies so far on the subject suffer from an utter lack of clarity of the discourse's ever-resurfacing core-concepts "virtual reality" (VR), "cyberspace", and "virtual community". In fact, throughout the literature a shared understanding of these concepts does not exist.

From a sociocultural anthropological background this article provides a model of the experience of reality, which is based upon the works of William James and Alfred Schütz, and thereby bridges the divide between positivism/materialism and constructivism. By combining this pragmatic model with the history of the above-mentioned concepts, a sound basis for research on ICT-induced phenomena is generated.

Introduction

Since the beginning of the 1990s social and cultural phenomena which are attributed to the introduction of recent ICTs have become more and more the focus of academic examination and reflexion. Especially online interaction is apt to constitute a new field of research.

The latter's vicinity is often labeled by terms such as "cyberspace" or "virtual reality". The notion that *"virtual reality is primarily an imaginative rather than a sensory experience"*[2], has had some impact on the related research, and definitely is a step ahead in the understanding of "virtual reality". Simultaneously it means striding on a slippery path, because this notion implies that there is an objectivizable difference between imaginative and sensory experiences. But constructivism and experimental psychology have shown, that every experience is a construction accomplished by the mind – including the ones triggered by sensorial input. In the context of the Internet the "problem of reality" has become virulent anew. Most of the studies done on the experience of the Internet suffer from the absence of a solution to this problem: there seems to be no practicable model of reality as experienced by human beings. The helplessness in this issue is manifested in the all-too-often used dichotomy reality vs. virtual reality.

But does it make sense to label environments as either "virtual" or "real"? *"The origin of all reality is subjective, whatever excites and stimulizes our*

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[2] H. Rheingold, *The virtual community: Homesteading on the electronic frontier*, Reading, Addison-Wesley, 1993, p. 46.

interest is real. To call a thing real means that this thing stands in a certain relation to ourselves."[3] – The vital question is: Can it be *experienced* and if so, what degree of stability does it have?

A pragmatic concept of reality

To be able to understand what people experience and call reality, we have to start from the most basic assumption possible: Every single individual has the impression of "being in the world". This implies that any individual is conscious of himself/herself and has the impression that there exists a world outside of this Self. This outer world commonly is felt and described as the world of physical things, which is experienced as the three dimensions of space plus time as a fourth dimension. Most of the time humans take this outer world as existent and hence call it "reality".

Nevertheless the Self has no direct access to the outer world. All that is experienced comes to the Self as information. The Self only envisions the outer physical world, because information about it streams to the Self, seemingly via the sensorial channels. The Self only knows from the body it feels to be attached to, because information about it – like pain, a bad stomach, an orgasm etc. – streams to the Self.

In the light of this we come to the compelling conclusion: the outer world is a hypothesis. But then why is it, that by the overwhelming majority of human beings "reality" is so completely embraced and undoubted? In fact, it is accepted without reflexion, that this outer world has ultimate ontological status.

The essential criterium whereby the hypothesis of the outer world is believed without reservation, is its *stability*. This stability consists of two aspects:

1. The outer world seems to function by laws. That means, we can conduct the same action as often as we want and, *ceteris paribus*, will always get the same feedback.

2. These laws seem to exist independently from ourselves,which means they can't be altered by our Self through acts of will. That does not mean that the outer world cannot be altered – it obviously can. We sense ourselves not as mere spectators, but as integral parts of the outer world. As such we are able to act and our actions cause alterations. But our actions are limited by the outer world's laws, which themselves cannot be altered, only discovered and put to use.

A stunning aspect of human beings is the fact that we are able to perceive other worlds besides the one I called "the outer world". We are even able to regard ourselves to "be in" these worlds. There are the worlds of stories

[3] A. Schütz, On multiple realities. In M. Natanson, *Collected Papers I: The problem of social reality*, The Hague, Martinus Nijhoff, 1945, p. 207.

(novels, theatre, cinema), of daydreams and phantasies, of computer-games, of nighttime dreams, and so on.

When, while reading a novel, we are grasped by the story, the outer world fades from our consciousness. Instead our mind is filled with vivid content from the book: places, things, plants, animals, people. We have stepped away from the impression of the outer world into a reality which our mind constructs out of the information provided by the author and coded in the script of the book.

Despite of this astounding effect, the worlds of stories are far less stable then the outer world, since they lack interactivity. That means, the criteria of stability cannot be tested, as an individual can't "gear into"[4] this world, bring alterations about and see if the feedback is stable. Computergames for instance possess this feature and therefore are more prone to be confused with the outer world.

These realities which are separate from the outer world can be labeled *subjective realities* since they denote the constructions of a specific Self that are not necessarily shared with other individuals.

As I have started to talk about more than one reality – and already have described some of them – the definition of reality in the context of this discussion has to be specified. Obviously it is no longer acceptable to take the "experience of the outer world" to be a synonym for the term "reality". Hence I define: *A reality is a set of potential consciousness-contents able to give a Self the impression of being in a world.*

All that raises the question of what happens if, for instance, an individual walks around in the outer world but tries to behave according to the rules of a computergame-world. Nothing will happen until a game-rule contradicts an outer-world-rule. In this case the outer world will prevail.

Let us posit an individual who has played a computergame intensively and for a long time. His/Her Self is so accustomed to what it can do in the game-world that it has completely embraced these abilities. If the individual now tries to jump from an outer-world sixth-floor balcony, the functioning of the outer world's rules will result in serious injury – irrespective of how hard the Self believes in the game-world's rules.
It seems that the rules inside the reality of the outer world are paramount to those of subjective realities. Humans base their actions upon what they *think* to be information and rules objectively stemming from the outer world. To put it in another way: upon the *paramount reality*.[5] The paramount reality is sensed to be of the highest possible stability and is thought to be shared by all possible Selves equally. Knowledge about the paramount reality can be called reliable, if, and only if, actions based on it

[4] ibid., p. 209.
[5] W. James, *The principles of psychology*, New York, Henry Holt, 1890, vol. 2, p. 300-307.

generate the anticipated consequences in the outer world – completely independent from whatever culture the acting individual is stemming.[6]

But the idea of the paramount reality contains at least two problems:

1. Even if the outer world exists as an ontological absolutum, as materialistic philosophy suggests, no single Self can have direct access to it. Therefore "paramount reality" remains a hypothesis – a perfectly sensible one to be embraced, if one exclusively wants to do research on the non-human outer world, but not on the conduct of humans' lives.

But if we want to scrutinize human behavior and actions, cultural, social, and psychological phenomena, we have to bear in mind that the paramount reality is a hypothesis because:

2. No human individual lives in a world constituted by the paramount reality only.[7] Most individuals unreflectedly *think*, that they do so, but that's utterly impossible, as every Self's mind is a product of its individual and cultural experiences. Therefore every Self feels itself to be in a world which is constituted by its very own *subjective paramount reality*.

This subjective paramount reality consists of different provinces resulting from the different types of experience. The individual shares some of these provinces – at least parts of them – with other individuals, like the realms of sensorial perception and culturally- and group-determined contents of the consciousness. There are no strict borders between the provinces, they may touch, overlap, and intersect, and certain contents may even shift from one to another.

As long as a Self's the attention is inside the borders of the subjective paramount reality, the Self *has the impression* of being in the outer world and acting according to the rules of the paramount reality. Two individuals can only succesfully interact – given the intentionality of actions – in the outer world, as long as attention rests inside the intersection of both of their subjective paramount realities.

If attention leaves the subjective paramount reality, the Self will dwell in a subjective reality. When a Self's attention is completely focused on the consciousness-contents forming a subjective reality, the Self is totally immersed in this subjective reality and is not able to simultaneously reflect upon this circumstance. Reflexion of this kind is a faculty of the subjective paramount reality and immediately destroys the immersion – the Self falls back into its subjective paramount reality. *"Each world whilst it is attended to is real after its own fashion; only the reality lapses with the attention."*[8]

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[6] S. J. Tambiah, *Magic, science, religion, and the scope of rationality*, Cambridge, Cambridge University Press, 1990, p. 111-139.
[7] ibid., p. 84-110.
[8] James, op. cit., p. 293.

Of course subjective realities can be shared, too. In order to successfully play together in a multiplayer computergame, the attention of the players has to be inside the shared subjective reality of the game.

Accordingly and with respect to the observation and analysis of human action and interaction "something is existent" means "it can be experienced", because everything which can be experienced by a human individual can become a basis for decisions regarding further actions. The consequences of this actions will be experienced by other individuals and provoke their reactions, and so on. (Basically that's how social and cultural phenomena emerge.) In addition everything existent that is experienced as stable has to be called "real".

The model I have described provides us with solutions to some of the puzzles researchers have encountered in the digital realm, like why *"users are prepared to accept a simulated world as a valid site for emotional and social response."*[9] The individual is accustomed to showing emotions and acting socially in the outer world. Stability makes the ICT-induced world similar enough to the outer world, to feel safe acting similarly there.

On the basis of these considerations the labels "virtual" and "non-virtual" (= "real") have lost their meaning because they become interchangeable. The world of material things is equally "virtual", because it is constructed out of an information-flow through the channels of our senses – just as "virtual reality" is. If we call Siberia real, so we must call Cyberia real, too – or call both virtual. This seems senseless. Hence the need for another criterion of differentiation.

Castells came to the same conclusion as above: *"Thus reality, as experienced, has always been virtual […]."* But by stating that *"there is no separation between 'reality' and symbolic representation"*[10], he implies that there is no difference between subjective realities and the paramount reality. Here he misses the substantial differences in the degree of stability.

Nevertheless, everything which has an impact on an individual's decisions – and therefore on his actions in the outer world – has to be taken for real. That means it is a part of an individual's subjective paramount reality.

Cyberspace, Virtual Reality, and Virtual Communities

In order to clarify the concepts "cyberspace", "virtual reality", and "virtual community", the pragmatic model of reality is not enough. A little history of those concepts is needed, too.

Not long after the Wright-brothers' motorized flight in 1903 the first flight simulators appeared. This machines only could emulate an airplane's ba-

[9] E. M. Reid, *Cultural formations in text-based virtual realities*, Melbourne, University of Melbourne, 1994, Introduction.
[10] M. Castells, *The rise of the network society*, Oxford, Blackwell, 1996, p. 403.

sic movements in the three spatial dimensions. In 1929 Edwin A. Link presented the first applicable flight simulator which actually could be used for training pilots to fly, without letting them fly in the outer world of physical things – a fraction of the experience of this world had been substituted by a simulation of it, which was achieved by technological means. Commercial airlines began to use the 'Link Trainer', then the U.S. military. A succession of events boosted the development of the devices: World War II, the advancement in electronics, analog, hybrid, and digital computers, and finally network technology.

The climax of this development is *Cave Automatic Virtual Environment* (CAVE), built by the Electronic Visualization Laboratory at the University of Chicago and first presented in 1992. Basically CAVE is a huge cube into which a human being can enter. A computer generates a three-dimensional, moving, and interactive picture of an environment and projects it onto the six inner sides of the cube. All this happens in real time and is augmented with surround-sound. Obviously this allows an almost perfect immersion into a simulated space, into a virtual reality.

Already around the beginning of the 1970s the know-how about computerized simulation began to leak out of military circles and inspired intellectual and academic ones. In 1973, while writing his doctoral thesis[11], Myron W. Krueger coined the term "artificial reality". Thereby he not only described the experiencable worlds created by the new technology as being man-made, but gave a hint to the artistic potential he saw in computerized interactive simulation.

In 1981 the writer William Ford Gibson *"began to work with the concept of cyberspace"*[12] – the following year the word itself appeared for the first time in print.[13] Two years later the novel *"Neuromancer"* was published, wherein Gibson publicly defined the meaning of the word he had coined: *"'Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts ... A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding ...'"*[14] At about the same time Jaron Lanier coined the term “virtual reality”.

With the publication of *"Cyberspace: First steps"*[15] the term "cyberspace" was *"introduced to intellectual, artistic, and academic circles."*[16] In the

[11] published as: M. W. Krueger, *Artificial reality*, Reading, Addison-Wesley,1983.
[12] W. F. Gibson, Afterword by the author. In W. F. Gibson, *Mona Lisa Overdrive*, Penguin, New York, 1992, pages not numbered.
[13] W. F. Gibson, Burning Chrome. In W. F. Gibson, *Burning Chrome*, New York, Ace Books/Penguin, 1987 [1982], p. 186.
[14] W. F. Gibson, *Neuromancer*, New York, Penguin, p. 51.
[15] *Cyberspace: The first steps*, edited by M. Benedikt, Cambridge, MIT Press.
[16] A. Escobar, Welcome to Cyberia: Notes on the anthropology of cyberculture, *Current Anthropology* 35(3): June 1994: p. 216.

same year Rheingold published his book *"Virtual Reality"*[17]. In those years the ever growing flood of publications concerned with these issues started. Because of the impact it had – and still has – on the humanities and social science, Rheingold's *"Virtual Community"*[18] is an outstanding example. It hammered a certain notion into the minds of many: There is a fundamental dichotomy between *"computer-mediated social groups known as virtual communities"*[19] and "real life". All the misunderstandings we still struggle with, the mixing-up and fuzziness of the concepts in question began.

When Gibson shaped the concept of cyberspace for his metaphorical literary fiction, he had in mind a *"conceptual space where words, human relationships, data, wealth, and power are manifested by people using CMC [computer-mediated communication] technology"*[20], which is completely represented as an immersive virtual reality and therefore obviously possessing spatial quality. Using the words "cyberspace" and "the matrix" as synonyms, he defined this very clearly: *"The matrix is an abstract representation of the relationships between data systems. Legitimate programmers jack into their employers' sector of the matrix and find themselves surrounded by bright geometries representing the corporate data. Towers and fields of it ranged in the colorless non-space of the simulation matrix, the electronic consensus-hallucination that facilitates the handling and exchange of massive quantities of data."*[21] And: *"[...] the matrix's illusion of infinite space."*[22] Those Gibsonian fantasies aren't experiencable yet: bandwidth and computing capacity simply do not allow it to date. (If the technological realization of those fictions is desirable or will ever happen is a different question.)

Therefore the Gibsonian concept cyberspace had to be completely stripped of its immersive-virtual-reality aspect when it was introduced to the debate on non-fictional CMC and its empirical exploration. For this debate the immersive-VR aspect was substitued by the notion of a conceptual space for human interaction: Bruce Sterling's *"place between the phones"*[23], which shapes itself inside the heads of its users and is manifested in their observable expressions – just like every form of human culture.

The simulation technologies described above strive to generate an experiencable model of a fraction of the outer world of physical things. Ideally an individual experiencing this simulation is forced to forget, that the stimuli he/she receives – and out of which his/her consciousness constructs the impression of being in a world – doesn't stem from the world experienced in this way, but from a computer calculating everything in real-time. In this

[17] H. Rheingold, *Virtual reality: Exploring the brave new technologies of artificial experience and interactive worlds – from cyberspace to teledildonics*, New York, Summit Books.
[18] Rheingold 1993, op. cit.
[19] ibid., Introduction.
[20] ibid., Introduction.
[21] Gibson 1987 [1982], op. cit., p. 169-170.
[22] ibid., p. 177.
[23] B. Sterling, *The hacker crackdown: Law and disorder on the electronic frontier*, New York, Bantam, 1992, Introduction.

context of simulation, it makes perfect sense to speak of this simulated world as a virtual reality. Just like it makes sense to speak of a "virtual server": It seems like a physical server, behaves like one, but isn't. This implies that there are means to undermine the stability of the reality of the things virtual. I can step outside of a flight-simulator or the CAVE and verify that it exists in the outer world as a device which in particular circumstances has the ability to create an experiencable world. In this respects "virtual" is legitimately used as a descriptive term. But, in contrast, if people group themselves by means of CMC they do not just "seem" to group, they actually do. Online-communities only exist as such, there is nothing "virtual" about such communities.

New technologies always pose new challenges to existing terminologies. Since the times of the invention of the printing press there is the problem of "the original" and "the copy". This became even more virulent with the advent of digital artefacts. Concerning the latter their exist neither "originals" nor "copies" in the traditional understanding of the words. Everytime I load a picture which has been digitally created on the screen of my computer, I am viewing the (or an) original. And everyone with Internet access can have a look on the "original" of a so called "virtual community", not just on a representation of it – because in this context the representation is the only available original. Therefore I advise to discard the term "virtual community" and to use the term "online community" instead of it. "Online" and "offline" do not misleadingly describe a status of reality, but the way in which experiences are mediated.

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