

Mass self-communication

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Abstract: *Online communication is a phenomenon that is still growing. The evolution of technology in the domain, allows the transmitter and the receiver to adapt to new types of messages, new forms of encoding and new means of transmission. Nowadays, we rarely call for classical communication, in which the involved subjects use the same code system and a familiar transmitting method. The loss of the involved subject's personality, that are involved in the communicative process, the transmission of information as a reflex, when being part of a virtual community or a social network, are both results of the new trends in the domain.*

*We often access a horizontal way of communicating in more and more domains, a form of communication that is characteristic to new media, and for specialists and researchers, this type of behavior becomes subject to more and more researches. Between mass communication and the interpersonal one, there came mass **self-communication**.*

Keywords: *new media, mass self-communication, social networks, blog, digital media.*

The internet and wireless communication through World Wide Web are components of the new, interactive communication process, which is an effect of new media. Manuel Castells, Professor of Sociology and Director of the Internet Interdisciplinary Institute, Open University of Catalonia (UOC), Barcelona, says that the borderlines between communication through mass-media and all other forms and of communication are not clearly defined. World Wide Web is a communication network, used to post of download files that could have audio formats, video formats or could even be actual software; any document that can be transposed in a digital form.

Manuel Castells in *Communication Power* describes the new form of communication through the new technologies as a revolution in media and he name it *mass self-communication*..

With help from research in the cognitive sciences and neurosciences applied by Castells, he argues that people's minds are not affected by the rational and logical discourse as post-illuminist, traditional principles argued, but most of our decision-making ability is influenced by affective-emotional attitude we have towards information.

If looked upon from a specific point of view, the internet is merely another communicational mean, available to anyone who has access to a computer with a program that allows accessibility to the network, a modem which converts information from a computer in a form that can allow its transmission through a basic telephone line and an account on a computer connected to such a network.

If analyzed from a more complex perspective, the internet exceeds the capabilities of other communicational means, and has already begun to substantially modify the way in which we communicate.

The domain with the most rapid evolution in the digital industry is represented by mobile computers that have the possibility of connecting to LAN (Local Area Networks) through cable, or WLAN (Wireless Local Area Networks) wirelessly, without a cable. Through WLAN, it is even possible to connect to a network while on the road or while travelling through various transportation means.

The digital, wireless communication first occurred in 1901, when the Italian physicist Guglielmo Marconi first established a transatlantic telegraphic radio communication between a ship at sea and a coastal base, using a wireless telegraph and Morse code (digital in essence).

Going back to the computer network, when connected in virtual space, this is a universal communicational mean. Through it, it's possible to send and receive informational data. The places where this information can be found, are identified through addresses, similar to the postal ones. If the address is known (and there are different methods to find the needed addresses), a certain information can be either sent or identified at that specific address.

The computer networks communicate through a standard language. The message can be transmitted by a person now, and can be received almost instantaneously on a friend's computer who lives in a different country. This is explained by the OSI model, which presents the way of data transmission between networks.¹

The reference OSI (Open Systems Interconnection) model, is a hierarchical communicational structure, often used to establish a computer network. OSI repre-

<> David Marsh, "Ethernet keeps pumping the data", EDN 49 (2004): 65. Accessed December 10, 2011. doi: 222449188, <http://ezalumni.library.nyu.edu:2243/docview/222449188?accountid=33843>

Application
Presentation
Session
Transport
Network
Data Link
Physical

The OSI System

sents a standard, emitted in 1984 by the International Standard Organization (ISO).

OSI is a theoretic model that distributes the processes that take place during a communicational process between networks, on 7 levels. The “Network” level, the third in the hierarchical structure, contains a logical addressing system (localization), which makes the transmission of a data packs through several data linkage layers of the network, possible. These logical addresses are also called IP addresses.

The “Network” level ensures the leading of data units between nods, sources and destination, passing though intermediary nods (routing) in some specific situations.² For a better communication, it is important for the data flux to be lead in such manner, so that the congestion of specific areas of the network is avoided. For a simpler management of the network and data packs, often an addressing based on sub-networks is used.

Routers are communicational devices which receive and then send data packs to the recipient, virtually, in the most efficient way. Routers should be configured for networks and sub-networks that are connected to its interfaces, in order for the data exchange between the elements that they connect, to be possible. Routers communicate between one another through routing protocols, such as RIP (Routing Information Protocol). This communication is necessary so that networks from within the systems identify one from another, and this way, it determines a better way of transmitting messages to another network.

To conclude, at the network level, the communication process goes through five important steps: logical addressing, routing of the message between the host device and networks, identification of the ideal route for the transmitting of the data packs, the actual transmission of the data to the target address and communication with other networks using routers.

Internet generates a new form of communication which, in Castells vision, bears the name of *mass self-communication* and this has characteristics which are similar to those of the mass communication, like:

- The presence, within the process, of receivers of the message. In the case of internet, the message can be decoded with a program known to those who access it.
- A global audience potential can be reached. In case of computer presence, the global audience is realized through internet connection and through the usage of p2p networks – from user to user, from nod to nod (partition tasks that are distributed between the equally privileged parts, between the ones using the PC application). Within this type of network, the coordination on

2 *Ibidem*

behalf of a server is not necessary. There is no hierarchical structure and communication takes place on in a horizontal form.

The parties involved in the mass self-communication process, are both consumers and resource producers. This is a different relationship than the traditional communication between the client and the server, where the client consumes and the server offers the resources.³

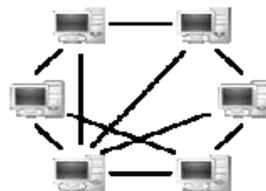
The p2p network (peer to peer) was made popular by file sharing software (like Napster).

In a social context, the p2p communication system refers to the social networks, accessed through the internet. The parts each set their resources, the bandwidth to which they have access or the allocated space for data stocking, the same as the other members of the network.

In the case of mass self-communication, the decentralized type of network is used. This was discovered and distributed by Paul Baran, a graduate of the University of Pennsylvania in 1959. According to Baran, the ideal architecture, ideal for a communication in the virtual space, was represented by a textured network, similar to the highway system, superficial enough so that even if part of the nodes give up, the alternative roads would manage to maintain the linkage between the rest of the nodes.⁴

The decentralized type of network:

A peer-to-peer nod network,
without a central infrastructure,
overlay used in Skype⁵



Mass self-communication takes place in various forms, because of the digitalization of the informational content, and the multitude of socially advanced software, based most of the times on programs that can be downloaded for free, and which are able to change the format of any transmitted content on the wireless internet networks.

This type of mass communication is self-communication, in the vision of Castells, because the composition of the message is self-generated by individual users, more or less professional. The message is the self-selected out of an internet's page content,

3 Nadia Florea, Ana-Maria Chisega-Negrila, Ramona Mihaila, Daniela Pârlea-Buzatu and George Lăzăroiu, „Mass Communication as a Determinant of Social and Political Realities”, Economics, Management and Financial Markets (2011): 479-482. Accessed Decembre 12, 2011. doi: 884341633, <http://ezalumni.library.nyu.edu:2243/docview/884341633?accountid=33843>

4 Albert-Laszlo Barabasi, Linked- The New Science of Networks, (Massachusetts: Perseus Publishing, Cambridge, April 2002) 131

5 Jin Li, “On peer-to-peer (P2P) content delivery”, Peer-to-Peer Netw Appl (2008) :54. Accesseed January 2, 2012. Doi: 10.1007/s12083-007-0003-1.

or out of an electrical communication network and, finally, is auto-directed towards the recipient or the receiver picked by the transmitter. The message can be received by more users at once, that communicate between one another.⁶ The message can be sent publicly or coded in a certain way (like a private facebook). Depends on the purpose of the communication.

Mass self-communication is a process that manages to get to a wide audience. The global dimension is given, for example, through posting a video on YouTube, a blog with RSS links towards numerous internet pages or an email directed towards numerous IP addresses. Mass self-communication implies public and private senders, and partially-public and private receivers.

The three forms of communication (mass communication, interpersonal communication and mass self-communication) coexist, and complete each other, without substituting one another.

Self-communication, realized through digital media, situates itself between interpersonal communication and traditional mass communication.

Communication implies the spreading of meanings through information exchange. The communication process is defined by the technological means through which it's realized, by the characteristics that define the sender and the receiver, by the cultural reference codes, by the communication protocol and, ultimately, by the purpose of the communication process.

The signification of the message can be understood only in the context of social relations, through which the information and the communication are processed.

Manuel Castells, in "The power of communication", describes a new form of communication, as being a revolution in the domain. With the help of cognitive sciences researches and the domain of neuro-sciences applied by Castells, he argues that the minds of people are not affected by the rational and logical discourse, as the traditional, post-illuminist thinking principles used to sustain, but rather a large part of our decisional capacity is influenced by the affective-emotional attitude we have towards information.

Starting from the purpose of the process itself, the interpersonal communication has to be differentiated from the social communication. In classical theory, the communication subjects are represented by receiver and sender, which are clearly identified and individualized. Today, because of new media, the communication's content gathers new potential, more precisely, that of making its transmitting towards a large segment of society possible. These new medias must not create chaos because of the wide coverage, and also must not be looked upon as medias which totally replace the traditional ones, although, they cast a shadow upon the

6 Manuel Castells, *Communication Power*, (New York: Oxford University Press, 2009), 70

traditional media's effects, the new ones being able to obtain far superior effects. As Mc Luhan himself says: "a new medium neither replaces nor removes another medium, but complicates the way it operates".⁷

Again, referring to a parallel between mass communication and interpersonal communication, there are some types of interactivity that can be attributed only to traditional mass communication, such as: telephonic or postal intervention of the public within the interactive shows in audio or TV format.

While interpersonal communication is an interactive process (the message is continuously transmitted from the sender to the receiver and vice-versa), mass communication can be both interactive and one-way (the message is transmitted by a sender towards more receivers – papers, books, movies, TV or radio transmission).

Spanish born, Manuel Castells, is presently a sociology professor and the director of the Interdisciplinary Institute for Internet from Open University in Catalonia (UOC), Barcelona. In his work "The Power of Communication", Manuel Castells sustains that in terms of rating, television and internet cannot be compared to one-another, as it appears to be done in "old school" media analysis. Furthermore, in informational economy, most of the time spent on the internet represents time spent learning or working, and this thing represents an impediment in the way of looking at virtual medium in the same way as we look at TV. Important quantities of proof proved that the internet, in all of its diverse applicability, represents the communicational matter of our lives regarding work, personal relations, social relations, informational means, politics, religion or divertissement. Therefore, we cannot limit, within this kind of behavior, the online consumption of divertissement, or news consumption, and compare it to mass media in quantitative terms, more precisely, in the hours spent visualizing it. This thing is almost impossible not only because working with the internet also supposes occasional navigation towards websites that have nothing to do with the actual work we are doing online, but also it involves, for example, e-mail sending.

From the researches presented by Castells for sustaining his theory on mass self-communication, it results that the internet is used more and more often for accessing mass media (TV, Radio, Newspapers), of course, in a digital format.

The web transformed traditional media means. The format of TV transmissions, for example, is changed, and the receiving of the transmitted message individualizes more and more. Adolescents watch programs on the screen of their own PC and of more and more portable gadgets.

A quite similar phenomena to that of television is written press. All around the globe, most of the people who are aged under 30 years, and use the internet, read newspapers online. For example, in the Third Edition of the *World Internet Project International Report*, realized by Center for the Digital Future at USC Annenberg

7 Marshall McLuhan, *Să înțelegem media. Extensiile omului*, (București: Curtea Veche, 2011),8

School for Communication, in the 16 countries (Australia, Chile, Colombia, Cyprus (separate findings for Greek-Cypriots and Turkish-Cypriots), Hungary, Israel, Japan, Mexico, New Zealand, Poland, Portugal, Sweden, Taiwan, the United Arab Emirates, the United Kingdom, and the United States), in 2009 and 2010, more than half of their respondents at the study questions were users of the Internet. In Australia, Israel, Japan, New Zealand, Sweden, the United Arab Emirates, and the United States) 80 percent or more of respondents were Internet users. The lowest percentages of Internet users was reported in Hungary (44 percent), Portugal (41 percent), and Mexico (39 percent).⁸

All of the countries, participants at the World Internet Project reported that more men than women use the Internet and that the Internet use increases among adults respondents with the highest levels of education. Also, a large percentages of respondents age 24 or under use the Internet and in all of the countries except Mexico, more than 80 percent of adults between 18 and 24 years old go online. In 2009 the majority of the countries reported an average of at least six hours per week of Internet use at home. The access to Internet by a cell phone increases every year.⁹

Internet and digital technology transformed the working process within the entire mass-media domain. Newspapers became organizations united through nodes, connected to internet informational networks, and furthermore, the online components of the papers appear in the networks of other media organizations.

In the traditional way, mass communication, became a mean based on internet, both regarding production, as well as the way in which it's being transmitted. The combination between online news and interactive blogging, on one side and the e-mails with the RSS links from other documents from the virtual space on the other side, both of them transformed newspapers into a component of a different form of communication: the mass self-communication.¹⁰

Mass self-communication, blogging and social networks

This new form of communication appeared along with the evolution of Web 2.0 and Web 3.0 and is the result of a mix between new technologies, new gadgets and applications that allow the rapid growth of social places on the internet. The internet bandwidth grew, new types of software sources appeared, the graphics and the interface of computers became better, and all of these made possible even the interaction of avatars within 3D spaces (like Second Life).

8 Jeffrey I. Cole, eds „World Internet Project, International Report“, Third Edition, Center for the Digital Future, (Los Angeles, University of Southern California, USC Annenberg School for Communication and Journalism: 2012),53, Accessed 11April 2012, http://www.digitalcenter.org/WIP2012/2012_wip_report_third.pdf

9 Jeffrey I. Cole, „World Internet Project, International Report“, 54-80

10 Manuel Castells, *Communication Power*, (New York: Oxford University Press, 2009), 65

The spreading of the internet on all social levels, its implications with wireless communication, digital media and the variety of social networks (Facebook, Twitter, Cif2.net), has influenced in a positive way the horizontal growth of the interactive communication networks that connect the local with the global in the requested time.¹¹

The ones that use internet, quickly assumed the new forms of communication, and created their own systems of mass communication: through SMS, blogs or podcasts.

The blogosphere is a virtual, international communication space. In April, 2007, only 37% of the blogs were subscribed in English language, 37 were in Japanese and 8 in Chinese.¹²

The blog became an important way of self-expression, even though, in a way, this form of self-communication is more close to the "electronic autism" than the actual form of communication, sustains Castells in his theory. Every online post, no matter what the intentions of the author are, is like a message bottle thrown away at chance in the immense ocean of global communication, a message that can take different forms and can be reprocessed in different ways.

Regarding blogs, in the "World Internet Project countries" in 2010, 60 percent or more of Internet users never work on personal blogs. Although few users work on blogs, larger percentages of users read them. In seven of the WIP countries, 20 percent or more of users read blogs at least weekly.¹³

The new media, such as audio-video sharing sites, blogs or Twitter platform, are different from the semi-private networks like: chat, instant message, videoconferences or socializing sites. The users have intentions, strategic opportunities and different risks. Amongst these there is the possibility of reprogramming the communication networks.¹⁴

Revolutionary forms of mass self-communication were created because of ingeniousness of some young users. One example could be YouTube, a portal that individual users, companies and organizations or government representatives post videos on. Created in 2005 by Jawed Karim, Steven Chen and Chad Hurley, YouTube ended up hosting 69.800.000 video files in February 2008.

In Jeffrey I. Cole's „World Internet Project, International Report, which I have previously mentioned, compared to Internet use to download or watch videos, larger percentages of users went online to download or listen to music. In all of the coun-

11 Manuel Castells and Imma Tubella „ Research Report of the Project Internet"(Catalonia. Barcelona: Internet Interdisciplinary Institute, Univ. Oberta de Catalunya, July 2007. Accessed Decembre, 15, 2011, <http://www.uoc.edu/in3/pic/esp/>

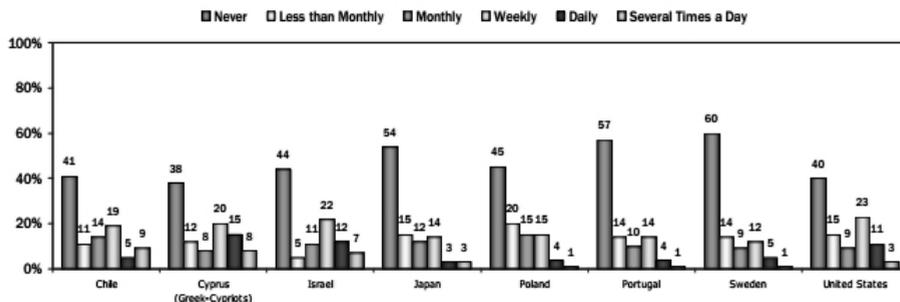
12 Manuel Castells, *Communication Power*, 66

13 Jeffrey I. Cole, „World Internet Project, International Report",195-196

14 Manuel Castells, *Communication Power*, 66

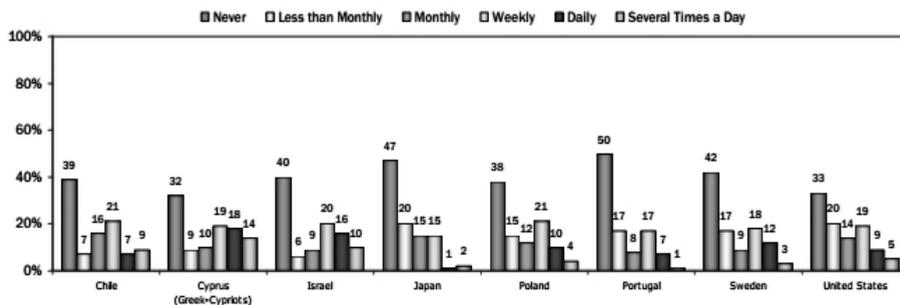
tries except Japan, 20 percent or more of users download or listen to music online at least weekly. In four of the countries, at least 40 percent of users go online at least weekly to listen to music or download songs: the United Arab Emirates (56 percent), Cyprus (Greek-Cypriots 51 percent), Israel (46 percent), and Colombia (42 percent).¹⁵

**Internet Use to Download or Watch Videos
(Internet Users Age 18 and Older -- 2010 Reporting Countries)**



Q21C K-1 2010

**Internet Use to Download or Listen to Music
(Internet Users Age 18 and Older -- 2010 Reporting Countries)**



Q21B K-1 2010

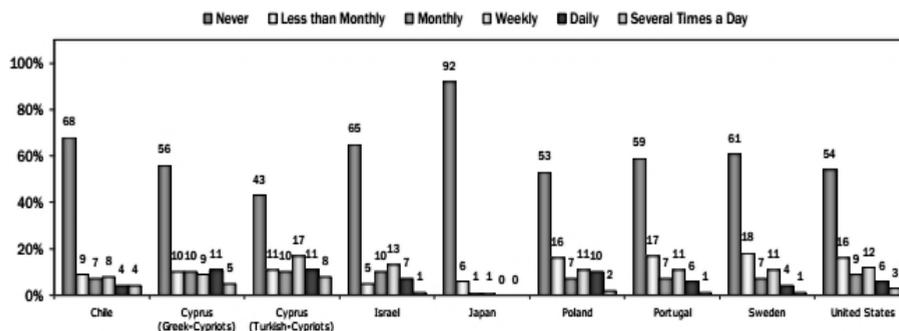
Also, a lot of the Internet users reported that Internet use had a positive effect on contact with friends. In all of the countries except Cyprus (Greek-Cypriots), Taiwan, and the United Kingdom, more than 30 percent of users said their contact with friends somewhat increased or greatly increased since going online: the United Arab Emirates (76 percent) Sweden in 2010 (38 percent).

Except Taiwan, 60 percent or more of users reported that they check their e-mail daily or several times a day. Very small percentages of users reported participating in chat rooms 193, Large percentages of Internet users in the WIP countries never work on blogs; in all of the third edition of the World Internet Project countries.

15 Jeffrey I. Cole, eds „World Internet Project, International Report”, 81-83

Unfortunately, media, especially radio, loses a part of the audience going online, as seen in the World Internet Project, International Report. So, regarding the data, the new media influence a big part of the traditional media public. Modest numbers of Internet users in the WIP countries go online to listen to radio. In all of the WIP countries except for Cyprus (Turkish-Cypriots), more than half of users never go online for radio.¹⁶

Internet Use to Listen to Online Radio Stations
(Internet Users Age 18 and Older -- 2010 Reporting Countries)



Q21E K-1 2010

Twelve countries form the 16 reported larger percentages of users who ranked the Internet as an important or very important source of information for them compared to television, newspapers, or radio: Australia, Colombia, Hungary, Mexico, New Zealand, Portugal, Taiwan, the United Arab Emirates, the United States in 2009, Chile, Cyprus (Turkish-Cypriots), Israel, and the United States in 2010.

As the same study reveal, in all of the WIP countries, more than half of users said that the Internet is an important or very important source of information for them, with the highest percentage in Colombia (89 percent) and the lowest in Sweden (55 percent).¹⁷

In 2010 a lot of people going online believe that the Internet is important when it is about the truth in the content of the information. Twelve countries that reported 40 percent or more of respondents who said most or all information online is reliable.¹⁸

The creation of content and its distribution on the Internet are important subjects that have to do with Web 2.0 experience. A rapid increase of the number of those that use internet for the creation of maintenance of a blog, can be seen, but also of those that post image files in the virtual medium.

16 Jeffrey I. Cole, eds „World Internet Project, International Report“, 83, 187

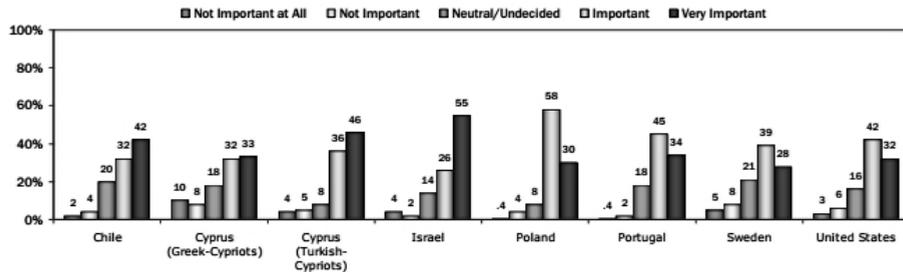
17 Jeffrey I. Cole, eds „World Internet Project, International Report“, 145-146

18 Jeffrey I. Cole, eds „World Internet Project, International Report“, 139

Comparison: Importance of Media as Information Sources
Internet Users Age 18 or Older Ranking the Media as "Important" or "Very Important"

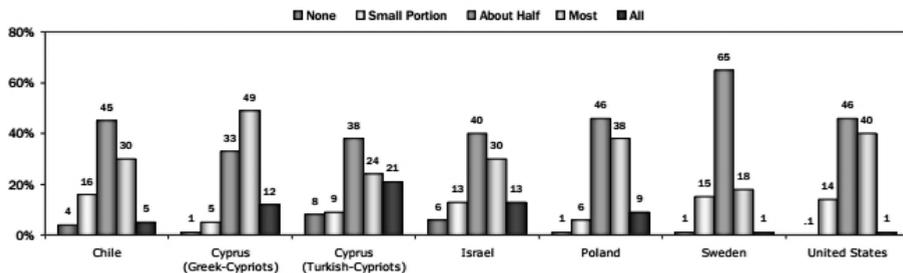
	Internet	Television	Newspapers	Radio
2009				
Australia	73	41	40	49
Colombia	89	69	73	70
Hungary	74	69	59	53
Mexico	74	58	54	51
New Zealand	73	53	52	44
Sweden	55	66	60	54
Taiwan	81	67	62	38
United Arab Emirates	83	64	61	36
United States	79	68	56	56
2010				
Chile	74	64	63	51
Cyprus (Greek-Cypriots)	65	69	42	38
Cyprus (Turkish-Cypriots)	82	69	72	54
Israel	81	61	58	56
Poland	88	90	73	80
Portugal	79	76	58	53
Sweden	67	72	59	54
United States	74	64	54	53

The Internet: Importance as an Information Source
(Internet Users Age 18 and Older -- 2010 Reporting Countries)



Q12A K-3 2010

How Much of the Information on the Internet Overall
is Generally Reliable?
(Internet Users Age 18 and Older -- 2010 Reporting Countries)



Q11 K-3 2010

Important media channels, national and international, like Al Jazeera, CNN, NTV from Kenya, France 24, Catalan TV3 and other media trusts, have their own YouTube links in order to win audience and to connect members of the diaspora to the local reality. Furthermore, in July 2007, YouTube launched 18 specific sites for partner countries, and a special website for smartphone users.

The mass self-communication is represented through social networks also, horizontal communicational networks like MySpace.com. In fact, MySpace used to be the second biggest video sharing website in the world in 2008 regarding comScore, a global leader in measuring the digital world and preferred source of digital business analytics. In June 2008, MySpace, with its 114 million users, and Facebook, with 123.9 million, were in the top of the most successful social interactive websites, accessed by people with different ages from more and more geographical areas.

Social networks, as well as the video sharing websites, like Facebook, MySpace or YouTube, offer a virtual space for users of the internet, where they can interact or offer each other video content. These sites proved to be very popular within the majority of the users.

In the last 10 years, the web became an important space for social interactions. The interpersonal communication, the political debates and the professional collaborations happen, most of the time, online.

All of the websites that visitors generate content on, are means of mass communication, different from the traditional mass-media. Anyone, with small restrictions, can post or comment on a YouTube video file, for example. The horizontal communication networks include more types of files: Photobucket.com (photography), Wikipedia with over 26 million users from which 75.000 are active (encyclopedia), Kazaa.com (music and films), and the social content networks, with a political or religious incline, fueled at a global level with audio, video or text.

Social spaces on the web have, at their core, the virtual communities of the '80s and the first commercial forms of social space introduced by AOL.

A new generation of social software made the explosion of interactive video and computer games possible, a domain in which it is all about a global industry of 40 billion dollars. This new form of divertissement, based totally on the internet and special software, is an important component of the media system.

Wireless communication became a platform to deliver by choice, various digitalized products like music, games, images, news, instant messages, with a larger coverage.

The electronic communication grid overlays everything we do, anywhere, anytime. Studies show that the majority of the mobile phone calls and the messages are sent from home, work or school, places in which there usually is a fixed telephone line. The main characteristic of wireless communication is not necessary the aspect of mobility, but the perpetual connectivity.¹⁹

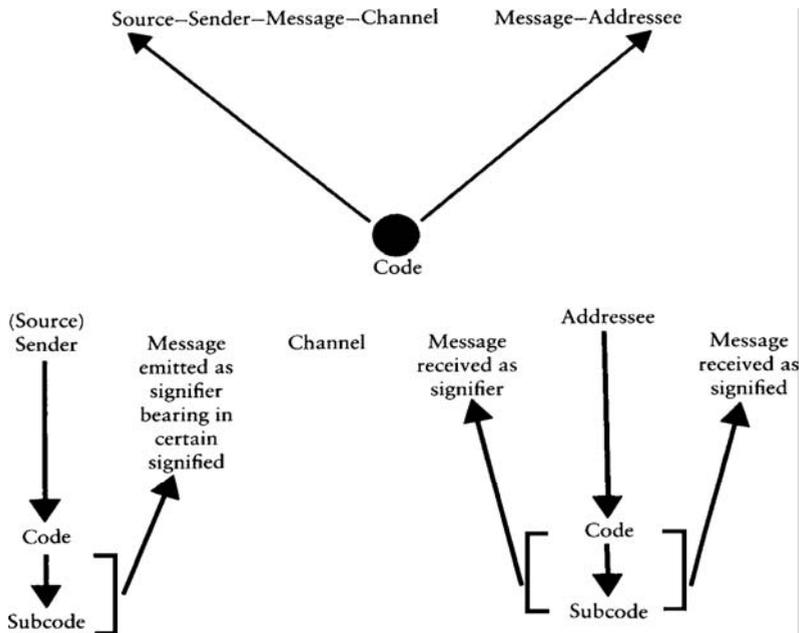
19 Manuel Castells, *Communication Power*, 69

The power of mass self-communication

Mass self-communication is the contemporary society's characteristic, and has the power to change the status of the relationship between mass media and power, says Castells. It generates new markets, new business opportunities in the communication domain. The media groups became integral part of the multimedia global networks, that have as a purpose the privatization and commercialization of the internet, the extension and the exploiting of these new markets.

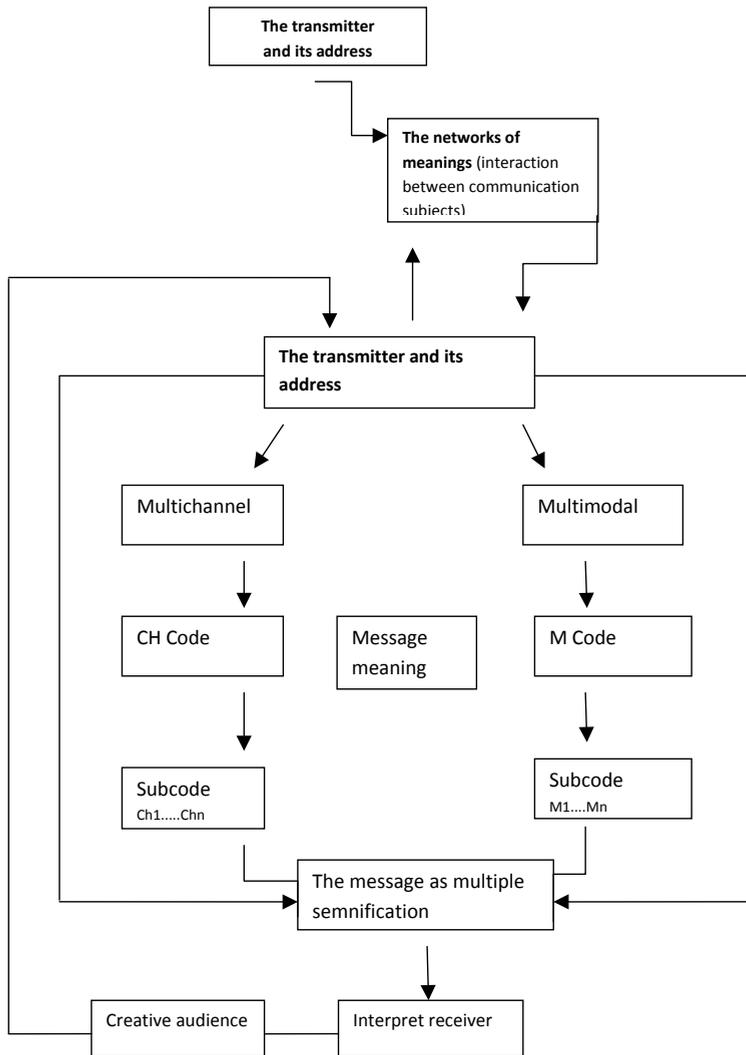
The evolution of mass self-communication, as Castells named the new form of communication through the means of networks, contributed to social changes, but, without defining their purpose. Because networks are multiple, the power relationships are specific for each of them, but there is a fundamental form of power exertion, common to all of the networks, and that is the exclusion from the network.

In the new context of communication, Castells reformulates Umberto Eco's model of communication, offering a diagram which is updated for the era of information in which the creative public is capable of "feeding" from the production process, using mass self-communication methods, that complete the codes and messages of mass media, transforming the potential of concern networks.²⁰



The schematic representation of the communicational model after Umberto Eco. The first schematic represents the classic model of communication. The following ones represent the redefined model.

²⁰ Manuel Castells, *Communication Power*, 128



The process of communication with a creative audience.²¹

The mass self-communication spreading does not limit itself along with technology. The small local media organizations and inventive self-employed people, use new ways of standalone forms of communication like radio stations with a small coverage power, pirate TV shows and individual video productions that have the advantages of reduced production and distribution costs.

These new standalone products represent, in many cases, a source for traditional media: like cable TV.

²¹ Manuel Castells, *Communication Power*, 131

The most popular new media, as it results from the previous examples, are the blogs and the interactive networks used for the transmitting of informational content, for interaction, mixing the vertical and the horizontal ways of communication.

This way, the increasing interaction between these two types of networks, horizontal and vertical, trigger a complementarity which gives birth to a new media reality, whose limits and effects will be decided, ultimately, by the political and economic interests. The representatives of the two medias are, in most of the cases, the owners of the telecommunications with a power of decision over the access and traffic in this domain.

The growing interest of media corporations over the means of communication in the virtual space, proves a recognition on behalf of them, of the merits and the performances of the new social communication form, the one Castells defines as mass self-communication.

This represents a new sub-chapter of the large domain of communication, with a vertebra made of computer networks, digital language, and, regarding Castells, whose transmitters interact in a global distribution. It's true that the medium, even one as revolutionary as this one, neither determines the content, nor the effect of the message, but it has the potential of communicational fluxes that have an important significance in the mind of the public.²²

The fast spreading of the internet and of the wireless communication lead to a decentralization of the communication networks, thus, offering the possibility of multiple connections to the virtual space. While the evolution of these new forms, represented by mass self-communication grew, the phenomenon determined an increase of the involved actors in the process of communication: cultural and technological autonomy.

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²² Manuel Castells, *Communication Power*,

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