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Consequences of the Internet on communications

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Introduction

The Internet allows using various forms of media on one machine over one network. Its technology does not need to be understood thoroughly by the common user. It can be used in quite different forms, allowing more or less user involvement. Instant communication is possible over long distances, creating new communities and making us forget about space and time. A huge source for easily accessible information is at hand with the World Wide Web. In fact, the overflow of information needs to be averted with new means of indexing, searching and retrieving of data. For some, the medium itself seems to be more important than the carried messages acting like hunters and gatherers building vast collections of all sorts of media but ignore their semantics.

Some negative changes in communication may have emerged from loneliness in front of the screen although the private sphere seems to get more intersected with the public one due to the ubiquity of the network. The Internet offers new ways of doing old things – but is there more to it?

Communications on the Internet

The ‘generalised medium’ computer “can treat previously discrete forms of communication as technically the same. Thus, numbers, words, pictures, and sounds can be coded digitally by the computer, stored, or transmitted, then reproduced on demand in a virtual facsimile of the original.” (Crowley and Heyer, 2003: 281). Email, fax, telephone, radio, and television – all could be done with one device over the same network, featuring both advantages and disadvantages. Concerning radio on the Internet, e.g. “the listener has greater control over her listening or viewing experience of radio” (Bolter and Grusin, 1999: 312).

Telephone calls can be made involving more senses, “as the user makes, retrieves, and modifies calls through a graphical interface” (ibid.: 313). Concerning long-distance calls it is also cheaper than traditional landline calls, which lead to an emergence of higher competition among telephone companies. For watching television over the Internet, quality is still restricted by the speed of the connection, though. Nevertheless it can be interesting since it is possible to watch news from one’s home country from a distant part of the world.

That various forms of media can be transported and consumed over the Internet is due to its layered structure – its technology will be explained next.

Internet technology

The Internet is not the World Wide Web (WWW). The Internet merely is the whole network of all connected local area networks (LAN), thus providing the

infrastructure for any traffic such as the Web, which is the most popular way of making information available over the Internet.

Information transmission on the network is regulated by protocols. On the lowest level all information is transferred using TCP/IP², which slices every stream of data into small data-packages and guarantees that every package sent from one machine arrives at the other without loss. Other protocols act on top of the TCP/IP level, the most famous being HTTP³ for web pages and FTP⁴ for transferring larger files. Worth mentioning here are also email, NNTP⁵ for Usenet/Newsgroups, IRC⁶, ICQ⁷, MSN⁸ for chat (Instant Messaging), and Telnet or SSH⁹ to login to a remote computer (terminal). Each protocol usually needs its own software, e.g. HTTP and FTP is used by Web browsers. Complete Internet addresses (URLs¹⁰) start with the appropriate protocol in front of the hostname, like in `http://www.leeds.ac.uk`. These addresses have to be translated to the unique IP-address every computer on the Internet owns which is done by a DNS¹¹ system.

Knowledge gap

Well demonstrated above, the Internet is a world of TLAs (three letter acronyms). Moreover, the technical language of the Internet being a metaphorical one (e.g. Router, Traffic, and Protocol) that is not understood all over. The majority of people in the world do not have access to the Internet. In most countries libraries provide access to the WWW for the wide public but in some parts of Africa for instance the possibility to go online is very restricted (Nua.com, 2002), creating a gap between the haves and have-nots. Information and communications technologies (ICT) “play a role in making some people information rich and others comparatively information poor” (Dutton, 2002). Less wealthy societies lag behind in such initial phases of expensive development, thus creating a ‘cultural lag’ (Rosengren, 2000: 202) or a ‘digital divide’ for some are not participating in the information society, and thus cannot benefit from it.

² TCP/IP = Transmission Control Protocol / Internet Protocol

³ HTTP = HyperText Transfer Protocol

⁴ FTP = File Transfer Protocol

⁵ NNTP = Network News Transfer Protocol

⁶ IRC = Internet Relay Chat

⁷ ICQ = “I Seek You”

⁸ MSN = Microsoft Network

⁹ SSH = Secure Shell

¹⁰ URL = Uniform Resource Locator

¹¹ DNS = Domain Name System/Server

A new gap can also be seen between generations: Parents are “outmatched by their children with respect to computer competence” (Sefton-Green, 1998: 34). It is no longer the elder who know more – one has to question the value of shallow knowledge such as knowing exactly what each button or ‘nerd knob’ on the screen is for, though. Often, the young are not concerned of understanding underlying processes not foreseeing that it might prove useful later on.

Nonlinearity of hypermedia

With the invention of the World Wide Web by Tim Berners-Lee in 1989-90, “he took the first steps towards making the Net usable by lay users by portraying its resources as clickable links” (Naughton, 2001) thereby creating a *web* of information. With the appearance of the first graphical browser, named Mosaic, exactly ten years ago the Web became a mass medium.

Supposedly, Marshall McLuhan would have liked this name having been a writer always trying to step out from the linearity of the written word by composing mosaic-like compositions of his essays (Schmidt and Zurstiege, 2000: 115). His style of writing cried out for hypertext, which is text that is not constrained to be linear, containing links to other texts.

As intended uses of the Web Berners-Lee had in mind a general reference system enabling collaborative authoring or “collaborative design of something other than the hypertext itself” (Berners-Lee, 1990). The Web was also intended to be available on a wide variety of systems. Thus, basically everybody with access to the Internet could be publisher on the World Wide Web. To have a personal website is cheap if not free; building a site is almost as easy as text-processing, especially using designer software creating the underlying HTML¹², which contains the textual content and describes its layout.

Users create personal diaries on the web, present their family surrounding online and using web-cams individuals even present most private moments to the whole world. Public and private spaces merge. There are no longer any taboo subjects, no matter how trivial, “our most intimate moments are ritually made public through media technologies” (Stevenson, 2002: 161). This should not be judged too strong though; the audience of one’s published privacy will be pretty small due to the mass of people offering such indifferent content.

Scattered communities

The majority of users use the Internet for personal communication via email, “not for access to information *per se*” (Dutton, 2002: 2481). A not so well known

¹² HTML = Hypertext Markup Language

application for interpersonal communication is Usenet/Newsgroups. Unlike email, which usually is one-to-one communication, Usenet communication is many-to-many. A Newsgroup is a collection of messages with a related theme. The topics are divided into categories such as “alt,” for alternative or “sci” for science, e.g. alt.media.studies. Now some search-engines also operate Web interfaces to Newsgroups so that no special newsreader software is needed. Public discussions are meant to be held in a friendly manner, according to the *netiquette*, which is a document¹³ proposing some rules for conversations. With the Internet Marshall McLuhan’s vision of a *global village* where any two points of the world can be easily connected seems to get reality – *virtual reality*. Space and time are shrunk with instant communication over large distances without physical contact to the other or the messenger (which is a loss of real social contact, though).

Knowledge base

Surfing the web became a widely used habit, for many replacing the consumption of other types of media such as newspapers, radio, television and books. “ICTs not only change the way people get information, but also alter the whole corpus of what a person knows” (Dutton, 2002).

Concerning the access to textual information, the index in printed books “gave rise to the text as a work of reference” (Crowley and Heyer, 2003: 280). Catalogues are necessary to not get lost in the jungle of books, journals and newspapers. With Internet technology “written goods will no longer be tied directly to the physical form of the book or journal, and the library will resemble a software system, valued for its guidance and investigative resources” (ibid.: 282). Especially the information overflow on the Web has led to a “rising recognition of the importance of information retrieval and navigation through networked information spaces” (Star, 1995: 9). Stevenson points out that “the amount of information produced exceeds the interpretative capacity of the subject” (Stevenson, 2002: 161) and calls this the ‘cultural overproduction’. Three concepts that emerged in this context are knowledge management, information retrieval and data mining (Baeza-Yates and Ribeiro, 1999: 1-18):

The vague idea of knowledge management is concerned with organizing information in databases to allow for easy access to the stored information from which knowledge might be derived. Knowledge in this context denotes a useful collection of information, and usually is divided into implicit, explicit, and tacit knowledge, i.e. knowledge that *can* be articulated, knowledge that has been articulated, and knowledge that cannot be articulated (e.g. being able to ride a

¹³ The netiquette document is available at <http://www.albion.com/netiquette>

bicycle or recognize faces), respectively. Knowledge management is also sometimes referred to the aid of making implicit or tacit knowledge explicit by capturing people's knowledge.

Information Retrieval is the concept of searching, and recalling indexed data, particularly text or other unstructured information. It is the process of determining the relevant documents from a collection of documents, based on a query presented by the user. It is mainly this technology that is used by search engines on the Web. But textual analysis is limited and likely to be erroneous, e.g. due to the ambiguity of some words.

Data mining is about discovering subtle relationships between data items in huge amounts of data. Using this technique one does not know exactly what patterns or trends one is searching for. Any found correlations have to be interpreted. That way, it is possible to discover e.g. shopping habits of a specific demography of people by analysing bits of data collected in various places: Using cookies and other sophisticated logging methods to track a user's behaviour, surfing the Web is not truly anonymous, and firms can build models of specific customer groups that then could be used for personalised advertisements, for instance.

Comprising, "what the computer will do for the printed word over time will be to reshape completely the way in which we access information, dramatically improving capabilities for what [O'Donnel] calls nonlinear access to information" (Crowley and Heyer, 2003: 282). Knowing where or how to look up some information seems to get more important than knowing or understanding the content.

Hunting and gathering

Meyrowitz argued that "many of the features of our 'information age' make us resemble the most primitive of social and political forms: the hunting and gathering society" (Meyrowitz, 1985: 315). This idea can be adapted to the urge of collecting as much as information as possible. Like in photography, collecting pictures can be seen as possessing parts of the world, as Susan Sontag discovered (Sontag, 1977: 166). Umberto Eco also admits his gathering habit: "[W]hen I go into the library [...] I find a lot of things that I xerox and xerox [...] in order to have them. When I come home with them all, I never read them. I never read them at all!" (Coppock, 1995)

Similarly, younger people connected to the Internet via broadband hunt for their types of trophies, downloading all kind of media – be it music, current cinema films or even electronic versions of copyrighted books, pirated software and pornography. Finding such files seems to be a new fulfilling hobby since it

involves a more 'underground' knowledge of the Internet and the fact that it is hardly legally is attracting them as well. Spending much time for searching and controlling downloads the retrieved media are barely consumed; it is more the growing collection that is pleasing. It seems to be the medium itself that is the attracting force here. Already in the early 1960s Marshall McLuhan argued that "the medium is the message" (McLuhan, 2001: 13).

Messages lost in time and space

All this digital data is stored on physical devices. Digital data formats and storage media are changing quickly which makes regular 'migration' to newer forms necessary. Only few year old files cannot be decoded anymore because the application that has encoded the information into a proprietary data format is not available anymore or no suitable drive is available to read the digital bits from old disks. Magnetic and optical storage devices such as hard and floppy disks, CD-ROMs and DVDs will not last for more than some decades. It seems, the newer the media the shorter their life expectancy (Zimmer, 1999). Decisions have to be made about which pieces of information need to be kept for the future. The website archive.org, for instance, tries to build "a digital library of Internet sites and other cultural artifacts in digital form" (archive.org) keeping copies of whole websites from various dates.

Instead of reducing paper the Internet makes people print out emails and web pages to be read later. It is likely that such information is not read at all, though; with too many messages arriving older ones are forgotten or important ones not identified as such among 'junk' emails or 'spam'. "The speeding up of media messages [...] has carved up our experience of space and time. [...] If nothing lasts forever, then nothing is worth believing in" (Stevenson, 2002: 164). Especially the exclusively online published magazines that "are originating from scientists, learned societies, and university presses" (Dusch-Feja, 2002) will have to struggle with their authenticity.

Online consumption

Reading from screen is tiring and normally kept to a bare minimum; meaningful content gets lost in the mass of information and texts are only read quickly which leads to skim reading without deep understanding. "The paradox here is that just at the point when the world becomes overrun with information, it becomes empty and devoid of meaning" (Stevenson, 2002: 166). Not much time is spent on reflecting on the consumed information; the ability to critique may fade. Using texts from the Internet for own papers bears various risks concerning the quality of the produced text, since copying is easy and "there is no increased incentive

for those who read the original to also make verbatim copies, especially from unreliable resources” (Simkin and Roychowdhury, 2002: 1).

Reading is an enjoyment the young people often do not experience anymore spending their time on more interactive media/the Internet. Doris Lessing (Cox, 1998: 48) emphasizes that reading books is important to learn about history or foreign cultures along the way. Like “television offers a form of depthless involvement that translates the world into easily consumable chunks of social ‘reality’” (Stevenson, 2002: 163), the Internet can be used similar shallowly, but offers more.

From McLuhan’s point of view who divided media into hot and cold – being low and high in participation respectively (McLuhan, 2001: 25) – differences in Internet use by female and male users could be explicable. Women might use it more as a medium of sociability but still prefer media with higher participation like the telephone. “The telephone demands complete participation, unlike the written and printed page” (ibid.: 291). Men might place a more professional interest in the use and are satisfied with exchanging emotionless text based messages only. Susan Leigh Star admits, that “[d]oing much of my work and communication with friends by email, I often find myself feeling lonely and isolated” (Star, 1995: 23). Is the Internet a social technology that reduces social involvement and psychological well-being asks R. Kraut and others naming this phenomenon the ‘Internet paradox’: “Greater use of the Internet [is] associated with declines in participants’ communication with family members in the household, declines in the size of their social circle, and increases in their depression and loneliness” (Kraut *et al.*, 1998: 1017).

Still, the popularity of the Internet, especially the Web can be easily understood. More and more visual information is presented on the Web (connections to the Internet became sufficiently fast enough) that primarily addresses our emotions. “Without graphics on the World Wide Web, there would not now be tens of millions of Internet users” (Bolter and Grusin, 1999: 310). Also, to explore the vast spaces of information in an unstructured manner is like an adventure where the ‘hero’ does not know what will show up behind the next hyperlink but finding interesting pages by serendipity. Compared to the printed page, “the Web did have in its favor its speed of delivery and point-and-click interactivity” (ibid.: 310). Reading online, though, will never give the satisfaction achieved by having read a book completely – from the first to the last page.

Public and private spheres

New communities are created across national borders, where people of very different backgrounds can share similar experiences, e.g. as mentioned above

users discuss and share similar experiences in newsgroups or chat rooms/channels that exist for virtually every facet of life, creating McLuhanesque 'tribes' or communities. For some this virtual reality is becoming more real than reality itself being more involved in online partnerships than real life experiences.

While creating communities the Internet also destroys others. People sitting together in Internet cafes are not talking to the physical present other but to friends far away. Similar effects can be observed in today's mobile phone culture: one is connected stronger with the communication partner – maybe one's commercial partner – than with the next individual sitting at the same table. Work is not fixed to one place anymore; it became portable and more interwoven with leisure time. "[T]hese rearrangements of work and play do shake up my sense of freedom, privacy, and naturalness in ways that scare me", Susan Leigh Star (1995: 3) confesses.

Conclusion

The Internet offers great possibilities for communications. Some were left unmentioned here, e.g. e-commerce. However, none of them are really new – only more convenient. This medium has theoretically the power to replace most of the other types of media but in practice it will never happen. Although media are converging and "it is more and more stated that in the near future hypertextual CD-ROMs will replace books" (Eco, 1996), we cannot believe in this prediction anymore. One easily gets lost in hypertext and do we not just love to touch books? Text stored in 'intelligent' databases retrieve specific documents by simple keyword searches but results rarely are satisfying. "Although computers are becoming more flexible, they nevertheless embody the limitations of any medium" (Star, 1995: 7). Instead of replacing one medium, the Internet lives alongside them all – adapted more by some people, "seeking tools to better live their lives" (Tyler, 2002: 204) and less by others who may not even use the Web or email at all and are contented without it. Quite unspectacular, "there is nothing fundamentally different about the Internet that transforms basic psychological or social life" (ibid.: 204).

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