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TECHNOLOGY: THE DREAM OF CHANGING EDUCATION

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ARTICLE INFO	ABSTRACT
	The turn of the century stand as moments committed to change. It was hoped, perhaps naively, that the change of the twentieth century to XXI could bring something new to education and that it would be possible to change school. Although we live in an era where technology promised big changes in all sectors of human life, and an alleged opening of the universities to the information and communication technologies, they did not manage such a feat and after a period of euphoria we found ourselves before a school equal to what it always was. What remains from this perspective of change is a reinforcement of the ideals of a surviving factory school that insists on fulfilling its task. A university marked by passivity, by a lacking criticism, by the overvaluation of memorization and by mechanization. We bet, again, on a generation with a linear and analytical thinking which explores irrationally the nature and the others. The resignation is justified by authoritarianism and persists in the fragmentation of knowledge.

INTRODUCTION

In the first place, approximately 35 million people have already learned how to use computers without the benefit of school instruction. If the schools do nothing, most of the population will know how to use computers in the next ten years, just as most of the population learned how to drive (car) without school instruction. In the second place, what we needed to know about cars – as what we need to know about computers, television and other important technologies - is not how to use them, but how they use us. (Postman, 1996, p. 43). The dynamics of information technology (IT) transformation came to the western education sector with great enthusiasm, finally we had the Information Technology decade leading to change. Buzzwords like "Interactive learning," "learning networks," "virtual university," "electronic classroom," and "paperless" have all become clichés. More specifically, the PC, e-mail and even more the Internet have become essential tools for academics, administrators and students. The IT and its several applications have greatly changed Higher Education, in addition to the recognition of its importance that can be seen in the most varied situations. An important indication of the nature of the recent changes is that through them Higher Education has reached an almost perfect convergence with the business sector. There are universities that already offer

"e-business" as the subject of the curriculum and as a way to offer commercialization of education. As a pedagogical tool the Internet has a relatively long history. In fact, education and the sharing of information were the basis of its creation and development. As early as 1994, and shortly before the Internet became widespread, it was referred to by Jill Ellsworth as "... the largest reservoir of knowledge I have ever known on this planet, where students are able to develop the most sophisticated research and recovery strategies" (p.6). Ellsworth is unequivocal about the social and educational value of the Internet. Considering that the learning process occurs, "... the Net is the future." She also adds that... students gravitate to the Net like nothing before in their lives. While the Net is unlikely to completely replace athletics and/or music lessons, for some students it is the best opportunity ever made available to them. … their rewards on the Internet will be in proportion to their investment in learning Net skills, and learn all the more for it … Both teachers and students can be invigorated by the freshness and immediacy of the Net (Ellsworth, 1994, p.5).In a more abstract sense, she also argues that the Internet will help students to become "prepared citizens."

E-mania

There is no doubt that the exuberance of Ellsworth and of many others in the early days of the "internet fever" was its

adhesion, and it is still extremely contagious. The numbers vary, but Internet access and its use has grown exponentially since the 90s. Today, there are 3.7 billion Internet users worldwide (around 49,7% of World population), not bad for a population of almost 7,5 billion[1].Its overall acceptance rate in the university sector is extremely high. Being a key tool for university professors considering its use in various aspects of their research, the Internet has grown and today it is almost indispensable for the average college student. It is indispensable but it is also inevitable.From an early age, computer literacy is considered almost a basic survival skill, and today governments are concerned about equipping different sectors of education and making sure that schools and universities are prepared to connect to the Internet. Students can do almost anything online: enrolling, accessing course material, obtaining academic degrees and communicating with teachers and peers through email, and other personalized e-resources. Being offline means more and more to be aimless. The process is far from being over. Stimulated by the market growth companies such as Microsoft, Apple, Google and the media have become increasingly dependent on the Internet. Politicians, governments, bureaucrats and administrators of Higher Education are digitalizing Education with the zeal of the newly converted.

Knowledge, information and Internet

Regardless the accelerated pace of change and the continuous organizational and ontological state of flux that constitute the universities of today, somewhat surprisingly these remain at least superficially the same. In most cases, teachers still stand in front of the classroom full of students using old-fashioned technologies such as pens, blackboard and despite the existence of projectors oral speech is still what prevails. The students now and in a much larger number attend the amphitheatres to face this archaic process: learning from what they hear, taking notes and asking questions. In most cases, online learning is still complementary to the traditional method. The cyber-vision of university administrators where teachers become virtual heads speaking about "players" dealing with a scattered audience sitting in front of their computers is therefore still a dream. Even geared towards digital technology courses that have evolved from the perceived needs of the "new economy", such as e-business, multimedia and software development, it still has a reasonable degree of traditional pedagogy associated. The real changes are much more deep and subtle. Teaching and learning has been of course the core, the *"raison d'être"* of the university, but things are changing. Teaching and learning ideology change and the traditional perspective is gradually being pushed aside in favour of a much more market-driven approach. An important role of education, especially Higher Education, has been traditionally to develop critical capacity in students, along with a sense of concern for social issues. Whether at an intellectual level, creating an informed feeling in issuing judgments or at a moral level, promoting a refined quality of care, these remain the main goals of education. However, due to companies' pressure, aided by science and technology, these core values of education have been challenged, and the uncritical application of market criteria for educational purposes has been increasing. Digitalization, *e-learning* and *e-education*, at least rhetorically, aim to improve teaching and learning practices. It is knowledge, unlike

information, that makes the societies, and the individuals that are a part of it, self-reflective, able to assimilate, contextualize, understand and give meaning to the information found in the learning process. This reflexive dialectic is an extremely important function because it is an integral part of how we construct our identity, our opinions and our reasoning power, and develop an understanding of functional autonomy in society. Without this, society is open to domination by "specialist" technocratic systems that reorder social life, assuming techno-scientific perspectives in opposition to social, ademocraticform of development.In recent times, a broader set of cultural, economic and social changes have introduced in this process a new vision of the virtuous cycle of transforming research into information and information into knowledge, using accumulated knowledge as the basis for new researches. As an example of what has been said, a special attention will be given to the students' written work. In the last ten to fifty years, the standard form of wording has been changed. Gradually, a change occurs in the way research is done and in the type of documents that are searched. Students look different, they read differently, they "feel" differently and all of this means a change in the university learning process. There is no objective data on the number of students using the Internet to study or investigate. In fact, almost all the technology used in education is dominated by the research that is carried out based on optimistic and unfounded assumptions in what the utility of unrestricted computerization in teaching and learning processes is concerned. Despite the huge social, political and financial investment in education technology across the developed world and surrounding areas, we are still trying to understand the real value of what is really happening, and/or the consequences of such a massive and rapid investment. We are spending a lot of time surfing the Net, but so far there are very few research's about its effect. Today, in university libraries, networked computers gain more and more space competing with bookshelves. Such computerization is partly a consequence of the fact that libraries, as they seek to support a variety of academic specialties and disciplines, have difficulty to find the ratio needed for their acquisitions of monographs and magazines. As a university library, and since it should contain a powerful collection of research support for its faculty as well as for teaching, most have now to solve the inadequate relationship that exists at the intersection that scholars consider necessary and what library managers can acquire.

At the same time, the number of computers available for research and the number of college students who do most of their research on the Internet has increased considerably. There are many factors that justify this situation. One is the widespread extension of IT to the education sector, offering "easy to use" and "immediacy" in terms of research and "results". More and more, the purchasing of books or newspapers that are online seem to be the alternative solution to the missing books for loan and to "rationalized" libraries. The deficit of resources available to students fits perfectly into the Internet presented as "the greatest reservoir of knowledge" in human history. Besides, as it has been suggested, computer literacy and the development of Internet skills are rapidly becoming essential life skills. Users have better digital literacy rates and, naturally, they consider IT as central to everyday life. Cumulatively, these and many other factors make the Internet almost inevitable for university research. What does this change mean for the learning process and for the

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[1] Source http://www.internetworldstats.com/stats.htm, accessed July 5, 2017.

acquisition of critical knowledge and skills, the alleged goal of a university education?

Civil society vs. network society

It should be noted that this is not a simple statement of the importance of Internet research and online learning. The potentialities are unlimited and exciting. Internet has increasingly become indispensable. In addition, in research and in administration, universities integrate IT in almost all, if not all, their activities. The Internet is in fact extremely useful for all types of academic research. For example, opinion and analysis of current events, search results, policy statements, official statistics, access to almost everything in almost all countries is a few keystrokes away from a pair of agile fingers. Today, students can exchange data, exchange ideas and collaborate on projects totally online. The training of the most different technicians, teachers, designers, architects and engineers use the Internet to make their study and learning more interesting, challenging and rewarding. And all this can be done in real time and in an increasingly efficient way. However, for many disciplines of humanities and social sciences courses "the real time" is where the problem lies. It is in disciplines such as politics, philosophy, sociology, media studies, journalism, cinema, cultural studies, among others, that much of the corrosion may be happening now, in real time. In these disciplines, the markers of excellence, of merit, and their *"raison d'être"* are the development of a mechanism for critical thinking, the promotion of reflection among students and their approach to situations arising from dissertation questions. As a generalized social practice, as argued by some theorists such as Ulrich Beck, Anthony Giddens and Scott Lash (2007), among others, this results happen even from a reflexive understanding of society in general, of its politics and of its civic and democratic culture. The benefits obtained from a reflective society, which can regenerate itself consistently through the process of learning and building knowledge, are so precious because they are intangible. Individuals have become more "powerful," civic and democratic culture has been formed and reformed, societies have been enriched, and human experience and its horizons of being and seeing have been expanded rather than reduced.

Over time, this profuse social dynamic has developed and sustained the reflection and a certain commitment, which does not appear to be the most adequate tools for the Internet, with all its immediacy. To evaluate the usefulness of the exponential growth of available information and to turn it into knowledge, it is crucial to develop critical and reflective thinking. Increasingly, students do not spend their time exclusively on the Internet and using information technology. There is a general idea that people, particularly young people, are *gurus* in this vast digital world, clearly suggesting that intuition, facility, security, and success are highly questionable as input and output of Internet research features. We are dealing with what Papert (1996) called "*technological fluency*." For Papert, "*fluency*" is beyond the acquisition of knowledge itself, but it is also found in the ways in which we acquire and use it, forcing a constant adaptation to the change that characterizes the New Technologies. This "*fluency*" can be compared to learning a foreign language, where we find people with a good knowledge but not very fluent in their use. Per Papert, what really matters when someone finishes a computer training is using it to serve their own purposes,

something that rarely happens. As we all know, is not of the students' fault. The profound belief that computer science courses help in getting a job has made that school included in its curriculum, at all costs, this area of training without reflecting on the orientation that it should have. "... *computer literacy curriculum is not quite good enough;"* and *"I mean that it is exactly in the wrong direction."* (Papert 1996, p. 27).Training is very concerned about providing lots of information about the computer and how to use it, but in unexpected situations the trainees are little "*fluent*" in the search for solutions. Still quoting Papert (1997), "*Fluency comes from use*." (p. 28) and …being fluent with computers doesn't mean that you know everything. In fact good evidence of your technological fluency would be what you do when you don't know how something works. The technologically unfluent person becomes embarrassed or runs for help. The technologically fluent person will hit a few keys until something happens ... (pp.28, 29)

This kind of statement can seem quite dangerous. Papert values a type of knowledge that is not widely accepted, making the apology of "*imprecise*" knowledge.

Only school tests define knowing as getting it exactly right on the first shot. Most places in life, knowing enough to know you can get there is all you need. (pp. 29, 30)

Waiting for the total mastery of the technique is not possible, since it is very difficult because of its dizzying progress, but it is necessary to value its use. Computers need to be urgently used in all their versatility and according to Paper it is necessary to invest on sufficient knowledge to enable reaching the necessary answers. A knowledge that consolidates itself with the use and the search for solutions to the problems that may arise. A little less questionable are the major social and economic changes that have taken place in western societies over the last few years (Castells, 2010). These changes are reflected in the profile of the "average college student". For example, it has developed economies by increasing the supply of individuals to Higher Education, universities have begun to attract many more working-class students who do not benefit from family support during their university years. The consequence is that more and more students are working in some kind of activity as a source of income. Increasingly, many of these jobs are full-time, accumulating with full-time study. Therefore, the demands placed on today's average student are growing. However, the dynamics that created these pressures, such as economic globalization, have into account the importance of creating solutions for these situations. The demands of work, academic assignments, trying to understand ideas and new concepts, as well as everything else that comes with life in the "age of insecurity," conspired to make the approach to learning, and life in general, in a much more instrumental way.

The Internet is the instrumentalism carried out to the highest degree. It is goal oriented and therefore ideal for quickly getting lots of information on a particular subject. As it has been argued critical and reflexive thinking requires time, evaluation, and distillation. Deadlines and lack of time mean that the construction of knowledge, the reflective thinking and the gradual construction of "critical literacy" are likely to be harmed. What this means in practice is that students trained in "time management" and "setting priorities" can attend one or two lectures, look for the general essence of a subject, and

conduct a research paper the afternoon before the limit of the deadline. This is not necessarily a fraud by the growing number of students who make use of this practice, but simply as a problem-solving strategy in a pragmatic way within a demanding environment. However, this practice, which often approaches plagiarism, is increasing. In fact, plagiarism is a *dot.com* industry that flourishes in the new economy. For example, students can enter a particular website and download documents about, practically, any subject. Historically speaking, it has often been argued that the introduction of new technologies seems to throw moral panic within certain layers of the elite opinion. Socrates, for instance, believed that writing would weaken memory and the introduction of the Gutenberg press was considered catastrophic, marking the end of the world as it was known till then by the medieval elites. Later, the alarms have sounded with the introduction of significant communication technologies, such as the telegraph, the radio, the telephone and the television - that have proven to be unfounded or overly pessimistic.

Here it is not intended to further increase moral panic or to suggest that western values and institutions are near collapse under the attack of the global value of enterprises and their revolutionary technologies. But there is a difference, something is unique today when we refer to the introduction of information technologies. The difference is that information and communication technologies are not simply a device for innovation, but a growing number of techniques, devices and processes (some based on older technologies, others radically new) that permeate almost every places and corners of social, cultural and economic life. Previous innovations that have had an impact on certain strata of society have taken some time to diffuse and invade other parts of life. Information technology, by contrast, has had an almost immediate transformative impact on much of contemporary society. By their very nature, these "cultural ecosystems" are computerized ecosystems, "immediate" ecosystems, "without friction." It is the digital ecosystem that allows the attrition removal from the real world, for it is in these "friction spaces" that difference, experience, and knowledge-building can gain space and assert themselves. In addition, the ecosystem based on "cultural" information does not only consist of the Internet, but also in a growing range of digital accessories which make up this new and unprecedented digital era. At a rather superficial level, this evolution has been valued as positive. It is the emergence of "*new types of communities, such as building online communities of social networks.*" (Rheingold, 2002). Here, as in so many other things, those who point out problems are seen simply as being naive or too skeptical to see the opportunities. Informatization is problematic by nature. At a somewhat deeper level, cultural theorist Fredric Jameson (1997) described it as an outcome, as an example of almost pure alienation, from which one can no longer retreat, for we are immersed in the here and now. The immediacy of the Internet and other digital technologies, the overload of information that is their propensity, the social and cultural dynamics of globalization and the debilitating effects they have on the ability to self-reflect are issues that we need to think more seriously. Ellsworth's aspiration quoted at the beginning of this paper where the Internet is defined as being a vector for the intellectual formation of 'prepared citizens', begins to be quite doubtful when viewed from the previous perspective.If and when we reach the point of diminishing cultural literacy, the loss will be great, because we have lost the ability to compare, discuss and contextualize cultural artefacts. Other issues much

more important such as ethnic cleansing, human rights, and the meaning of "citizenship" have also been lost for thoughtful control. Cultural literacy and the ability to examine ourselves and our institutions from a critical perspective will be diminished. Society will end up on *autopilot*, moved by market forces and directed by computers and we will have lost our collective ability to go back in our immersion in the here and now. Of course, the Internet has also been used to fight these trends. Activists from around the world, in a multitude of alliances, getting an immensity of child labour complaints in the world's "MacDonaldization"[2] free trade zones, use the Internet to exchange information, develop strategies and organize resistance to globalization moved by corporatism. However, these are policies of regression and frustration, not of deep and persistent analysis in the articulation with alternatives to predatory globalization. Reflective analysis and plurality of articulations are, and should increasingly be, a central function of the university. If universities' privatization tends to go backwards to meet the needs of industry and move further away from fostering critical thinking in students - if this direction continues, then the university will no longer be the place where ideas will be designed and developed. Universities need to be persuaded to take their traditional roles seriously as centres of intellectual discovery, research, innovation, and creativity, and to seriously take steps to facilitate this process.

Poor research based on web browsing by students as a result of plagiarism may be a symptom of a much greater illness, but it is a symptom that can weaken the critical thinking of generations of students who have just arrived at universities. The social loss of critical capacity may turn out to be something like progressive dementia in the individual, the worst becomes less and less important for the victim. These individuals gradually become detached to the personal catastrophe that has come upon them. Unless research is done properly to verify the extent of what may be the beginning of our collective intellectual insanity, the prognosis is distressful. The domination of technology can never be complete. Human beings have always been able to think reflexively about the most varied and complex subjects including technologies, their development and adequacy, working with them, working against them and constantly giving them shape to better meet the needs of society.

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[2] McDonaldization of society is a term used by the American sociologist George Ritzer in his book McDonaldization of Society (1995) to designate a complex phenomenon. The author describes this process as the assumption by society of the characteristics of a fast food restaurant (in English: "fast food"). McDonaldization is a re-elaboration of the concept of rationality. In fact, there is a shift from what is traditional to other so-called reasonable modes of thinking and scientific management. Where Max Weber refers to the model of bureaucracy to represent the orientation of the changing society, Ritzer sees "fast food" as the paradigm of contemporary representation. Ritzer highlighted four key components of McDonaldization: Efficiency: finding the most effective method for accomplishing a task; Quantification ('Calculability'): the objective must be much more quantifiable (like sales) than qualitative-subjective (like taste); Predictability: services must be standardized; Control: Employees should be standardized, and as much as possible, replaced by non-human technologies. With these four processes, this seemingly reasonable strategy can produce harmful or irrational results.

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