

POSITION PAPER on E-Research¹

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Introduction: My personal itinerary with computers

I am a social scientist, and thus the views and issues raised below will be permeated by that position. I started using computers in 1975 at the Instituto Di Tella, in Buenos Aires. Our first computer was one of a few available in Argentina, and occupied a whole room. Its main contribution was the capacity to process a huge mass of data. In three years of work, and after carefully checking the validity of the data, we reentered the output data of several Population, Manufacturing, Commerce and Agricultural censuses (it was impossible to have direct access to input data). We were embarked in processing a pioneering data base crossed with information for all firms with more than 100 employees, in order to describe the functioning and dynamics of the regional systems composed by more than 2000 localities in Argentina. Communication technologies were far behind. I had to leave Argentina in 1976. The research process was never finalized because it was very costly (and risky) to send me the huge piles of printing sheets from Argentina to Mexico.

My next personal experience with computers was in Nicaragua, in 1981, when big “portable” computers were donated by some U.S. NGOs to the center where I was Director of Research. I used green screen computers as text processors and to create a data base that was used to prepare a chronology of 10 years of the *Sandinista* Revolution. This time, the task was completed. I left Nicaragua before ending the project, took with me a set of diskettes with the information and continued to work in it elsewhere.

From then on, while depending on other staff to process data (note that, by now, we can access and reprocess primary data bases without violating secrecy regulations), I started to produce and edit my own writings from the first draft to the final version. As I write a lot, I have spent a good deal of these last 25 years in front of a computer.

By 1993 I was still communicating from New York with my university in Argentina mainly by phone and fax. E-mail entered in my life in 1994, when few people in the South used e-mail for regular communication. Currently I spend about two hours a day to deal with e-mail, although most of the institutional mail it is handled and filtered by an assistant. I am a member of several discussion groups and have my own personal web page. I navigate very little on my own, and rely on an assistant to process data or to search for materials in the web. As a result of all these changes, my productivity has increased but my working days have been extended and become more intense. As time goes by, more and more unwanted information comes through the e-mail, thus becoming an additional burden to my already heavy workload.

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Some ideas for discussion at the Workshop

1. The system of scientific knowledge is as a highly hierarchical connected set of activities of collection, production, exchange, reproduction, appropriation (free or at a cost, passive or active) and use (as a productive input or as a final consumption) of information, concepts, schemes, theories and methods. This system has global, regional, national and intra-national or local spaces of interaction, and has many types of agents and resources, organized in different ways. It has a technological and economic base, unevenly accessed and developed throughout the world. It is structured according to disciplines and changing or well-established multidisciplinary fields, and also according to empirical objects of interest and application. Many virtual scientific communities appear, consolidate, become fossilized or evaporate along with old and new interests, and any scientist may try to start a new such communities.

2. As a consequence, we can be over stimulated with new opportunities and find it difficult to concentrate on a specific project without the risk of getting isolated from the virtual scientific “market”. In any case, the behavior of average researchers is marked by the new symbolic representations and *habitus* that are associated with this social and technological revolution, produced by a combination of the modern Information and Communication Technologies (ICT) industry, the competitive process and its values - which have been internalized during the last thirty years by the scientific community (the built need to be part of new initiatives) – and the new needs and demands posed on research communities themselves.

3. As all technological revolutions, new ICTs are beginning to shake the system of scientific knowledge, with a high potential for change, not only its underlying structure and personal habits and values, but also its social and political biases.

4. Given its novelty and the speed of change, it is too early to anticipate all the positive effects that ICTs will have on research. The same is true for the undesirable ones. Nevertheless, there are many reasons to doubt that the main problems faced by social science research today and in the future will be solved by ICTs. They may be part of the solution, but also part of the problem.

5. There are no bases for producing reliable hypotheses about universal relationships between ICTs and scientific research, not only because of cultural and social differences in access but also because of the idiosyncratic elements that differentiate researchers. Of course, there are other more *meso* and *macro* elements of differentiation, such as institutional insertion, disciplinary matrices, schools of thought, epistemological paradigms, etc. In any case, at odds with the ICT industry and some of its global supporters (such as the World Bank), massive and accelerated access to ICTs pushed from the outside into different cultures or communities of practice is not recommendable.

6. As the question of pertinence and relevance of social research is also a political question, the impact of differential access to ICTs could play a role in forcing the agenda of

the North and of Western cultures at a global level. We may witness a new round of ICT-assisted biased priorities, paradigms, methodologies and criteria to allocate research resources (mainly through the mechanism of “comparative studies” able to access fresh financial resources) coming from Western scientific spheres.

7. One of the problems we face in social research is the gap between research agendas and social needs of useful knowledge. This is partly due to the freedom of research required for the advancement of science, mainly in the case of basic research; to the existence of an autonomous agenda of donors; to the decreasing lack of interest in critical social research on the part of governments and private firms; and last but not least, to the difficulties of civil society to articulate a set of demands and priorities in terms of useful knowledge. Some illusions associated with modern ICTs may worsen, rather than help solve, this problem.

8. Another problem is the recurring conflict between quantitative and qualitative approaches to the understanding of social processes. ICTs facilitate quantitative research, and may thus reinforce such bias. However, what is needed is a mix of both quantitative and qualitative approaches. Qualitative approaches require communication between researchers and the subjects of study in face-to-face dialogical and practical relationships. E-mail and the Internet create the illusion of immediateness and of real time communication. (Of course, although it is a legitimate and much needed field of study, most of social studies are not addressed to Internet users and their practices).

9. While we use ICTs, we should be examining their subjective impact on researchers: on their dispositions, orientations, purposes, meaning and scope of their endeavors, i.e. in their research practices. This requires an ethnographic approach combined with surveys and other instruments to produce primary data.²

10. Although they are often placed on an equal basis, there seems to be less emphasis on innovations in Information processing than in Communication Technologies. The capacities to store and process in little space and time, and with reduced costs, huge amounts of information (mainly quantitative data) or to run simulation of models has a big impact on research. We can share and easily manipulate huge databases, at the risk of losing track of fundamental problems about the validity of the empirical concepts used as well as of the statistical significance of the numbers manipulated.

11. ICTs save research time but also generate new demands on our research time. An obvious impact of ICTs in competitive cultures is the tendency to be up-to-date in a given field, always searching for the last contribution, accumulating information and documents that cannot be properly digested nor elaborated. Finding, accumulating, updating and classifying information to be retrieved when needed, may easily become objectives in

² In March 2002, after receiving the invitation to attend to this seminar in Maastricht, we applied the survey kindly provided by the International Institute of Infonomics, to the Faculty of the Universidad Nacional de General Sarmiento (UNGS) in Argentina. Only 34 people replied (many found the survey too long and did not see its usefulness, which says something of the survey and/or of the scientific culture). A preliminary analysis shows that we obtained no new meaningful data to understand or to orient our institutional policies.

themselves (acquisitive vs. inquisitive behavior). The problem is amplified given the pressure to participate in several groups and projects which no longer seem to require physical presence. On the other hand, these tendencies may stimulate cross-fertilization of disciplinary fields and empirical problems, thus enriching our learning processes.

12. There are cognitive differences between browsing, reading and re-reading a printed book or its equivalent in an electronic archive. The instrumental capacity to search for words is not equivalent to the process of searching for ideas in a text. Of course, different researchers have different attitudes. However, it is safe to assume that a worrisome generational change may be emerging oriented towards quick reading, little reflecting, and “cut and paste” production.

13. ICTs have changed the technical base and the models of scientific communication. Nonetheless, there remains a huge gap between the *possibilities* and the *capacities* to use new ICTs for collective work. In fact, ICTs are often used in a wrong or inefficient manner, maybe because we are fascinated by them or pressed to use them to avoid being labeled as “old-fashioned”, or because it seems that we can learn-by-doing.

I have participated in various teleconferences, some of them organized by powerful international organizations, where ICTs were poorly managed and made more noise than contribution to the substance of communication: no true dialogue, much time spent trying to solve technical problems, and a tendency to a show-like scenario rather than to creating a collective working environment.

Lack of a basic platform of services and infrastructure appropriated to the specific instrument or technology is also a problem. Wonderful Power Point presentations may fail due to excess or shortage of light, or due to the assumption that the participants have unlimited vision at a distance. This results often in lack of communication, loss of concentration, and the like.

One more case in point is the new possibilities of listserves and e-mail based discussion groups. Many people are not aware that every time they use the “reply” function their message reaches everyone in the group, not only the person who they try to reply to. As a result, many get tired of receiving what they consider e-garbage and leave the e-groups. Thus the need to be trained or to invest more time in learning about the instrument and the conditions under which ICTs may be more effective and efficient than traditional means.

14. Lately there has been a blossoming of alternative ways to produce local knowledge using more participatory approaches, such as action-oriented research, experience-exchange meetings or face-to-face workshops where researchers and social agents interact. The economics of research pushes for cost-efficiency. This may thus induce donors to encourage virtual fora. ICTs can enhance and sustain research networking when used wisely, but neither the quality of the process nor the results can match face-to-face participatory research.

15. Despite its tremendous possibilities, Internet is a limited instrument for thought and for collective reflection. It can generate the illusion of dialogue, substituting true joint

production of meaning and learning-by-doing. Even innovative experiences like those of Silicon Valley and Bologna show the need for real interaction of whole persons and institutions talking and looking at each other while changing reality, engaged in the development of an idea, oriented by a common collective project within a common territory.

16. ICTs introduce a bias towards global knowledge: they enlarge its geographical scope of circulation, but e-participation creates a sub-culture of its own among. However, closing the gap between theory and practice *vis a vis* the social question requires, more than ever, enhanced local processes of encounter among various forms of codified and tacit knowledge, in a collective learning process. This process is optimized when participants are engaged together in changing their immediate reality. The emergence of the so-called "knowledge society", if anything, stresses the need to articulate the processes of learning with the processes of doing (reflectively changing reality).

17. Real social development is a cooperative and conflictive process involving a pluralistic array of groups, communities, sectors and levels of government, social organizations and collective representations, all of which change with development itself. As a rich source of change, conflicts must evolve within a relationship where disconnection is a last resort. Internet facilitates communication and encounter, but it also facilitates easy disconnecting as soon as someone feels threatened or unsatisfied, thus avoiding conflict.

You can decide not to participate in *barrio* or community meetings, but you have to walk the streets and face the people and experience their reaction to your attitude. However, behind the computer one can just delete unwanted messages or block unwanted senders and walk through the Internet highway without being noticed.

More profoundly: What will be the effects on the self and on the will to engage in collective action under the influence of this combination of possible multiple and simultaneous or discontinuous relationships in different communities of research and discussion?

18. Finally, and triggered by the term Infonomics (this seminar was organized by the International Institute of Infonomics), it must be stressed that there is no single school of thought regarding the economy. Therefore we should make an issue of what economic theory and methodology is best suited to do research on ICTs. Neoclassical economics is prone to be associated with these technologies because it is itself quantitative-oriented, it seems to be exact, and it uses simple and elegant models. However, unless we frame our studies on Political Economy, we may nicely combine and model the relationship between economics and ICTs but we will hardly understand their impact on the structure and on the scientific system and on its potential developments. Moreover, the complexity of the questions triggered by the technological revolution require not only infonomics but also infociology, infopology, infocology, infolaw, etc., and a multidisciplinary approach. Of course, the same reservations apply to the paradigm adopted within each discipline.