

## PALESTRA

### THE FUTURE OF INNOVATION

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Thank-you! First of all I'm very grateful for being here. I hope I won't disappoint you! That's my greatest challenge right now!

I thought that I could perhaps explore some of our connection with technology. I understand, I don't know how real this is but I understand that there is a tendency in Brazil to have mixed feelings about technology in general. The idea being that technology has often been more the enemy than the support of the Brazilian people in present conditions. So, it's interesting to talk about technology in its more insidious aspects. What happens now when we become, we move from a society which was dominated by writing on paper and by print to one that is completely dominated by electricity and various phases of electricity?

This is the idea of the scale and the size and the speed of the use of language and the technological consequences. 1700 generations of language, of tribal culture, of oral societies of slow distribution of knowledge over a very long period of time. Then we have 300 generations that developed writing and there is already a tremendous acceleration of the maturing of that particular type of culture. 35 generations and this is what's extraordinary, 35 generations ago we had printing. So printing which is the history of the Western mind the Western society, not only that but printing developed in this way, in 35 generations we arrived to this which is electricity and now we have 10 generations of vertical acceleration of innovation, of connection, of social reality. So it's worth looking at how it connects with generations.

Here the technologies, the latest ones, those last 10 generations that you have seen, here the last 5 are 5 ways by which society has functioned and their profile. So you have the radio people – the people who are now between 55 and 70 who are usually

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<sup>1</sup> Os textos disponibilizados nestes Anais não são transcrições *ipsis verbis*, mas registros elaborados a partir das transcrições do áudio captado durante o evento. Buscou-se, contudo, manter a maior fidelidade possível às falas, assim como preservar suas características de linguagem oral.

in the leadership of the present situation. Television as media created a generation that is between 40 and 54 that is presently in management. And these are different ways of dealing with technology and information.

This one is the fax and electronic generation 30 to 39. The PC 20 to 29 and this is the new situation, the new phase of electricity, the wireless phase, the generation of always on the web. And you can see the graphics of where they will be. What kind of profile they will have in their career environment.

The TV era creates a society of abundance, creates a market of abundance and perfusion. TV is a media that pours culture out, pours products out. TV is always giving and creating an accelerating commerce and accelerating culture and creating also a certain type of community. It's also created this type of person which is a bit relaxed.

By comparison this is the generation of computers, the first PCs - 1981. You can see the tremendous difference between the world created by television and by electricity in the analogue era. That's when electricity is light, energy, heat and when it transports signals without making a signal. This creates a world of vibration. It creates a sensibility in fact which was very much associated with the world of the hippies. The yuppies came after but a very different change in relation to the world and a change of style in dealing with technology succeeded immediately after that.

The Hyperkids today: that's about the ratio - 10 thousand hours of video games, 250 thousand hours of e-mails and SMS, 10 thousand hours on the cellular phone, 20 thousand hours of television, this is always going down and 500 thousand hours of advertising spots against 5 thousand hours of reading books. Interesting! I can only tell you one thing. Those 5 thousand hours of reading books are very precious because they are the guarantee of having a private identity. Everything else you are sharing the responsibility for the content with some screen.

So these are my students: the "Net Gen Wreader". "Wreader" is someone who cannot possibly read without writing. This is probably your condition. The use of multimedia doesn't do manuals of course so the last thing you want to do is read the manual! You just go right in there and do it. They are used to work in groups or teams, multi-task, sampling, does outside the head on a screen what we were taught to do inside. What I mean by that is that our relationship to screens is a very complex one where we actually are delegating a great deal of our cognitive function.

Who's on Second Life here? Go on be honest! Alright not bad, not bad! This is a good proportion I would say. Second Life is the delegation of our imagination which was in there outside. This time you can share it. Don Quixote could not have shared the imagination of his romances when he was reading. There's a direct opposite between having your imagination on the screen and having your imagination in your head and what I'm saying is having on the screen what was in your head. I'm pushing you very far. Normally I have a video if I'm online but this time I don't. What I see happening right now is the management of the screen as a kind of expression or projection of what we do managing the inside of our head with the projection of designing, calculating, talking, writing obviously.

We are now into a situation where people are developing a hypertextual kind of intelligence. What we have inside our head is hypertextual. Of course we didn't know it! It's true! If you think about anything you're building it up from little bits and pieces that you have stored somewhere which come together at the time you start thinking. You can manipulate what you start thinking, very easily, changing it. That's what's called imagination. But the information seems to come as a continuous linear line or as a cinema and it seems as if it's always holding together like a tight and undifferentiated way but what is happening today with the net generation who is picking and choosing and going on Google, going on Wikipedia, going on all the enormous sources of information available on demand. They can take and drag and put it all together. That's what I'm saying. They do outside what we are taught to do inside but their resources are things that come from anywhere.

For example, it's corny but I'll do it anyway. Who among you read his or her own horoscope? Ummm the city will be saved! Alright! To all these honest people I want them to bear witness to the fact that if one reads one's horoscope which is written not for oneself but for a large population, particularly the one in São Paulo how can it possibly have anything to do with you? You make it that way! You decide. You did exactly what I call Hypertextual Intelligence. If you've got something there, something there, something there, something there, something there you put it all together and bingo! You've got meaning! Right? So that's what is happening with the kids. If they do outside with traveling on the web, they get all this information. What we are doing normally inside they are picking the sources from everywhere and with their cell phone they are on the hypertextual mode. We are hypertextualizing ourselves. It's very interesting. We are specializing now in this

flexibility in this accessibility of data in the kind of “I want this one now and that one now and that one now and I want it together.” And you get it! A world on demand.

Here is what innovation has been, remember we’re talking about the future of innovation. Innovation by the way, starts with the alphabet, starts with the control that we have over language just as identity and personal identity and personal consciousness begin with control of language and appropriation of language, innovation itself starts with the alphabet and the alphabet particularly the Greek or Roman sort because you could take text from its context and put it in another text. And you could liberate all texts and recombine them in any which way - recombinant DNA, recombinant technology of cognition.

So what happens with this innovation issue is that once language is accelerated to the speed of light as what’s happening now (multiplication of light by complexity, the speed of light by complexity) that’s what is going on. So here are the new innovative tendencies that come out for the extraordinarily creative tendencies that are contained within language. A fusion of internet generalization, globalization of internet and web. This one is in Italian I’m sorry but anyway the beginning of video games – this variety of our relationship with the screen. The videogame is an accelerator of the neuromuscular response. Economy begins to take over and of course economy is accelerating in a diffusing kind of system and with the mobile telephony around 2000 (I remember the people having telephones before 2000 and they had to carry them in a car because they were so heavy) we’re talking about a very quick growth of one of the most extraordinarily challenging technologies and also a very strong one.

We’re at what I call the 3<sup>rd</sup> phase of electricity. It’s very clear. The first phase as I said before is energy, light and heat, the second phase is digital. It’s electricity becoming intelligent, becoming information, becoming cognitive content and the 3<sup>rd</sup> phase (the one that we all carry in our pocket) it’s the one where this cognitive content becomes a cognitive action. This is electricity natural to bodies to people - collective intelligence with blogs. Blogs were invented in 97 but see how they suddenly mature? A kind of explosion a maturing moment in the internet, file sharing and so on. And now, and I want to talk to you about this because I am a “McLuhanist” and so for me the media really is the message. I wanted to talk to you about the era of the tag.

What is a tag? A tag is the soul of the internet. It is the address of any packet that is the basic content of any message. The message is divided into packets, the packets

have an address and an order of appearance and they reconstitute at the other end. So great! It's just a small technology like reading and writing - a small technology. No! This is a technology that is emerging now from a hidden, unacknowledged kind of subterranean service, emerging now as the system by which people make connection and by which both the local and the global, both the specialist and the generalist, both the historical and the actual, all of these things come and on demand from any part, from any point in production. The total hypertext, the era of the tag - I'll show you how it works.

Right now we're into the objective imaginary. Second Life is its most literal example but pretty well anything that happens on your screen could be considered your objective imaginary since so much of the image is right there as opposed to being right here. But Second Life is clearly the most mature (sounds a little bit polite to say that about Second Life) but it is a strong maturing point of one tendency that has been developing over at least the last 15 years of creating 3D representation that can be shared online. People have put some money into the system and so on so Second Life becomes the one that actually works.

It's definitely a cognitive drive of the technology that will always appear under the guise of product software in a commercial kind of environment. The ground of it is the change of the cognitive approach. What are the innovations that we can talk about from now on? Google, mp3, iPod, DVD, voice over IP, video blogs all these things are being developed right now on the network and people are beginning to understand what a "Folksonomy" is, Wiki for everything...

Maybe I should stop moving? I can!

It's a technology problem!

It always happens! I know that technology is a goddess and I'm very much in love with her but I don't think she loves me. So we've had this rather sort of tight relationship. Are we ok now?

I'm just saying that these are the kinds of innovations and conditions of innovations that we are seeing on networks today and I'm going to talk mostly about networks and electricity mostly but also innovations in biotechnology and many other areas but this one is the one we're going through in this particular phase of the conquest of our bodies and minds by electricity.

For example, free tactile interfaces (they are not all available immediately) but they are being developed now and one of them will be available very soon called the iphone. You've probably all heard about this thing that you can actually pinch an image because the screen responds to your 10 fingers or whatever number of fingers you put onto it. Pinch an image on iphone to do, to manage the image. I am very interested in this as one of the expressions of what I call the mind machine direct connect, when one day we will be thinking and then getting on the screen what we are thinking about. This is one of the orientations of technology.

Semantic web... maybe I should just stop moving! Maybe I should turn this off. Maybe that's the problem. It's ok now? Alright!

So, I'll show you some of these things but one other thing that I find and this would be particularly interesting in the context of a Brazilian society - this issue of the aura. We are now in the 3<sup>rd</sup> phase of electricity- a kind of wireless phase where WiFi makes perfect sense. We certainly understand that the future will in fact have very large band width, open access for everybody at very low cost if not for nothing so we'll be surrounded by information and we are already surrounded by information - the era of the tag is also the era of the radio frequency identifying device which is the label of every object that you own, wear or use that has its own address that can also be individually tagged, so to speak, and retrieved. So, we are surrounded and bathed in this information environment of which we produce some and are traceable because of it. We let information about us in various databanks automatically. And of course we also receive a huge amount of it that we reprocess. But the oral stuff about it that I find very interesting to talk about here because there are a lot of saints in Brazil and they always have an aura. A saint has an aura. The reason that a saint has an aura is because approaching a saint is actually becoming better. The idea is that the saint emanates health or emanates a certain kind of power. Just like for the horoscope I'm asking for no confession. What I'm saying is people do actually feel auras. They feel auras even in interpersonal communication. The fact is aura is something that you project.

Right now what we have is an electronic aura which has a certain kind of power. It doesn't necessarily have the moral content but it does have the connection and the presence content. So this kind of condition that we have with our cell phone and with our connection with the rest of the planet this creates an entirely different

relationship both with the world at large and to each other within our own community.

“Always on” that’s the thing! We made a study of the use of cell phones by people between the age of 15 and 25 and the target group 1000 people and we found out a lot of interesting things. We found out for example, the proportion of “early adopters” - people who are the first to get on the phone and use the things that you can do with the phone - all kinds of stuff. What is the most interesting thing that we found? Under 18 80% of the kids sleep with their phone under the pillow. That’s what I mean by being “always on”. It is a metaphor. We are always “always on!” All of us are “always on!” We are getting more “always on” than ever. And sometimes there’s anxiety over this like, you know, don’t you think it’s going to be too much? Well, you have to ask a neuron how many synapses he or she (the synapse is a she - I’m always worried about the gender - what is the neuron gender?). A neuron will stand enormous quantities of connectivity and our sensory environment provides us with a slat into the world.

I think that we are over connected and sometimes we are flooded but by and large we operate in the world of electronic media at a much larger scale - the way we really do operate with our own body with very large levels of complexity and of instant flexibility.

The “glocal” of course is the fact that nobody is exclusively local anymore. The moment you’ve got a cell phone in your pocket you are “glocal”. You may not be globally accessing literally because there may be zones where the intercommunication does not work, in fact I can’t get my Canadian phone to work here so there you are. But I can get my other phone to work here so that’s alright! That’s what I’m saying you’re globally connected even if you don’t use it globally your condition and your response has extended to the global. But you’re also “hyperlocalized” because it is your context you are using these technologies for. So you have a strong local context and you have a large open global context. That creates a difference in sensibility that is extremely necessary right now.

So why is it extremely necessary right now? I think that this connectivity we have and this global sense that we have is what is going to make this place livable. I’m talking about the whole planet. I was talking to your Minister of Culture, a most delightful man and he was saying... We were comparing Canada and Brazil in terms of their social dimension and there are interesting things to say to compare the two

types of multiculturalism. For example, Brazilians have a multicultural society that is incredibly integrated and looks terribly integrated. Canadians have a very strong belief in it but present it as a mosaic. This is not the same thing. This is one step beyond. So we were talking and he ran to get a book and he brought it out proudly and it was a book about the “Brazilianization” of the World. This is the fantastic type of challenge that we have today. How to Brazilianize the world? How to make social tolerance work that way? We really need that. There are lots of experiments in this country as you can see as you can explore. There are various ways of being.

In social networks that can help or not and I think they will be helping in the end but the electronic varieties are at work right now. So a cognitive environment – this is all on the internet and what people are talking about and there are already companies that are providing a sort of primitive version of it. It’s the idea that in this tagged, wired, totally conscious environment people are going to have machines that will record every second of their life - machines that will record every moment and will store every moment of their life. Already there is a version of this – people working for example on contact lenses that are also cameras so that everything you see, you see from your point of view. People working on microphones that are placed on the body so that everything you hear is what you hear from your point of hearing which is different from the point of view of others.

So this incredible tagging, doubling repossessing, this transformation of our own understanding of ourselves, Second Life, a virtual life but a real economy. What I find fascinating about Second Life is that you have the reliability of the kind of imagination you develop in your own head. If you read a novel and you go to bed and the next day when you open the novel you remember the space that you have created in your mind, you remember the characters and you basically recover them all and you can continue reading the novel. This has the same reliability in terms of spatial imagination and characterization but it has on top the unexpected of the other characters that come in that are sharing this environment.

Based on a real economy I had made the first university in something like Second Life in 1996, in Florence. We created in what was called an Alpha World (which is the ancestor of this thing) a university which had PCs that represented the doors the portals from different kinds of zones of language and so on. We thought it was just an amusing thing to do but it sort of dropped out of sight. Nobody ever heard about

it, my students didn't go for it; we were before Google so we were not as good as Google would be.

We were also at a time when the band width was not as large so it took a lot longer to download any of the images that came. Probably that's one of the reasons why we weren't so successful and I think putting money into it, the economy in Second Life made it possible, has made it a success. It's a virtual economy based entirely on virtual stuff. You buy yourself virtual estate. It's a contradiction in words - virtual estate - estate has to be real! The fact is you buy virtual estate and you can build virtual houses on it, pay real money and get real money for what you're doing.

The people's encyclopedia - this is the most stunning aspect of this new environment called Web 2 zero that people are using - one of the most stunning examples also of the configuration of connection of people which creates a collective intelligence. Agreed, there are problems with Wikipedia. I don't see them outweighing at all even though there can be stuff which is completely false or wrong spread on it because people haven't had a chance to get through it in time. That can happen on Wikipedia but if you compare any item on Wikipedia to any item on any printed encyclopedia, one on one, I don't know one case where Wikipedia doesn't beat flat what you see in the printed version.

What I find fascinating about Wikipedia is the interconnection of people's knowledge. The people's encyclopedia was predicted by McLuhan in 1962 when he said that we would externalize, we would make television the content of the internet and within there we would be able to share the encyclopedic faculties of each individual mind. That's what McLuhan said: we were going to be developing this sort of thing.

I was telling about how Wikipedia works. It works by somebody presenting a definition and other people collaborating and a group of people constituting a decision like that's what we can say about this thing right now. It's a very nice way of building knowledge but it's configuration - I'd say that the geometry of minds, of networking that this requires is very different from the geometry of this one. This one is a site called "Innocentive" where you have 40 thousand chemists, pharmacists, physicists, it's the general area it's a group that is more related to the huge pharmaceutical industry but nevertheless is one extraordinary use of the internet in a specific format.

What happens is they have a journal, 40 thousand people have a journal online which has a number of pertinent questions about their own profession and any one of the 40 thousand can actually respond to the question if he or she has the solution, the answer.

At least the reputation of the person having found the answer rises in a reputation capital on the system but also it can become a business because it brings together that sort of talent and then creates a product or whatever goes on after that.

“Innocentive” is an extraordinary inversion of the Wikipedia. Wikipedia is like a formation of currents that come from the whole globe here it’s a single spark of connectivity that creates the innovation or the discovery or whatever. It’s like an innovative system – another grammar I would say of the internet.

This is another thing that developed particularly for countries which have a more difficult and uphill battle to fight. It would be very interesting for example to use this in “favelas” – this innovation here. Using telephone lines to transfer designs and 3D design kind of whatever it is you think is necessary for yourself and can be done by you but you send that design via the telephone to this little lab and that little lab will produce your design with what’s called a 3D printer. A 3D printer will take any kind of substance some of which are very hard and durable. You could have a bicycle design for example and send this over. This is the imagination of Neil Gerhenfeld and it is something in a very innovative way for 20 thousand dollars or less you can actually put a lab of this kind in the hands of a little community and have that little community then fabricate objects that can be produced at different rates for different kinds of environment. So this is an interesting use of network technology.

The space of flows is cause and effect of fast-changing opportunities and challenges that can arise from anywhere in the globe depending on the network and the considerations - the situation in which we are now. I like this image because it looks like the conscious and the unconscious coming together in some fashion but the fluidity of the time we live in today is something that has been observed by many philosophers and many thinkers. I find it very interesting to relate it to what I call the “post-Galilean moment”. We are in a situation now where even the basics of physics are at the level of quantum – quantum mechanics reduced to such extraordinary fluidity. It appears as more and more hardware becomes software more and more of human transactions move to information and move online and are experienced in an instant fashion. More and more of our thinking is actually appearing as simulation on our machine. It’s sort of as if we were reversing the order of solids to the order of the fluid.

The Galilean judgment was the moment where the world of myth, the world of the liquid, the world of fluid, the world of the emergent kind of world of ideas and

images was giving way to the world of science, to the world of the atom, to the world of the solid, to the world of the reliable, to the world of the objective, to the world of everything that was archivable in a rational and focally and classified way. We are now moving back (it's also the world where religion and secular life were separated, state and church were separated). We're moving back into a situation where now we're into a completely new kind of fluidity coming from the global situation, coming from the pressure of the implosion of the world itself but coming also at the level of physics where today you cannot say anymore that sub atomic level and sub sub atomic level there is anything that is stable that is continuous. We're coming back to a Heraclitan time where everything is in flux. So the post-Galilean moment creates a situation of a change in sensibility.

Coming back to this issue of our emotions and how we relate to a new dimension as global people "glocal" but also global people. How do we relate to that? We have very big challenges and we live a lot of these challenges either through a television or through other fonts of media. We live with news of terrorism. It seems not to have hit Brazil particularly hard but some places have been hit very hard. We hear news of the depletion of the environment which is extremely severe more than ever. So how does a society that is now interconnected that now has knowledge of this sort of thing that has a relationship with this whole thing, how does a society organize itself to respond to that situation?

In our past we have gone through many transitions, very difficult transitions of language and technology and of culture and society following it. The acquisition was entirely the product of the passage from myth to solid, from myth to written, from collective language oral and imposed from above one way to privatized language and conquest of oneself. It was a very hard time. We are going to have a very hard time now because we are moving to this redistribution of self globally and because of this new responsibility.

In the time of the Renaissance the world became an object of theory, an object of theater, an object of things that you could separate it from and judge. The world that we're entering now is one that I call the point of being but I don't have much confidence in the word "point" there but anyway it's a physical tactile response or paradoxically tactile response to the planet at large at a different level in a different configuration. The more we know, the more we feel, the more we hear of what's happening both in our immediate surroundings and in general, the more we sense

that there is a physical sensation. It's a physical thing so you can actually replace the point of view putting yourself out of the spectacle by the point of being inside the spectacle, being immersed in the world. Being connected to the rest of the planet creates an entirely new response, of responsibility from us. How do we relate to that responsibility? In fact in a way comparable to the previous one which was the responsibility to ourselves called guilt? Guilt is a physical sensation. Remember that when you feel guilty it's something that brings your body into trade. It's something that is inside your body.

When I'm talking in terms of the environment, this electrification of ourselves is something I don't have to work for yet, I'm looking for it. We already know the difference between shame and guilt. We know guilt is very physical, shame can be physical too, I'm not so sure but they both are in different ways. Shame is a culture where you're responsible to the people not to yourself to somebody else. In all cultures you're responsible to the family, you're responsible to the clan, you're responsible to the tribe or whatever and this responsibility is shared by everybody and when it goes wrong, let's say somebody does something wrong it's the family that suffers. They carry the shame.

Once you learn to appropriate language by reading and writing you eternalize shame and you make it guilt. What I'm asking for now as a research question that I haven't resolved myself is: What is the connection that we have outside our body globally in terms of what we know is happening to the planet today, in terms of suicide bombing and the physical experience we have whenever we hear about it. The point of being is the tactile experience of the interval between your body, your aura and as far as it will go. It will create change - that's the hope.

One example only and maybe it's not very persuasive but the wall of Berlin fell, just like that. The wall of Berlin fell and a moment, a precipitation of sensibilities that pushed. What happens with the hypertextual environment, with the tagged environment? Everything emerges, a situation that allows the wall of Berlin to fall is a situation that emerges from chaos and brings the effect from this environment.

What I'm thinking now is that there is a relatively small part of the world population today that has any power at all outside the powers that be of which I'll say no more. But people who think that we can change the world it's the idea that today it's possible, there's much more power today in the relationship that we have with communication, with discoveries, with exchange, with interaction, blogs resisting

official political power for example, they can do that. There'll be more and more of this sort of thing and there'll be more and more of a joint sensibility of the planet that will emerge. I don't want to be stupid or flattering about this but it sounds like Brazil sounds like a good place to start. It's a very interesting thing to imagine. It's a culture that is so varied and capable of so much, cross-referencing different ways of being different attitudes from the world. I call this a cognitive architecture – the Brazilian thing. In fact I call cognitive architecture all the places that I go and see.

So maybe we can talk about this. I want to end up really on that particular idea that as we move from solid to liquid we move from hard to flexible. The hard times are behind us. The soft times are ahead of us but what I'm saying is not that they are necessarily not going to be difficult. What I'm saying is that the resistance of history, the resistance of matter, the resistance of destiny is weakening and hence there is more and more power over it because of the transmutations always of our desires into simulations and action. There's a cycle of growth there that is making our relation with history much more cognitive and much more powerful. I'm not sure if that's going to happen fast but it's already there. I don't want to sound like a prophet I hate that idea but I just want to describe what I see is happening now in scientific research with quantum mechanics and quantum computing and so on.

It's still shy, it's still timid, people say you can only use quantum computing for encryption and so on but just think about this: if having now resolved the total acceleration of the alphabet by the digital that is this extraordinary sequence of zeroes and ones and so on represent very individual things that connect them in a totally new way we've mastered this sort of thing. But it's still a linear thing – one, zero, one, zero, one, zero, on, off that's all it is it's a sequence of one, zero, on, off. With a quantum computer you basically have, the principle is not one, on, off; it's one, not one and every possible variation between the condition of being on and off.

Then you put huge amounts of contradiction in a computer for whatever kind of resolution that you want to come up with and what comes out emerges. What emerges is from all the possible contradiction, experience at once by the single calculator. That's what I'm saying: if the logic, the technology of computing goes via quantum why do I say the post-Galilean moment because I say when Schrödinger says: "in quantum, things are not, they tend to be" we're looking at a situation where there has to be some way by which we can take advantage of that and if we start doing that with quantum computing which I believe we really can do, then we

will start resolving enormous quantities of problematics at once and perhaps resolve the ones that are facing us.

I find it hopeful. I think that we are going to go through this. It's unquestionably the least... politically it's the least attractive years of my life from where I was. Andre Touraine the French political sociologist said that we move from an era dominated by an economy till Clinton and after Bush came we started an era dominated by violence. Well, I feel that it's absolutely correct. We actually are now in a situation that is less comfortable than it ever was but at a point where we can begin, at a point where people can begin to respond by political attitude if not necessarily action. We cannot really trust very much the old parties but it all comes down to attitude for the planet absolutely.

To keep the planet in shape it's entirely a matter of attitude and I find it interesting to talk about it because it's the lowest investment for the maximum return – changing one's attitude. In fact it can be done; it's been done politically and socially. It's been done with the political correctness which was very strong in Canada, it's been done with stop smoking, and it's been done. There are means by which people can change attitudes without being violent, without being undemocratic, without being too radical or fascist about it. It's also the issue of being aware of what's going on in the planet at large. It's you being aware that we have this challenge to face.

When I talk about terrorism – let's go back to terrorism I hope you don't mind me rambling – just stop me when you've had enough – I'm getting very tired of slides and they are more confusing than anything else so I just got fed up with those and I decided to cancel them. But I can't possibly ramble because whatever I say can connect to everything I've said before all the time, ok? So let's agree on that!

Back to terrorism: terrorism is the form of war in an information environment, in a globalized information environment. It's the only form of war but it is also a form of war that is entirely tactile. It's a very economic form of war because you kill a very small number of people for a very big effect. This is not to make light of the people who have been killed, please don't think this is a cynical remark, I don't want to be cynical at all but when you compare the cost of the Second World War to the one of 9/11 you are talking about information-based as opposed to hardware-based way of making war. That doesn't mean that I can explain to anybody here who really did bring the towers down. We're not talking about that. Terrorism is also very much a fabrication. It's an information fabrication, it's encouraged. It's also the form of

information possible to a globalized imploded planet on itself because of intercommunications. Everybody is on everybody else's back because of this concentration of information.

The reason why I'm talking about terrorism and this tactile business is because terrorism addresses every one of us. We're all in civil war. We're not in the 3<sup>rd</sup> World War. We're in a First World Civil War which is very different. We're all in this thing...

Thanks! So of course to recap, electricity is inside out of our body. It's an energy called current that makes our nervous system function and as McLuhan said we externalize our nervous system outside and globalize it and that's what's happening. That externalization of ourselves is really happening and the projection of our imagination outside is really happening meanwhile the reverse is true. The world is imploding on each one of us and being integrated. So the question now is to identify the proper way to receive this, to be aware of it and I believe personally that it has to do more (because of electricity being so close to the tactile system) with the tactile relationship that we have with our environment in an oral society. What I mean by tactile is like dancing, it's a sense of interval that you have between things and people. It's a variation of that interval, it's intuition fundamentally.

Maybe simple words can be said that we need an intuition of the planet. That's what it is. I found this right here, thank-you! We have intuition of people, intuition of cities, we have intuition rooms we have intuition of a lot of stuff, some near and some far. But the situation that we have now by our electronic nervous system, the understanding of our personal nervous system planetary wise requires an intuitive perception of the planet.

Anyway I was told to stop so maybe I can stop right here! If there are questions, I didn't pay attention to time, I rambled, I apologize!

## PERGUNTAS

**Prof. José Roberto Whitaker Penteadó (ESPM)** - Professor I will try to provoke you! I think it's a very rich bunch of ideas that you have so generously given us. But I would like to take 2 things that you presented, that have worried me more than others. The first one is the table that you showed, in which we see that people of different generations, now, different ages, they tend to think differently. And you also have people that live longer so you have more brackets than any other time in history. You

have maybe 5 generations living together and you have generations that hear about Second Life and they don't have the faintest idea of what this could be. This is worrisome because how can we communicate? How can we communicate between older people that have more experience and younger people that are more active in media but have almost no experience at all. I made an experience with Second Life. I went in there and I even wrote a little piece in it which was Goodbye Celina. Celina was my Avatar.

I changed sex! It was the one chance I had to do it! Now this is one aspect that I think worries us. What ages are we? I looked around and we tend to be all very young. The average year is very young. We here will be very outside the average. I think this is worrisome. How can we get generations more together so that we can share our experience, the things we know better, in our school? That's one thing we try to do. I think I'll leave the second one for later!

**Derrick De Kerckhove** - This is an interesting question because it deals with several aspects of what was called a generation crash and a generation crunch and a generation gap. At the beginning of the internet, I forgot the exact proportion but the first users were university people. The second users were the military (this was at the very beginning) and the third users were old people and the reason why that was the case was because these people had time to learn and they had a younger generation to teach them. So there was actually a transfer of knowledge that was very evident at the time. What is happening today I don't think is based so much on age, but based on interest. So age has become less relevant as a feature of judgment in the interaction between these various groups and I find that rather promising as opposed to being a threat.

I think a lot of barriers have been eliminated also in fact in the possibility of communicating, fire an SMS or via the internet and these various other things. What's happening really now is that in advanced and comfortable countries, to put it mildly. There is a constant heightening of the average age generation but also the quality of life accompanies this sort of thing. This is clearly a kind of thing that also allows a lot of people to continue sharing their experience even beyond retirement age. In Canada for example, you're not forced to retire anymore. That goes along with a very strong tendency to keep all people within the social system as early as possible and to the latest possible time. I think that's a response.

You feel that there is an age fragmentation?

**Prof. José Roberto** - I certainly do! I think that there is a very big lack of understanding between older generations and younger generations and especially in the technology issue.

**Derrick De Kerckhove** - Yes! You'll have an old guy that will suffer a lot from the encounter with these things that they don't understand, they don't feel. It's like forcing people to learn the piano or something. They don't want to do it. That I understand but that tends to disappear.

**Prof. José Roberto** - Because the old people die!

**Derrick De Kerckhove** - I didn't want to say it but no, what I'm saying is that as the number of users of these technologies increases and that trickles down there is a much larger integration of everybody within this course and that's what I'm saying. It tends to disappear.

In Canada - it's not an issue that we would raise now in Canada anymore and I'm not just saying that to say how great we are. No, I'm just saying that people don't talk about this problem of integrating it even in the offices anymore.

**Questão enviada por escrito** - O que o senhor quis dizer com a "brazilização" do mundo? Qual é a imagem que o Brasil passa para o mundo? É uma atitude, um comportamento positivo que os outros devem seguir, ou deveriam seguir?

**Derrick De Kerckhove** - Yes! Good question! I didn't invent the word. It was presented to me yesterday by that book. What got us together on this issue was that we were talking about this problem of how do we respond to the implosion of the world itself? We didn't quite go to the implosion but how do you deal with the immense complexities of different fates and I think that's where it started: different fates, different attitudes, different religions, and different people. So we talked about multiculturalism and we talked about Brazil as a terrain of social experimentations, social experience, permanent social experience but a successful one where forms of integration are visible in a way that is stronger but we already see very well in Toronto. Then he said: "Wait a minute!" and he ran and he got this book and it was called "The Brazilianization of the World". What was meant by that was the expansion of the style of tolerance and integration, intercultural integration that you find in Brazil. That was the idea expanded to the rest of the world. I've got another idea on the same score which will maybe amuse you!

I love Canada. I think it's one of the most amazing political conditions one can find today. It is one of the best and it's one which has had to deal with enormous tensions particularly between the English and the French and I see the integration of the French by the English ground and now by the First Nations and so on that we see, in Canada I see that as a model of nation building without nationalism. I'm not being nationalistic when I talk about this. What would be the best way of dealing today? Canada integrates with Quebec, with the confederation, generates a bicultural policy that becomes a multicultural policy and constitutes an entirely new way of functioning politically.

What would be the equivalent today for the rest of the world? My proposal is that Europe instead of refusing Turkey, integrates Turkey into the European Union, thus bringing half the world literally into the multicultural discourse and creating for the world (and here is the "brazilianization" and "canadianization" I would say of the world), bringing the world together in a way that Canada is brought together - tensions or no tensions. You've got tensions, you know what tensions are, and you manage them, so do we. But what I'm saying is that instead of resisting (only 30% of Europe wants to have Turkey enter in the European Union, which means it's going to be a while before it happens and they should clean up their act. They should stop fighting in Cyprus. They should not mount an expedition against the Turks. We cannot accept Turkey the way it is but what I'm saying is that one day we will have to do that sort of thing: accept within one particular type, one cognitive architecture made of many little bits of Europe, take another cognitive architecture within and relate to it on a political social level - that globalizes everything. Then we speak at least within a common space a common language, avoiding at all costs, global fascism, of course!

**Questão enviada por escrito** - Podemos dizer que existe um paradoxo entre o contexto do "tag" que rotula, delimita a informação e o ambiente da fluidez que não permite demarcações?

**Derrick De Kerckhove** - Very good! Ok! That's a very interesting question! In fact it's interesting because it's the opposite that is happening. It's the exact opposite. The tag liberates everything because it's unique it doesn't even have to correspond with something that is semantically complete. It's a bit of a bit of a bit! So it liberates everything and in fact (bloody slides!!) I could have shown you one or two that would have explained this stuff. This is what happens: in the normal way of

classifying anything in a library or in a store or an inventory, you have a hierarchical order where you have some basic categories and subcategories and then associated categories and what not and then a subject heading catalogue is full and has to be rewritten every 3 years or so because it's changed. It's full of a kind of relationship that is based entirely on very solid hierarchies, but online you click on this site that doesn't send you down the hierarchy anymore but it send you to something that is way out of that particular category. And then you do this more and more and suddenly everything is accessible from everywhere on demand. What is the purpose of having categories? The structure of the hierarchical system.

So what's the big discussion today? The big discussion today is what will web 3.0...! I think that what is happening today is that the destruction of categories or the elimination of categories in classification and the access to everything at once from anywhere which is what happens when we are immersed in an environment and the aura of information that we produce and receive, where every bit and piece of information has its individual address is interconnected to everything else... that's where we're going, ok?

So, in that particular environment, how do you make order, how do you keep classification? - If you have eliminated it by having everything loose. How do you give some structure to the whole thing? This is the discussion that Weinberger has against or with Tim Berners Lee. Tim Berners Lee has invented the web and Weinberger is the one that has invented the world of the tag where everything is loose and everything... he's written a book called: "Everything is miscellaneous" meaning no categories! This is a very nice title.

The point is this: the future of the web, the future of manageability and sociability and accessibility and everything that you can expect and want from the web may be seen in 2 different ways - by those who think that the categories should be reintegrated for accelerating access to the more contextualized and the most relevant, or what I call "hypertinent" the inverse of impertinent, the more "hypertinent" connection made, the fastest way, Tim Berners Lee thinks that that's what it is and he calls it the semantic web.

On the other hand, the people who are looking at future information management by saying liberate absolutely everything, archive absolutely everything and simply call upon it when you need it, make it entirely on demand. Web 2 zero has taken that option. Anybody can connect to anything within a certain kind of software

development, phase book, MySpace, Second Life, Wikipedia... Web 3 zeroes are all these things which have communities participating in the production where you have users generating the content. That's what Web 2 zero is all about.

Well, how do you reconcile that with a classified environment? Basically we are producing in the web, we are projecting in the web fundamental kind of cognitive faculties that we contain within our own brain, where we grab the world, we visually, tactilely, olfactively we grab the information and we analyze it. And this analytical thing would be the semantic web and the grabbing side would be the world of tag. We are projecting, we will see the projection in the web the 2 basic functions of (there are plenty of other functions of the brain, I'm not trying to impose those) but they've been discussed before and they are known as: the right side of the brain grabs the world, the left side of the brain analyzes it. It's very simplified to say that but we're seeing now this kind of progress in the cognitive operations that we have entertained.

**Question** - Inspired by the "Brazilianization" of society, personally I'm very scared of the American influence of whatever global will become, of whatever the web will become. We're talking about frontiers and lack of frontiers, we're talking about the pre-Bush society, the post-Bush society - How is this going to be within 10 years with the weight of the American influence, the North American influence on all that?

**Derrick De Kerckhove** - Well, first of all I'm not entirely sure that that weight will remain the same. They've weakened themselves terribly. The American empire, by acting the way it has with Iraq has weakened itself very strongly.

**Question:** - Sorry! Technologically also?

**Derrick De Kerckhove** - Technologically no, but we're showing more and more innovations coming from all over the world. In fact a lot of innovation comes from here! I think in the software there's still a certain amount of dominance but the software tends to be a problem of copyright and a problem of who owns what. In this common software this is still an issue, I agree but by and large the software tends to liberate and maximize the use of content anywhere in the world. Why is Orkut the most used here in Brazil for example? It's a very open kind of situation and I don't find that that's very much of a power. But you're right!

**Professor Stuart Ewen (CUNY)** - I want to make a brief comment and then ask a combination question/observation. The comment is: I've had some experience with

3D printers. I spent time as a visiting artist and scholar at the Cranbrook academy of design which is one of the most advanced design academies in the United States right outside of Michigan, and I've seen the printers and I've seen what they can do and they cannot solve the problems of the "favela". That is to say that if you put a glass of milk on one end of the wire or the wirelessness it will not produce a glass of milk that somebody can drink. If you put a bicycle on one end it will not produce a bicycle that somebody can ride. It produces a surface impression. It doesn't produce useful products so that until we reach the Star Trek replicator stage where in fact edible food ends up at the other end and usable technology ends up at the other end the "favelas" and poor people all over the world will not benefit from 3D printers. I'm just saying it because I've seen them and I've worked with them.

The second thing is, and it's very interesting hearing your talk because I think your observations about things are extraordinary, very incisive but one of the things that stuck me about your description of the world (although you did raise some concerns towards the end) is that you are one of the first visionary intellectuals I have ever heard speak who describes a world without contradictions, and let me pose a contradiction and that is a contradiction between those people who are able to enjoy participating in the global dialogue of immateriality that you describe and those people who may be a majority of the occupants of our planet who by force of circumstance live in the material world. I would suggest that one of the contradictions of the world that you talk about in very visionary ways is that immateriality alienates people from, separates people from an appreciation of material circumstances.

I think what will change for example, in the global planet crisis, is not simply intuition and attitudes, it will require actions. It will require fundamental material transformations which, by the way are being militated against very actively by large-scale industries. I would also say that when you talk about terrorism as something that we hear about or we see on television, that also is a kind of immaterial perspective. I live in New York, for me 9/11 was not something I watched on television, was not something that I heard about. It was something that I experienced close hand and the impact of it was visceral and physical and the immaterial renditions of it that I saw were virtually useless and ended up being part of the political propaganda that led the United States marching into Iraq.

So I think that one of the major contradictions of the world that you describe is a need for people who are functioning in the immaterial global dialogue to redevelop an appreciation of their own materiality and their own reliance and connection to materiality and I think to some extent, the global village that you're talking about just like much of the consumer culture, which turns using up the planet into a desirable thing, really will require a reengagement with materiality and with the people who by force of circumstance live according to the rules of material circumstance and cannot escape into the internet or into the "hyperspace".

**Derrick De Kerckhove** - Well, sure, this is great! I think it's very valuable. The only thing about "fab labs" is that they are in existence. You may be perfectly correct seeing the results of a 3D printer but these "fab labs" do exist and they are in Sumatra, in India and they are in places where people are actually successfully making an industry out of it. I'm not saying that they're making bicycles. Let's say I get it from the source and I found it very interesting. I did mention contradictions as you said at the end. It's not that I'm not aware of them. Perhaps the way you put it brings back the argument to socioeconomic rather than to technological issues and the socioeconomic have been there and may continue being with us for a long time. We perfectly agree on this and I don't want to make light of this in any way. However, the electronic great divide is not expanding but it is narrowing because there is an interest in the industry in actually distributing it everywhere. An example of a use of it which I find fascinating was given recently by Manuel Castells was the South African fisherman charging his cell phone as he's bicycling to the port where he will lock his bike, get on the boat and use this cell phone to find out how much is the cost of the fish that he is presently fishing selling on the market, thus avoiding an intermediary helping his condition.

I have heard this from different sources in different ways politically as well. People in very unfavorable conditions have actually really been helped by these things. So the divide, as I said, that divide narrowing may marginally help narrowing the other one. That's the hope.

Now the second question... I've written it down but I can't, what was it? The vote? Oh yes, the physical experience of the tower. I am touched by what you said, of course it must have been an absolutely horrid and terrifying thing. But believe me, I was woken up by my wife who told me: "get on television, something's happening and you must see." I went to see that and spent the whole day in front and I was like

- seizure. So you may not think by having been there that this was something for people who weren't but it was an amazing amazing experience and I can tell you that I still cannot see let alone a video, a photograph of blood on whatever paper I see which tends to show these big pictures of people who are suicide bombers.

I feel very strongly that it's a physical reaction that we have. We may get used to it but it's a gut thing. It's a gut thing when you hear about it. And that's what I mean by the physical and tactile experience of things very distant.

**Professor Stuart Ewen (CUNY)** - The problem is because of those very images because of their immateriality and because of their ability to be moved and juxtaposed with other things, it became in certain ways part of the political propaganda that allowed the people in the United States, to easily transpose Osama Bin Laden and the events in New York into a war in Iraq, which had very little to do if nothing to do... Saddam was aimed with all of his horror had crushed all forms of Shiite opposition in Iraq and it was ridiculous. So I'm saying, once it became an image, it became usable in ways that are different from the visceral lived experience and it's one of the reasons why in New York opposition to the war in Iraq never yielded. New Yorkers were opposed to the war in Iraq from the very beginning and continued to be.

**Derrick De Kerckhove** - Cool! That's great! That's marvelous precision and I think that it's absolutely true also but that's another discourse which I am also very tempted to enter in but I get into even more rambling, sometimes very politically incorrect statements!

**Question** - Professor thank you for your lecture. As the event here presents fashion so I'm going to play this part here. It's lighter. Sorry but... I believe that fashion shows nowadays have shown these new paradigms that you exposed here and we can clearly see them such as fluidity and hybridization as that event that you participated or organized in Austria in Lins and another point is "technofetischism" as you say in your book. So, I would like to know, actually it's a curiosity, I'd like to know not fashion research but research related to the body such as Steve Munn, where the computers and smart fabrics are going on in Toronto and things that are related to that event "Prêt A Pici" that happened in the United States, please.

**Derrick De Kerckhove** - Well, yesterday it was my good fortune to meet Ronaldo Fraga. I don't know if you know him but he is well known in Belo Horizonte for being a fashion designer. He is straight from Second Life! His hair goes like this. He's got

glasses which are middle design. The number of people that I see coming out of Second Life today is stunning! Girls cutting their hair exactly with the kind of etching that you have on Second Life. And in Second Life people using their face to modify - I've seen on Second Life people who have half a photograph of their face and the other half is designed and it reproduces what the photograph is showing.

I think fashion right now is really universalized in a very stunning way. It's the way in which people sort of belong to the same space - mostly children, kids, young people are the ones spreading this universalization.

I suppose that afterwards Toscani was responsible for some of Benetton's pictures but it's everywhere! And these companies are creating a global fashion. Is that your question? Oh, Steve and wearable computers. Steve is not wearing anything anymore because he has 2 children but the work of Stellark continues very strongly. The wearable computer idea, the cyborg idea is very much taking a hypertextual, nodal position in the whole world. The most interesting work I think of Stellark apart from swallowing a camera to show the inside of his stomach. A most disgusting art piece if I ever saw one! So I told him this was the most disgusting art piece I ever saw and he was very shocked but I said that's also the biggest compliment that I can possibly give. This is a very shocking kind of thing - an artist who really experiences the technology. About Stellark this is a technology - Do you know Stellark? He's a well known Australian artist. I'll give you one image of Stellark that shows you the experience of artists searching the tactile thing and there are a lot of experiences that I can tell you based on a tactile situation. Stellark got his nude body attached by I forgot how many hooks in his flesh and hung 150 feet above the ground by a tower. I thought he should do bungee jumping but that's the kind of experience that this particular artist is doing and more impressive is when he actually does the direct connection between the inside and the outside. It's a very strong metaphorical statement when he connects his nervous system, muscular commanders, through the internet, through a dancer that has a connection that receives his impulse. He's translating the organic into the electronic and back into the organic - some experiment which I find extremely interesting.

For the fashion of wearable computing, I had an experience once that I wanted to do which was to have an image of a satellite beaming in real time on a portable screen. It could have been and I actually proposed it to Ted Lapidus and also to Calvin Klein but Klein said my proposal came too late and Lapidus said it was impossible to deal

with the batteries so you couldn't actually do this sort of thing. But that's the kind of situation that electronic technology can do. There has been some experimenting with that in Japan which is very nice. I think that the most wearable... I think that this is the most wearable computer - this thing that we carry in our hand.

Other experience: Kevin Warwick has actually integrated some things under his skin. That's something that allows him to open doors and do this sort of thing. It was an experimental sort of thing. Lovers implant references, electronic radio frequency kind of electronic somewhere in their hands to interconnect. There are some very bizarre things happening but all pretty specialized.

**Ricardo Nicola** - I would like to know if it's possible to explain about the transculturalization. It could be "brazilization" too or not?

**Derrick De Kerckhove** - Absolutely! This is a Brazilian who comes to the McLuhan program in the University of Toronto and he talks about cybercitizenship and ends up reading a massive amount of stuff on transcultural and transnational sensibilities in development and actually you are quite fittingly a Brazilian to talk about and to find interesting and to pursue this interest at the level that you have with us so yes! I think so and I'm glad you brought this up because that makes another connection which is what I'm sensing, I'm feeling this. I can't say that I know enough about it. It's simple!