

# PLEs from virtual ethnography of Web 2.0

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## Abstract

*This article presents an exploratory research based on the virtual ethnography from an environment of research and learning including new technologies. The ethnography is a method of qualitative research of social sciences that is mainly used in the socio-cultural Anthropology, where it has its theoretical basis. The target was to explore the web 2.0 and its tools. The process of participant observation is by means of a blog, other tools and virtual communities. The result is a descriptive model of the web 2.0 based on a Personal Learning Environment which developed in the ethnographic experience.*

**Keywords.** Anthropology, virtual ethnography, web 2.0, PLEs

## 1. Introduction

The ethnographic method has been transformed within the cyberculture, cyberspace and information society context (Escobar et al. 1994, Lévy 1994, Castells 2003). In general terms, the base of the ethnography is the same, meaning the involvement of the researcher within the context and the participant observation; the anthropologist takes part in activities and puts at stake the subjectivity of his descriptions and methods, but new forms of work arise in the Anthropology and *Science and Technology Studies (STS)*, both in his theories, as well as in methods and techniques. For example, the technique of taking notes during the ethnography, takes place at present by means of the *field blog*, and the ethnography is online, virtual or digital (Estalella and Ardèvol 2007, Murthy 2008). Traditionally, the anthropologist in the field takes notes, does interviews, design schemes, uses the visual and audio-visual means to register information. Later on, with this information he thinks about how to interpret the practices, beliefs, symbols, objects or artefacts and, finally, the every day events.

At present, the virtual ethnography has been developed for several years. The research have a theoretical base on the Christine Hine studies (2000). The issue of the ethnography in Internet bases on the fact that Internet is a cultural product that generates social practices, interactions and specific beliefs. There are in the network virtual communities focusing on diverse subjects since some time ago, beginning with consultation forums on issues such as technology and Linus's influences in the development of OpenSource communities. Howard Rheingold, defines virtual communities as social aggregations that emerge from the Internet when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace (1993). Pierre Lévy relates that "human feeling" to the virtualization of the man, emotions, needs and beliefs. Additionally, Lévy mentions the issue of the "collective intelligence" emerging in the digital networks of communication (1995).

The studies from the socio-cultural anthropology find their object of study in the virtual communities, which have forms of communication and interaction, as well as participation styles and structures. We are finding that the ethnography in the web has experiences in the analysis of roles in online communities and impacts the management of knowledge (Madanmohan and Navelkar 2004). These propose seven distinct roles: core organizer, experts, problem poser, implementer, integrator, institutionaliser, and philosopher. These roles are identified analyzing the data derived from the relevant content creation that is consumed in the virtual community.

This study of the web 2.0 develops from a multidisciplinary environment of collaborative design research R&d+I called Cols. Here, the researches developed are applications in the internet: design, technology development, learning and knowledge management (Cadima et al. 2009) . This study focuses on knowing the new forms and tools of knowledge management that arise with the social web from the virtual ethnography point of view.

## **2. Web 2.0**

The web 2.0, is a way of calling the web in its second generation. Nowadays there are hundreds of web 2.0 systems of several subject-matters and interests. Tim O'Reilly starts using the web 2.0 concept. The term has come to be associated with 'social software' and user generated content, which share some of the features identified by O'Reilly, such as participation, the user as contributor, harnessing the power of the crowd, and rich user experiences (Anderson 2007).

The sites based on the social web tools, incorporate new information and communication tools, such as mobile connectivity, blogging, and photo/ video-sharing. From the perspective of social sciences the web 2.0 is analyzed as a tool for data collection of the multimedia content (Snee 2008).

O'Reilly characterizes the web 2.0, for the participation, the collaboration, the tagging and the syndication. He mentions the term "the architecture of participation" to describe the nature of systems that are designed for user contribution (O'Reilly 2004). These basic features have generated a new paradigm about which Lévy spoke, concerning the "collective intelligence". The virtual sense of socialization has changed the forms of communication and human relations, for example: nowadays we can find in facebook more than 400 million users in the world, being the biggest social network and with higher degree of influence in the development of ways of consumption in the now called "social media". The human being is in a stage of nomadism (Lévy 1994) and at the same time there are already digital natives (Prensky 2001).

In the web 2.0, the ethnography is the experience that Michael Wesh develops, who carries out a collaborative research in YouTube from a formation environment in Stanford's University. The result is a series of videos and theories about the use of new technologies in research and formation. Wesh states about the web 2.0:

XML was designed to do just that

<title> does not define the form. It defines the content.

And <description>

and virtually all other elements in this document.

They describe the content, not the form.

So the data can be exported  
free of formatting constraints.

XML + U + Me create a database – backed web

Web 2.0 is linking people...

...people sharing, trading and collaborating...(2008)

The historical moment of the web 2.0 follows its path towards the “web of data” (Downes 2005) that bases on the distribution of "microcontent" for different domains based on XML. The web of documents stays back and there comes the “web of data”, where there are tools to add and to exchange microcontent and to be "interoperable" (interoperability) as in YouTube, the blogosphere, Wikipedia (Klamma, Cao, and Spaniol 2007). In these systems “web of data” of the participation, collaboration and exchange, exist subjects which due to their interaction features are called “knowledge prosumers”, who play a role of both consumer and producer, and participation (Madanmohan and Navelkar 2004).

### **3. PLEs.**

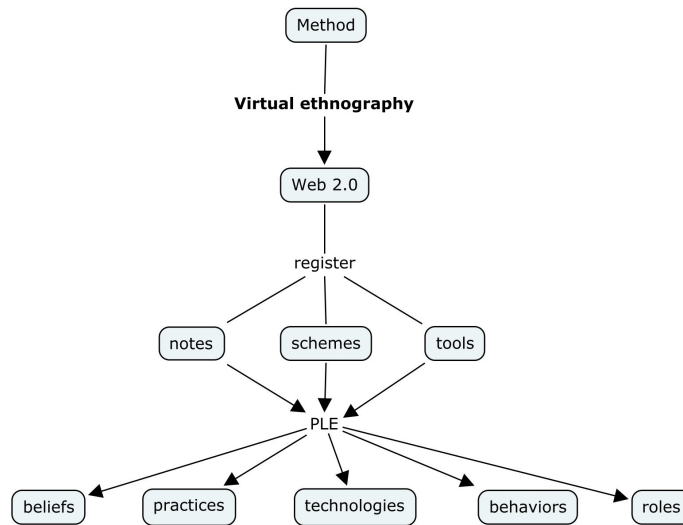
With the web 2.0 and the new virtual subjects, called digital natives, start ideas as the elearning 2.0 and the ideas on connectivism. The natural features as “knowledge prosumers”, lead us to developing a model that can work as the beginning of a Personal Learning Environment (Torres and Edirisingha 2008) . Since, as already mentioned, this study takes place in the "cols" collaboration environment, where projects are being developed on the design of new technologies applied to learning and knowledge management.

The combination of learning, anthropology and web 2.0 generate the PLE design. These environments of learning management are stated from the idea of social learning that is significantly driven with the web 2.0. Concerning the features of this web about share ideas, and collaborate in innovative ways arise the ideas on the PLEs. In contrast with the traditional theories of learning, the current challenges propose a change of paradigm, Brown and Adler mention, By contrast, instead of starting from the Cartesian premise of “I think, therefore I am,” and from the assumption that knowledge is something that is transferred to the student via various pedagogical strategies, the social view of learning says, “We participate, therefore we are” (2008). The perspective transforms and the social learning takes place in the activities related to interactions with contents and other subjects. That is to say, in the web there is interaction generated between different subjects and contents that are socialized, therefore, social learning develops in the community’s contents construction.

Finally we will mention that in this work the target was to explore the web 2.0 and its tools from the virtual ethnography perspective. The process of participant observation takes place by means of a blog, other tools and virtual communities.

#### 4. Virtual ethnography

Virtual ethnography was carried out in order to study the tools of the social web from the ethnography point of view and to scan the web 2.0. The participant observation took place in virtual communities and in the blogosphere. The means of participation was a blog and other tools that were used during the virtual ethnography. The research method is exemplified in the following scheme:



**Fig. 1.** Research method.

In the ethnographic experience, it was initially decided to use the blog due to the proposals of Siemens (2002) and Downes (2005). In this sense, we valued the use of the blog system of “google” and “wordpress”. Finally, we decided to use “wordpress” for being a simple and open system, where also the users develop plug-ins and design templates in accordance with their different needs.

In the ethnographic process we used a blog, which worked to interact and for the information register. In the ethnographic process we took notes, made some schemes and used other tools based on web to register contents and to interact with subjects and objects in the web. The participant observation was achieved through the use of the blog (in the blogosphere) and the participation in the virtual communities.

During the participant observation we analyzed the tools of the web 2.0 as research object and register tool.

Thus, we obtained a descriptive model of the social web based on a Personal Learning Environment (PLE) which is useful from the socio-cultural Anthropology approach, to describe some of the beliefs, practices, technologies and roles that arise with the web 2.0.

## 5. The PLE design in the ethnographic experience

The result of the virtual ethnography in the web 2.0, the blog and other tools was the following PLE model that was designed during the ethnographic experience.

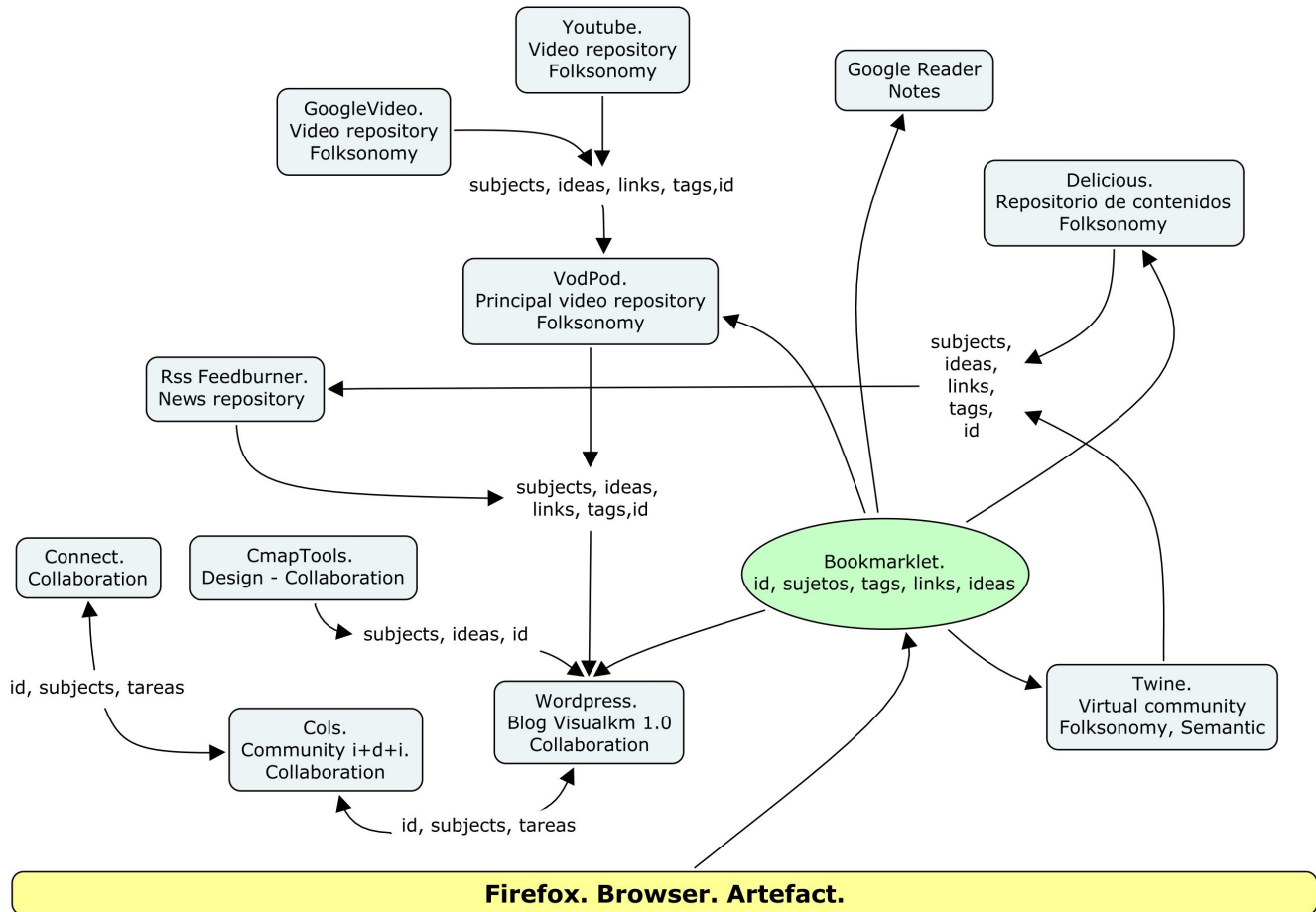


Fig. 2. PLE model.

At ethnographic level, the design of the PLEs worked to display a basic environment of the social web. Designed from the author or user The developed scheme is a descriptive model of the social web based on a Personal Learning Environment. It was found by means of the PLE: beliefs, practices, technologies and behaviors.

In the participant observation, we found a tool that works in several of the systems 2.0. It is called "bookmarklet", which is a button that is possible to insert in any browser (Firefox). This situation makes Firefox the basis of PLE. The term "bookmarklet" is a combination of the terms "bookmark" and "applet". It serves to capture content that is in a web page and this way to begin a collection. A "bookmarklet" is a small computer application, usually written in JavaScript, and stored as the URL of a bookmark in a web browser or as a hyperlink on a web page. When clicked, a "bookmarklet" performs some function, one of a wide variety such as a search query or data extraction (Crumlish and Malone 2009). These small applications are very common and they were in "wordpress", "vodpod", "twine", "googleNotes" and

"del.icio.us". The codes set in the Firefox converted it into the base of the system configuration. The "bookmarklet" is a tool to share and to collect contents. It allows us to send information to our repositories from any place of the web in an easy and practical way to share and collect.

A little above Firefox, in the left, is the "Cols" collaborative environment i+d+i, from where the research takes place and with which we share the contents that are in the blog and repositories. In the cols environment, we interact with the community by means of web <sup>1</sup> and of the collaboration system for videoconference called "connect". In this sense, we clarify that such a system is not based in web 2.0.

Up, are the diverse repositories contents. For the news the RSS was used, for videos "VodPod" was taken as base and some links were done with Youtube and google video. To manage other links in the web we experimented with "del.icio.us" to test the bases of the *Folksonomy* and we linked to the blog by means of RSS. For short notes we used the "GoogleNotes" application. On the right side it is the virtual community "Twine" (nowadays bought by Evri)<sup>2</sup>, that works in a semantic way and was announced as one of the first virtual communities based on RDF and OWL. This community was linked to the blog by means of RSS.

It is observed in PLE, that the information flow between nodes also takes certain information (tags, id, subjects, ideas, links). The fact that also attracted our attention from the description, is the ability of these tools to share objects (videos, texts, images, links). These objects have social characteristics and this information, that can be shared, takes place by means of "microcontents". Simultaneously, this flowing information is shared by many other subjects in Internet, in a natural way. The virtual objects based on the "web of data" acquire, due to the evolution of the web, the ability to be social, semantic and ubiquitous. For example: the youtube videos can be displayed in a mobile phone and be viewed by millions of persons at the same time from different devices (Berners-Lee, Hendler, and Lassila 2001) .

The issue of Folksonomy (Specia and Motta 2007) is one of the innovative beliefs of web 2.0. We found out that the term folksonomy comes from the term taxonomy, which comes from the Greek *taxís y nomos*; *Taxis* means classification and *nomos* (or *nomía*), to order, to manage; on the other hand, "folc" comes from the German "people" (Volk). Namely, due to its etymology, *folcsonomía* (folc+taxo+nomía) means literally "classification managed by the people (or democratic)"<sup>3</sup>. In practice it takes the name of "tagging" or "social tagging".

This practice of describing contents by means of keywords ("tagging") was experimented with all the tools.

The collaborative tool "CmapTools" <sup>4</sup>, at the left side of the blog and up to the environment "cols" is very important. Such tool was used for the design and management of conceptual schemes: the virtual ethnography method (Fig. 1) and the PLE model (Fig. 2). Cmaps is a

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1 [www.hoyunpocomas.net](http://www.hoyunpocomas.net)

2 <http://corporate.evri.com/2010/03/evri-announces-acquisition-of-twine-relaunches-consumer-site/>

3 <http://es.wikipedia.org/wiki/Folcsonomia>

4 <http://cmap.ihmc.us/conceptmap.html>

platform to develop schemes and mental models that also generates files XML and ontologies<sup>5</sup> (for the semantic web).

Finally, it is worth mentioning that the systems 2.0: “Del.icio.us, Google, YouTube, VodPod, Firefox and Twine” are nowadays systems based on the semantic web as the blog (Cointet and Roth 2009). Also, we found out that there are systems based on intelligent agents with ubiquitous features (Wenyin et al. 2001) (Berners-Lee, Hendler, and Lassila 2001) (Featherstone 2009). This means that the web 2.0 has stayed back, the current systems work with languages that are shared (XML, RDF); therefore, they communicate between each other by means of intelligent agents. These features aim to the ubiquitous web, new forms of interaction and emergent behaviors.

## 6. Conclusions

This article discusses a descriptive model of the social web based on a Personal Learning Environment (PLE), which is useful from the virtual ethnography perspective to describe and to analyze some of the beliefs, practices, technologies, behaviors and changes in the learning processes, as well as the influences of the web 2.0 towards the social sciences and the socio-cultural anthropology.

To do an ethnographic research, where we use the term PLE implied doing the virtual ethnography from the environment of research and learning cols as well as interacting and participating in the knowledge construction within social networks and in the blogosphere.

This first approach to the virtual ethnography is stated at an exploratory level. But, we publish the blog<sup>6</sup> and design the model of contents management PLE (Fig. 2). The contribution towards the virtual ethnography develops in the method, the register techniques and the PLE model design. The model works as:

1. Descriptive model of web 2.0. The model works to describe and analyze web 2.0
2. Content management model. The model as a set of tools for data extraction, registry and content management in the virtual ethnographic process

The study presented here in can serve as help to raise methods and strategies that support the PLEs development in other environments or practices communities.

The presently called “social media” has millions of users and, at the same time, it has very doubtful privacy policies. Therefore, we find trends in the management of “personal” information with the decentralized social applications. (“Diaspora” and “OneSocialWeb”).

In the observation of the virtual sense we consider that the analyses of the policies and the copyright on the contents generated in the web and in the virtual communities are important.

Finally, we want to highlight that the participation generated new knowledge on systems and skills of management of contents as well as a method of virtual ethnography. This brings challenges and possible studies to do. The new forms of interaction and the different actors that coexist in the web suggest new ways of stating the virtual ethnography and the process

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5 <http://www.ihmc.us/groups/coe/>

6 <http://visualkm.wordpress.com/>

of observation of virtual communities: subjects, objects, agents, artefacts and devices. The interactions, roles, profiles and behaviors in virtual communities, not leaving aside the observation towards the real and offline. The effects, relations, the social and cultural changes.

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## 8. Referencias

Anderson, Paul. 2007. What is Web 2.0? Ideas, technologies and implications for education. Technology. Oxford.

Berners-Lee, Tim, James Hendler, and Ora Lassila. 2001. The semantic web. *Scientific American* 284, no. May: 34-43.

Brown, John, and Richard Adler. 2008. Mind on Fire. Open Education, the Long Tail, and Learning 2.0. *Educause review* 17, no. February: 10.

Cadima, Rita, Carlos Ferreira, Josep Monguet, Jordi Ojeda, and Joaquin Fernandez. 2009. Promoting social network awareness: A social network monitoring system. *Computers & Education*. <http://linkinghub.elsevier.com/retrieve/pii/S0360131509003297>.

Castells, Manuel. 2003. *The Internet galaxy: reflections on the Internet, business, and society*. Oxford: University Press.

Cointet, Jean-Philippe, and Camille Roth. 2009. Socio-semantic dynamics in a blog network. In *International Conference on Computational Science and Engineering*, 8. Vancouver. <http://arxiv.org/abs/0909.3080>.

Crumlish, Christian, and Erin Malone. 2009. *Designing social Interfaces*. First Edit. CA: O'Reilly, Yahoo Press.

Downes, Stephen. 2005. E-learning 2.0. *eLearn*. doi:10.1145/1104966.1104968. <http://portal.acm.org/citation.cfm?doid=1104966.1104968>.

Escobar, Arturo, David Hess, Isabel Licha, Will Sibley, Marilyn Strathern, and Judith Sutz. 1994. Welcome to Cyberia: Notes on the Anthropology of Cyberculture. *Current Anthropology* 35, no. 3: 211 - 231. <http://www.jstor.org/stable/2744194>.

Estalella, Adolfo, and Elisenda Ardèvol. 2007. Ética de campo: hacia una ética situada para la investigación etnográfica de internet. *Forum Qualitative Sozialforschung* 8, no. 3: 19.

Featherstone, M. 2009. Ubiquitous Media: An Introduction. *Theory Culture Society* 26, no. 2-3: 1-22. doi:10.1177/0263276409103104. <http://tcs.sagepub.com/cgi/doi/10.1177/0263276409103104>.

Hine, Christine. 2000. *Virtual Ethnography*. London: Sage

Klamma, Ralf, Yiwei Cao, and Marc Spaniol. 2007. Watching the Blogosphere: Knowledge Sharing in the Web 2.0. In *ICWSM'2007*, 8. Colorado.

Lévy, Pierre. 1994. *L'Intelligence collective. Pour une anthropologie du cyberspace*. Paris: La Découverte.

Lévy, Pierre. 1995. *Qu'est-ce que le virtual?*. Paris: Éditions de la Découverte.



- Madanmohan, T R, and Siddhesh Navelkar. 2004. Roles and Knowledge Management in Online Technology Communities : An Ethnography Study And Advanced Technology Group. *International Journal of Web Based Communities* 1, no. 1: 71-89.
- Murthy, Dhiraj. 2008. Digital Ethnography: An Examination of the Use of New Technologies for Social Research. *Sociology* 42, no. 5: 837-855.  
<http://soc.sagepub.com/cgi/doi/10.1177/0038038508094565>.
- O'Reilly, Tim. 2004. The Architecture of Participation. *O'Reilly*.  
[http://www.oreillynet.com/pub/a/oreilly/tim/articles/architecture\\_of\\_participation.html](http://www.oreillynet.com/pub/a/oreilly/tim/articles/architecture_of_participation.html).
- Prensky, Marc. 2001. Digital Natives, Digital Immigrants Part 1. *On the Horizon* 9, no. 5: 1-6.  
doi:10.1108/10748120110424816.  
<http://www.emeraldinsight.com/10.1108/10748120110424816>.
- Rheingold, Howard. 1993. *The Virtual Community: Homesteading on the Electronic Frontier*. Reading Mass. Vol. 2004. Massachusetts: Addison-Wesley.  
<http://www.rheingold.com/vc/book/>.
- Siemens, George. 2002. The Art of Blogging Overview, Definitions, Uses, and Implications. *elearnspace*. [http://www.elearnspace.org/Articles/blogging\\_part\\_1.htm](http://www.elearnspace.org/Articles/blogging_part_1.htm).
- Snee, Helene. 2008. Social sciences collections and research web 2.0 as a social science research tool. *Social Science Research*. Manchester.  
[www.bl.uk/reshelp/bldept/socsci/socint/web2/web2.pdf](http://www.bl.uk/reshelp/bldept/socsci/socint/web2/web2.pdf).
- Specia, Lucia, and Enrico Motta. 2007. Integrating folksonomies with the semantic web. In *The Semantic Web: Research and Applications*, E. Franconi, M. Kifer, and W. May, 4519:624-639. Lecture Notes in Computer Science. Berlin: Springer.  
<http://www.springerlink.com/content/413285327hj53234>.
- Torres, Ricardo, and Palitha Edirisingha. 2008. Building web 2.0-based Personal Learning Environments- A conceptual framework. In *EDEN Research Workshop*, 1-17. Paris.
- Wenyin, Liu, Zheng Chen, Fan Lin, Rui Yang, Mingjing Li, and Hongjiang Zhang. 2001. Ubiquitous media agents for managing personal multimedia files. In *Proceedings of the ninth ACM international conference on Multimedia*, 519-521. ACM Press.
- Wesch, Michael. 2008. Digital Ethnography. 23/06/08.  
[http://www.youtube.com/watch?v=TPAO-IZ4\\_hU](http://www.youtube.com/watch?v=TPAO-IZ4_hU).