Informational Learning

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The context

Over the past 25 years, a new economy has taken place. Castells describes it as "informational, global and interconnected". (Castells, 2002a, p. 83).

It is global because it encompass all the globe, without leaving aside any, even remote, community. It is interconnected because all regional economies need each other in order to make sense of the global. But, why is it "informational"? And what does this mean?

It means that the unique human feature to elaborate symbols (information), becomes a direct productive force (Castells, 2002a, p. 107). In this new economy, the information becomes the raw material and final product of the production cycle, (Castells, 2002a, p. 84) while enterprises heavily rely on it for their productivity and competitiveness. The ability to generate, model, transform and interpret information thus becomes a key entrepreneur skill.

Information does not pervade just the economy. The overall human activity is founded on it. In a knowledge based society, that uses such a huge amount of information, it is inevitable the need to automatically treat it. Software and IT networks serve the purpose of reducing complexity and allowing sensible choices. Saskia Sassen uses the borrowed geological term "imbrication" to explain the relationship between our society and the digital phenomenon. (Sassen, 2008) in a context in which it is often impossible to clearly distinguish between them.

At the same time, the increasing specialization of knowledge leads people to deepen their respective areas of expertise, that becomes ever smaller. This forces to aggregate and form social networks, in order to cover the necessary spectrum of knowledge. ICT allows to deconstruct and reconstruct social aggregate regardless of time and space, instantane-

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ously. Not all people are equally equipped to deal with these changes. Not everybody is able to generate or process knowledge and information at the same rate. New forms of digital divide are growing as well as it is increasing the gap between individuals with different informational literacy.

Digital natives and informational healthy will try to push towards a multi-tasking-instantaneously-liquid society, being able to exploit the endless possibilities that it can offer. The social networks are becoming the new *wisdom of crowds* and this has a great impact on society. No digital native is ever buying any good or service without googling it, or without referring to peer opinions about it. (Lotito, 2008, p. 183). Consumers are not alone anymore (Bauman, 2007).

As the new technology invents new ways of sociality, consumption and production of information and goods, the digital divide increases. Who is not equipped (digital immigrants, elderly, teachers, etc.) is out.

The capitalist system itself is regenerated and evolves into an informational capitalism. For some the change is similar to the advent of the printed book. An invention, which caused a social revolution (McLuhan 1991). Others think that the change is even more radical, and they compare it to the advent of writing itself.

Confronting this radical revolution in society, educational systems face a dilemma. Most of the time students are more digital literate than their professors, which still try to make sense of the new way information is treated. Shall the educational systems defend its own methodology, developed for centuries and rich of a long-lasting tradition? Or shall it try to adapt this practice to the new digital inputs?

Learning mutations

In a knowledge society where most, if not "all" the information is on the Internet, learning change its shape. Since most of the information can be found on the net, it is pivotal to learn (again) how to learn. Learning what to look for, how to validate the information gathered, how to use it and how it relates to the knowledge already acquired are the new frontiers of learning. This kind of deuteron-learning implies also that learning is a social and diffuse experience. The pyramidal structure in which professors would provide information to students in a mono-directional (teaching) way does not fit anymore the contemporary need to diffuse information. In this new context, learner wants (or is obliged) to collaborate with other in order to select, filter and modulate information. Her own creativity and innovation is to be bended to the social diffuse requirements.

Margaret Mead (1972, p. 91) emphasizes how the social structures of society and the way in which learning is structured determine both how individuals learn to think, and how they use and share culture. Also George Mead (Varisco, 2002, p. 53) sees an undeniable mutual relationship, mediated by symbols, between the individual learning strategy (and results) and the socio-cultural context. (Varisco, 2002, p. 71)

It is precisely for these reasons that the informational society (Castells, 2002b) is provoking an almost incontrollable growth of diffuse knowledge, but at the same time a learning deficit, both related to personal learning strategies and to the educational system.

Traditionally, learning was confined in three independent realms: life experiences, school and professional life. Once understood the system, the individual learned to acquire different a knowledge from each different realm. The informational society, instead, collapses this division, giving to the individual more possibility of choice. This shift of focus has also two other implications: a) a necessarily yet apparent fusion of formal and informal teaching, b) a change of role for the teacher, who must become an expert in data mining, and a communication facilitator, while ensuring that the learning experience takes place in a climate of trust. Trust is indeed a very important element in order to be able to sustain the necessary collaborative interactions useful for a informational learning. It is as well essential in order to obtain the collaborative production of knowledge typical of the informational society.

Moreover, this changing paradigm cannot be applied to all learners indifferently. *Digital natives* cannot be treated as *digital immigrants*. De Kerckhove, citing Krugman, explains how children, who had grown up watching television, use their eyes in a different way than adults used to reading sequentially. The children's eye movements are faster. Television language taught the young child to "learn to learn" before she is even able to speak. One of the results is that the old communication practices, as reading and writing, would be much more difficult to achieve for these children once they grow up. (De Kerckhove, 1993, p. 61-63)

In a similar manner, the Informational society is teaching *digital natives* to lean in a different way. It increases exponentially the amount of information, media, interactions, relationships and choices available. Digital natives must lean before all to choose constantly between a number of increasing options. It is indeed a challenge to find a teaching methodology that would not impose upon them learning strategies which are inconsistent with the ones they are used to, but at the same giving them a structured framework of understanding. It goes without saying that the learning strategies cannot be the same as they were not even for the *digital immigrants*, as they live already in an informational society.

The main challenge for a new informational pedagogy is to manage

differences in culture, age, background, knowledge and digital awareness, in order to provide the same opportunities for all learners.

In order to approach such an ambitious goal, informational pedagogy should shift its focus from a hierarchical methodology to a learner-centered one. As the new Internet is user-centered (Ferri 2008, p.2), informational learning should be learner-centered. This means that learners would be at the same time producers and consumers of knowledge, not just recipients.

In this context, informal learning is gaining a special place. We could imagine scenarios where, even in high schools or universities, students can exercise a freedom of learning in virtual space, aided and assisted by teachers (Bonaiuti, E-Learning 2.0, 2006, p. 7). Personal learning environment as the blogs could be used in order to give to the learners the possibility to express themselves and construct a stable knowledge network (Bonaiuti, E-Learning 2.0, 2006, p. 8), which will include both teachers and students.

This trend is coherent with the studies about meta-cognitivism done by Bruner and Rogers. They describe learning as a process which involves the development of the entire person, instead of a simple transfer of knowledge (Dal Fiore & Martinotti, 2006, p. 24). Following this idea it has been developed a constructivist paradigm called *Student Centred Teaching and Learning (SCTL)* (Dal Fiore & Martinotti, 2006, p. 24). In this paradigm is the learner who co-decide, together with the peers and the teacher, how and what she wants to learn, solving in this way also the problem of lack of motivation, common to so many learning systems. (Mason, 2006, p. 91)

To synthesize, the informational learning has the following main characteristics:

Integrates and gives value to the characteristics of the Digital Natives

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Manages and filters information

Put the learners at the center of the learning process

Focuses on the deutero-learning (learn to learn)

Fuse formal and informal learning

Gives more importance on the learner personal experience and her problem solving skills

Integrates professional, real life and stuying skills

is more cost – effective

Easily integrates Life-Long-Learning

Fosters a role changing for teachers, tutors and students

Fosters a trust climate among the actors involved into the learning process

Informational Learning

Castells writes about the need to move from a simple learning setting to a learn-to-learn one, even more when most of the information is networked and online. This is the only way to transform information in knowledge and knowledge in action. (Castells, 2001)

In a context of increasing availability of raw information, long-life-learning becomes a critical resource for success and personal development. Teachers need to learn how to teach to learn-to-learn. It is not enough to invest in technology, hardware and software, it is pivotal instead to invest in the right training for teachers.

This presents us with another dilemma, since there are not (yet) experts in informational learning. In this respect, let us try to better understand what do we mean with informational learning.

Informational learning refers to a path that enable the learner through an evolution towards a greater awareness in handling information and its transformation into knowledge. The particular knowledge to be handled must be somehow linked to the study path, and it should be able to understand which type of learning strategy has produced the best results for the learner. In informational learning will be considered not only the learner performance, but also the costs spent by the student to produce that knowledge. One of the objectives of the teacher would be to suggest alternative strategies, methods and paths to knowledge.

Both Bauman (2001, p. 157) and Bateson (1977, p. 208) distinguish between first and second degree learning. A traditional learning path is based on a first degree learning, where contents are managed, planned and designed, ready to be processed by students. Informational learning, instead, is based on the second degree learning and it is nowadays only vaguely related to education. However this second level learning is incomparably the most important skills for professional and personal life of any learner in a knowledge based society. The informational society does not distinguish between formal and informal learning, but appreciate very much certain mental paths. The solution proposed is to acquire a skill that allows to multitask and instantaneously understand several intrigued canvases of information.

Informational Learning must therefore include mechanisms which would enable to make it clear and manageable secondary learning strategies. Only by making this objective clear to the educational system, it would be possible to promote mental path which are needed for survival in our liquid society. Informational learner will develop in this way the the ability to identify patterns, to remix them and to use them when it is needed.

In this context of transformation and cultural change, it is necessary to

fill the obvious socio-technological gap between different actors of the educational systems and to provide principles based on which it would be possible to re-engineer educational modules (or Format). Through the analysis of the adherence to these principles, it would be also possible to analyze the teaching methods already in use and to determine their maturity compared to the model, and eventually paths of future development.

The following ten principles respect the concept of *Captology* (study of computers as persuasive technologies) (Fogg, 2003, p. 19). A particular relevant idea for informational learning is *micro-suasion*, which allows to promote motivation. It is normally used for video-gaming, in order to promote addiction to gamers, but its basic principles can be translated also into informational learning.

The basic principles of the informational learning are:

Principle of Reduction – Simplification and filtering of information. An information management is needed;

Principle of the creative "tunnel" – it conveys the learner through experiential activities, it also expresses the need for a teaching with a creative collaborative remix of information.

Principle of Personalization – it highlights the need for personalized learning paths

Principle of Conduct – it refers to the need to monitor learner's progress against informational objectives.

Principle of Inclusion – it does not separate formal and informal training. It integrates daily activities ("life-long-learning" or "continuous learning"), with the educational system.

Principle of Credibility – it represents the needs for the learner to understand the quality of information sources and to use tools used to create knowledge

Principle of Attraction – It is necessary to promote learning motivation. It uses approaches similar to those found in video games to attract digital natives.

Principle of communication and cooperation – It refers to collaborative learning, through which students can understand and address issues far more complex than those that can be addressed individually.

Principle of Motivation – there is the need to implement a number of strategies to motivate learners to continue the educational path.

Principle of Deutero-Learning – it must be given attention to what to look for and where, how to use information, such as filters, and how to transform it. In other words, learners should understand how to transform information into knowledge and knowledge into action, it is learning how to learn.

Urbino Collaborative Learning Model

The Urbino collaborative learning model, is designed to use Informational Learning strategies and it observes the informational principles reported above.

The Urbino Collaborative Learning Model contains a set of elements, or Formats, defining the metaphors of collaborative learning and they indicate which it is consistent with the Informational Learning. The formats have been designed starting from the Informational principles and they are described as model that can be implemented into different informatics solutions.

There are three type of Formats: Environmental, Base and educational.

The Environmental format refer to the environment in which educational interactions take place.

The Base formats refer to the learning interactive blocks to be used into the learning community.

The educational formats are typical of the informational learning. They respect the informational principles.

Via these formats, learners are encouraged to filter and evaluate information and to create answers to problems or questions collaboratively.

All these formats have been used into a platform in Urbino called Learn-with-Fun (LwF). It uses the Multiple User Dungeons as reference environment.

The Urbino learning model would be the subject of a next learning paper.

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