Digital Collaboration

The content of the present Issue of Je-LKS includes contributions from the Call for Papers on Digital Collaboration, which was launched in September 2008. The Call aimed to promptly demonstrate and present new ways of undertaking professional relations, work, learning and, more generally, knowledge. With its multiple aspects, Digital Collaboration (or e-Collaboration), belongs to the scenarios developed around the Web 2.0 paradigms, which are already part of our culture. However, e-Collaboration is a phenomenon that stands out, both conceptually and as implemented, against all other manifestations to which we attach the "2.0" tag.

While Social Networking is certainly a component of Digital Collaboration, Knowledge is its basic driver. Digital Collaboration means to leverage and share knowledge, to interact with the "connected world" that is surrounding us, i.e. with people at a distance in a distributed digital environment, by making use of the most advanced hardware, software, media and communication technologies.

In the conceptual framework of Digital Collaboration, the primary constituent is that of collaboration, while "digital" refers to an enabling capability. It is what makes collaboration possible, in a world flattened by technology, where everybody and everything is on the same horizon. Collaboration is an intuitive notion, even though we immediately discover its complexity once we encounter the different shapes it can take. The Latin root, cum laborare, reveals its meaning: to work together. It is a clear concept, yet it points to one of the most difficult exercises in the world, for human beings. Collaboration, learning and knowledge, when placed against the backdrop of a Digital Society, are concepts and events that blend together and intersect in many ways: collaboration, learning and knowledge are at the same time cause and effect of one another.

The act of collaboration, always and in any context, springs from the will of the person that comes into play, but develops only if certain instrumental skills

exist, which are not innate. The act of collaboration derives from a personal impulse, from which it takes its style and character, but perhaps we are unable to imagine how much that performance can be influenced by the means used, i.e. by technology. To collaborate is to interact and, in that, nothing can substitute the value of physical proximity, nor can we recreate with artificial means the exceptional "emotional bandwidth" that transports our self towards the person we are facing. We all know the value of a personal meeting, the effectiveness of a summit, the trust that runs through a handshake. However, there is a problem dangling over us: we have a difficulty, inherent in a society that wants to be connected at a worldwide level, to achieve physical co-presence: "being there" in the same place, at the same time, in person. Here, strategic technologies come into play: networking technologies, as links and digital communication. Networks are a real seduction. They mean power, for nations, for markets, for workers, for learners, for researchers. Networks, combined with wireless technologies, give us the freedom of movement and a view to an original form of collaboration, mobile collaboration. We are closer to the state of ubiquity, a myth long sought after by human beings.

Internet access speed and, to a much lesser extent, computing power, are the technical parameters that may influence the adoption of digital collaboration tools. However, it is easy to predict that all technological limitations will quickly disappear, while we may be left with the thought that the risk be, globally, with the human element: to have to cross boundaries and acquire new skills, those needed to operate efficiently in an immaterial space.

We may resolve this issue by observing what happens in the United States, of necessity a term of comparison, when we are dealing with digital life and disruptive technologies. The practice of Digital Collaboration has definitely been established in the States for some time now (the "definitive" book by D. Coleman, Collaboration 2.0, comes out in 2007). Hundreds of software tools have been produced for this purpose, by start-ups and big vendors, as opensource or proprietary solutions, all with remarkably innovative features. It is interesting to note that, the adoption of these tools begins at the individual level, as an evolution of what is called PKM (Personal Knowledge Management). It is the "individual" knowledge worker, or the "individual" knowledge learner, the one who starts cross-network collaboration, whether in private or institutional environments, and with personally selected correspondents. Organizations take more cautious steps when introducing systems that still rely on relatively young tools. It is only a matter of speed, however, as the path is set by global competition.

The design of all collaboration tools is based on the concept of "shared virtual workspace", upon which several categories of applications have been developed, for instance: team/project management, co-authoring, concept

mapping, brainstorming, learning spaces, collaborative research, collaborative semantic applications, document review applications, immersive worlds, crowdsourcing. One important fact about this whole generation is the way it is implemented, the so-called SaaS (Software as a Service) paradigm. If the application is a service provided by the network and it is a "utility grade" service, technical competences are no more a requirement for the user, who is left free to attend to the productive aspects of the adopted solution. As technological barriers fall, the appeal of web-based digital collaboration becomes very high, favored by vendors that find it ever more convenient to develop services instead of products. Nevertheless, individuals are facing a serious challenge, to have to develop a specific skill set, i.e. new "high order" skills that go beyond the domain of face-to-face collaboration. The virtual nature of resources, the virtual presence of "others", the difficulty in conveying emotions, the rapidity of events generated in a digital space, are all aspects that one has to learn to dominate. Hence the many studies about such matters as "turn management", "event space awareness", "virtual presence", and "multiplexed presence".

The authors' papers

Very clear traces of the above-mentioned subject matter are found in the papers collected in the present Issue. It is said that the reason why the adoption of new forms of collaboration is slower in Italy than in the USA is because in the Old Continent we have a strong tradition of individualism. However, the Italian paper presented by the researchers of the CSP Institute in Turin (G. Matteucci, L. Marcellin, L. Gonella) shows exactly the opposite, by clearly presenting how one introduces innovation into the fundamental actions of enterprise life: to collaborate, to share, to know, to communicate[1] . We get a description about how their eCollab software environment has been built based on selected opensource products, together with a report on the problems encountered in the adoption, usage and adaptation stages. It is a precious clue to what is hidden behind the buzzword "Enterprise 2.0". The current users of the CSP system can be identified as large public and private enterprises in Piedmont, and additional industrial sectors in the region are candidates. There is an element of particular value that stands out in this experiment: the application of a rigorous methodology to all phases of the project, an essential discipline when dealing with advanced technologies.

Collaborative learning and virtual words are almost like the other face of the moon, when compared to the subject of the previous paper. They are discussed by M. Lee, researcher and academician at the Charles Sturt University in Australia. Lee analyses three case studies, two from the USA and one from Italy,

1 Translator's Note: in Italian this collection of verbs has a special impact, as they all start with the letter "c": collaborare, condividere, conoscere, comunicare

which have adopted 3D virtual worlds as an e-learning platform. The subject is of topical interest, now that many immersive worlds are turning, from fun and fantasy places, towards other application domains. At the same time, with image rendering becoming extraordinarily refined, as well as animation and speech, there is no longer any reason to reject these environments on the basis of their roughness of implementation. Teaching and learning, however, are delicate subjects, in whatever scenario we want to place them, especially, if in a 3D space. Lee highlights the positive aspects of interaction in immersive environments, but his discussion concentrates more on the skills that must inevitably be acquired, both by learners and teachers, to implement collaborative learning. In these special environments those skills are an ever more essential requirement.

Highlighting the growing importance of Digital Collaboration, in 2007, the Idea Group Inc. published the Encyclopedia of e-Collaboration, edited by N. Kock. Kock is the author of the paper on "compensatory adaptation", an insightful essay on the obstacles and the challenges that are found when designing "Collaboration Technologies". The notions introduced by Kock are "media naturalness" and "media richness", in relation to communication media. The problem under discussion, in contexts of digital collaboration, is the lack of physical presence (an essential characteristic of face-to-face interactions) or, from another point of view, the obligation to use "media of low naturalness". Kock points out that certain compensatory tools commonly used, such as emoticons in electronic mail, are deeply inadequate to solve the problem. One suggested approach is to make interactions more multimedial, a direction that is clearly being followed by the more advanced tools for collaborative spaces. Kock's conclusion is that there is still not enough research about the behavioral aspects of digital collaboration. Research has been limited to experimental groups in labs, whereas it should be extended, given the present times, to the operating environments inside enterprises.

Not always do we have a chance to get to know in detail the rationale behind the design of a collaborative tool. The paper by D. Lebow gives us this opportunity. He does so by presenting very exactly what it means to do "Document Review" and what the limitations of the tools we commonly use for that purpose are. Lebow is an expert in learning communities and the founder of a software company, HyLighter.com. HyLighter is also the name of the tool created by Lebow's team from an expanded interpretation of the requirements of Document Review. The creation of a "serious" document by a group of co-authors that cannot meet face-to-face is a strong need which is felt across many professional environments. Before people begin to correct a draft, other needs are felt: people need to make annotations, discuss, confront with one another, propose new ideas, get to know what others think, and follow the thread of the

discussion. The solution created by Lebow is by all means a collaboration tool, but it would be more appropriate to consider it a tool for developing knowledge, or a "knowledge tool". HyLighter is a clear example of the creativity afforded by inventors when they try to respond to the stimulating requirements of digital collaboration.

Whereas the previous papers are vertical views on the topic of Digital Collaboration, the work by C. Mellini of University of Florence, scans horizontally the wide landscape of European research. In this domain, the effort is managed at EU level by the Information Society and Media Directorate General (DG). It is a very busy picture, and Mellini's paper is able to clearly identify policies, actors and relevant projects, all under the umbrella-name "e-Collaboration", the term used in Europe. For Europe, e-Collaboration means to be able to compete. As reported, projects in the EU domain are characterized by large investments and a focus on the specific technology of "grids", powerful computer structures receiving great attention by the scientific community.

The skyline we have explored with this issue of Je-LKS is open and, without doubt, has not yet been completely explored. It is not necessary, therefore, to emphasize that all authors will be available and interested to debate their ideas with our readers, because, as Lebow writes "our own views grow and are enhanced by remaining open to the view of others".

Fortunato Sorrentino
Educational Technology Laboratory
University of Florence
fortunato.sorrentino@virgilio.it

Other papers complete the issue:

M. Cinque and C. Pensieri, Bio-Medical University Campus, Rome (Campus We-Com. University students' attitude towards didactical innovation) introduce us to e-learning in the medical field which has been developed considerably in Italy during these last few years. The paper presents the "Campus We-Com" project (Wireless educational Communities) developed between October 2006 and August 2007.

Even if the artificial Intelligence seems to have been forgotten since the introduction of e-learning models and platforms, A. Pedrazzoli and P. Giuseppe Rossi (University of Macerata) focus on the integration of e-learning and A. I. providing a prototype for non subject matter oriented LMS-AI and integrated systems.

Another contribution from the University of Macerata (P. Nicolini, T. Lapucci, Training as exchange and negotiation of knowledge: an online and in presence model) refers to a Child Observation Laboratory. Based on movies

of ludic and interactive children activities, two approaches (online and f2f) are compared: improvement of the quality of observation has been found in both approaches.

Three papers deal with the implementation of promising systems and methods to facilitate retrieving educational material. The first deals with video material and the others with sector-based domains ("the water world" and "applied mathematics"). A. Carbonaro of the University of Bologna (A semantic environment to retrieve and to manage videos) focuses her attention on video material retrieval for educational purposes. Through the ontology management, the system uses key concepts describing the scenes and their relation to one another by means of a machine-processable representation which can be used for a content analysis of visual material.

The second paper (S. Bianchi, C. Mastrodonato, G. Vercelli, G.Vivanet, Softeco Sismat S. p. A and the University of Genoa, Use of ontologies to annotate and retrieve educational contents: the AquaRing approach) presents an ontology created to retrieve educational contents and resources concerning the water world.

In the third paper, S. Corsaro, P. L. De Angelis, M. Guarracino, Z. Marino, V. Monetti, F. Perla, P. Zanetti, University of Naples and CNR (KREMM: An e-learning system for mathematical models applied to economics and finance) present an e-learning system which manages multimedia data related to mathematical models for economic problems.

The issue concludes with two communications, by P. Ravotto (The future of education) who presents an extract of a conference he held at the University of Guadalajara (Mexico), and by C. Mellini (E- collaboration in research projects promoted by the European Commission), already mentioned above.

Prof. Antonio Calvani
Educational Technology Laboratory
University of Florence
calvani@unifi.it