COLLABORATIVE TOOLS FOR EDUCATION IN PLANNING: THE GISCAKE PLATFORM

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The web 2.0 revolution is considered more social than technical innovation (Berners-Lee, 1999). With the advent of language www, wikipedia and social networks (Facebook, Twitter, etc..), dissemination of news and information via the web has considerably changed the data sharing. Also in the field of the applied planning, the Internet has created a development of tools for the planners: Web Map Service within the GIS software (WMS, WCS, WFS) and WebGIS (MapServer, GeoServer, GeoNetwork). In this evolving scenario, the academic planning seems to have taken a not active role, suffering the effects of the technological and cultural progress and considering the Internet like a big library. From this, it raises a question: how the planning education use the web? how the planning education can take advantage of the new capabilities of web 2.0?

1. Two image of digital change

Often for illustrating the changes of history (of a community or a people) we use suggestive images or references to events which, immediately and directly, can describe these significant cultural passages. For their symbolic value, for the recognition of many persons, for their evocative nature, individual facts are taken as a reference to establish the beginning and the end of a period, to recall an advent or the affirmation of a thought, or to define the time when a certain lifestyle have began to spread among the masses. This synthetic and symbolic approach, perhaps, can better illustrate the profound changes that are taking place in the new millennium with reference especially to the contemporary digital prospect.

New technologies related to the virtual network are progressively influencing lifestyles in all world. The internet penetration can be illustrated, in an effective way, with two evocative images: the cover of Time of 2006 devoted to the 'Person of the Year' and the recent proclamation of the last two Popes (Fig.1).

The influential weekly U.S. 'Time' is known around the world for the publication of the first issue of December, where the cover shows the 'Person of the Year'[1]. It is a recognition that the magazine attaches to individuals (men and women), a couple of people, groups of people or places and equipment that have influenced significantly the year. In December 2006, Time magazine has chosen to reserve the prestigious cover

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[1] The custom of proposing a Time Person of the Year began in 1927 and until 1999 the award was named after the 'Man of the Year'. The first time that the subject of the cover was awarded to an inanimate object was in 1982 for the Personal Computer.

for a generic 'You'. This picture has been designed to indicate and symbolize all persons belonging to the web community; that is all users who contributed and encouraged with their expertise the cooperation and sharing of the web. Thus, "Time" has recognized the size of the web network as real community, which is based on the assertion of "communication paradigm" type Web 2.0, or better of the horizontal collaboration and the sharing for information and knowledge.

The second image is for the crowd gathered in St. Peter Square (Rome) waiting for the proclamation of the Pope Francesco, which took place in 2013. This image takes on a meaning more incisive if you put near to the picture of the previous proclamation of Pope Benedetto XVI. The comparison between the two squares packed with the faithful shows the change of behavior and attitude of the people present at the same religious event at a distance of eight years. In the square of 2005 no person is holding any technological device to capture photos or videos while, on the contrary, most of the attendees of 2013 use a device smart-phone or tablet, that allow you to capture images and placing them instantly in the internet web.

The "Time" cover of 2006, and the comparison between the two squares, allow you to define the two main features of the new digital dimension: 1) the network conceived as a real digital society (Castells, 1997) of exchange and cooperation; 2) the possibility to be always connected to the network thanks to new technological devices and, therefore, to use of the potential of web network wherever.

Figure 1. The Time of 2006 and the proclamations of a Pope Francesco and Pope Benedetto XVI

2. The evolution of the web and E-learing

The advent of the web began in 1991, when Tim Berners-Lee (researcher of CERN, Geneva) put online the first website via HTTP (Hypertext Transfer Protocol). In 1993 the hypertext informations (Lévy, 1995; Landow, 1992) of the virtual space the WWW (World Wide Web) became public and accesible for all people.

The interaction between people and between people and the space is changed with web and evolution of web: from web 1.0 to web 3.0 (now in progress).

The web 1.0 is characterized by a organization top-down with sites of a static nature, by lack of interactivity and by the distinction between user generated content and the simple user (the user during navigation, it had the possibility to find information, but not to contribute to the addition of new content). With the phase defined as 2.0[2], the online space implements its usage properties, giving the user the ability to share, participate, collaborate, i.e., to become, in a simplified way, a producer of content. The web 2.0 has implemented creativity, communications, information sharing, collaboration and functionality of the web. Web 2.0 has led to the development and evolution of web

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[2] The term web 2.0 was coined by Tim O'reilly in 2004 as the changing in the use of World Wide Web technology and web design.

culture communities and hosted services, such as social-networking sites, video sharing sites, wikis and blogs (O'neill, 2005). In fact, all online sharing applications assume great importance, because they allow a high level of interaction between the website and the user such as blogs, forums, chats, wikis; media platforms such as Flickr, YouTube, social networks (Kaplan, Haenlein, 2010), or as Facebook, Myspace, Twitter, Google+, etc. They are typically obtained through appropriate programming techniques belonging to the paradigm of Web Dynamic. From the point of view of the theory of communication, the web moves from a model 'One to One' to a more complex model 'one-to-many, many-to-many'. From the single consumer to an use active and a common activity . There are big differences in web 1.0 and web 2.0. Web 1.0 is less interactive with a major focus on the retrieval of knowledge. Web 2.0 allows the user to participate in the acquisition of knowledge.

The web has resulted in a profound impact on the social organization and the individual and collective behaviour (Berners-Lee, Fischetti, 1999); this was done through the development and the widespread use of Information and Communication Technology (ICT). In fact, many people tend to talk about 'digital revolution', as the progressive increase of all the new technologies (internet and electronic equipment) which are deeply changing the economic sphere, the world of production, the sectors related to knowledge and knowledge, government policy, social behavior. If one can speak of revolution, then this has a unique feature: for the first time is a revolution of global scale.

According to the definition by Pierre Lévy, the intelligent collective is «intelligence universally distributed everywhere, constantly enhanced, coordinated in real time, which leads to an effective mobilization of skills» (Levy, 2002, p.34). De Kerckhove updated this concept adapting to the collaborative web, because the collaboration/share in the web space has generated new forms of acquisition and transmission of knowledge[3].

The new forms of acquisition of knowledge are changing the organizational structure of traditional teaching (JW Lee, McLoughlin, 2011). The sector of learning that takes advantage of the modern communication is ascribable under the term e-learning (electronic learning). E-learning can be defined as a mode of teaching that makes use of all electronic media and multimedia in multi-level mode. The evolution of e-learning runs in parallel with web development (Bates, 2011): after the first experimental forms of e-learning of the 90s (online forums, websites, emails, and online platforms of 'distance learning'), now the e-learning systems 2.0 is being implemented.

According to many academics of online learning, the innovative nature of learning 2.0[4] could envisage profound changes in the world of academic training: University e-learning

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[3] «The adoption of Web 2.0 implied, in fact, radically different epistemology, the base of which there is a different conception of the nature of knowledge, how it is produced and what it means to know» (Midoro; 2012, p.129).

[4] Furthermore, this approach gives the student a customized and continuous training, where : «True educational value arguably lies in the enablement of personalized learning experiences that empower students to take charge of their learning journeys, collaborating with peers and experts and drawing on multiple sources both within and outside of the formal learning environment to produce their own ideas, content, and resources» (J.W. Lee, McLoughlin, 2011, p.50).

applications were laid out in a top-down views, while the web 2.0 can provide new tools to respond to the real needs of teachers and students through a bottom-up and collaborative approach (JW Lee, McLoughlin, 2011).

Besides the change of educational tools, in reality the web has changed significantly the student-university (Prensky 2001); because current students are among the biggest users and connoisseurs of the network. According to research British: «young people scan online pages very rapidly (boys especially) and click extensively on hyperlinks-rather than reading sequentially. Users make very little use of advanced search facilities, assuming that search engines "understand" their queries. They tend to move rapidly from page to page, spending little time reading or digesting information and they have difficulty making relevance judgments about the pages they retrieve» (quoted by Bates, 2011, p.23).

Modern students belong to 'Generation Y' (Howe and Strauss, 2000), i.e. people born from 80s to 2000 (also known as the Millennial Generation, Generation Next or Net Generation). Generation Y is characterized by being grown under a strong influence of the new technologies of communication and mass media. This generation is defined also 'digital native', the term is coined by Prensky (2001). To describe the preparation of the student in the use of modern ICT and multi-tasking use of several devices is interesting to introduce the definition by Veen, of 'Homo Zappiens', who «represents a generation that was born with a PC mouse in its hands and a computer screen as a window to the world. [Homo Zappiens] have learnt to deal with information overload by clicking and zapping. It has learned how to navigate efficiently and effectively through information, how to communicate, and how to build effectively on a network of peers» (Veen, 2005, pp.20-21). For Veen, this category of people will cause a profound change in the school, that will be forced to innovate and to abandon the traditional structure because of strong competition from the Internet. The Dutch professor defines and suggests four time periods from 1980 to 2040 according to the relationship between the use of ICT and learning evolution[5]: starting from 1980 to the 2000 single-user tools with Computer Based Training; from 2000 to 2010 Multi-user Virtual Learning Environment with Online Learning; from 2010 to 2020 Online compound Learning Systems with Learning on-demand; from 2020 to 2040 Distributed Electronic Virtual Knowledge Centers with Learning Mall (Fig.2).

Figure 2. The graphic of Stages of Educational Technologies and Practices by Veen (2004)

This vision shows the metamorphosis of the figure of the student, who is no longer conceived as a simple receiver of information within a closed structure but he is seen as a navigator, who can enrich himself with the interaction of the global environment through the web and the increasing use of social network: «[the students] customize their environment to study [...] For example, using blogs as personal diaries, Wikis as a private space for content management, delicious as an archive of personal bookmarks, flicker and

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[5] This categorization is based on the temporal distinction made by Nolan about the growth of technology and the organizational learning, Veen shows a possible scenario abiut the changes that the use of ICT has made to learning. «Nolan has described as the S-shaped organizational learning curves, in which three dominant designs of IT have been and are being as similated into organizations. The Data Processing (DP) Era dated from 1960 to 1980; the microcomputer (Micro) Era dated from 1980 to 1995; and the Network Era, which began around 1995, is expected to continue until 2010» (Veen, 2005, p.4).

YouTube as multimedia catalogue and so on. And, if him wish, him can share this part of his personal world with others. He can collaborate with others to create new products and services or to find original solutions to data collection problems». (Midoro, 2012, p.128)

With awareness of possible risks of the web, the theorists of e-learning put this approach not in the antithesis of the university but as a means of support and enrichment for the university. The new frontier of multimedia presents itself to the university as a challenge and a possible of growth that needs to be addressed; the academic learning should, therefore, adapt to new technologies to use the potential of the new means of interaction, to enhance its educational effectiveness, to interpret the new demands of students and to lead the 'digital students' on the better paths of learning.

3.   The potential of the platforms web 2.0 in the academic education

In Italian context at present, the use of social network and collaborative tools for academic education is evolving and poses questions still open. The use of the online information is deemed reliable search tools for both students and professors, the web is perceived as a great global library where to get information; but the potential of social media and share platforms (often free of charge) are not fully exploited to establish an continuous and interactive dialogue between professor and student.

To explore the theme and understand the potential use of platforms web 2.0 in academic education, the research team experienced a collaborative platform 2.0 in two courses at the University of Florence.

The courses are "analysis of the territory and the settlements" (first year) of the degree course in architecture and planning laboratory (second year) in the degree course in planning. We have subjected a questionnaire to students; the questionnaire was meant to understand whether and how the web, social media and sharing platforms 2.0 are used in the academic learning[6][6]. The students come from different fields of study; but based on

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[6] The twelve questions of questionnaire are: which social media and websites do you use to consult for research aimed at the achievement of your exams? (choose between: facebook, google+, tumblr, flickr, flickr, instangram, youtube, prezi, slideshare, wikipedia, europaconcorsi.com, archiportale.com, other); which web-maps do you use to consult for your research and for your exams? (choose between: google maps, google street view, google earth (desktop), bing maps, nothing, other); for the preparation of your exams, which social media and web platforms do you use to communicate, transmit information and material (photos, notes, drawings, etc..) with your mates? (choose between: facebook group, google group, skype, dropbox, chat, nothing, other); for the preparation of your exams, which web web platforms do you use to work in a shared manner with your mates? (choose between: google docs: word file, google docs: exel file, draw file, google maps engine, google maps engine, nothing, other); in your academic courses, there are professors who use web platforms for the presentations of the lessons in the classroom? (choose between: yes: one professor, yes: more than one professor, no); if you answered YES, which web platforms is used by the professors? (choose between: google docs: presentation, prezi, draw file, slideshare, other); in your academic courses, there are professors who use web platforms for transmission and sharing materials with students (such as online sites dedicated to downloading lecture notes, dropbox, facebook group etc.)? (choose between: yes: one professor, yes: more than one professor, no); if you answered YES, which share web platforms is used by the professors? (choose between: google docs: web site of professor, blog of professor, dropbox, facebook group, google group, other); in your academic courses, there are professors who use web platforms to

responses received, it is possible find a profile of student common. Italian modern student is a person who uses the web and web services in their daily lives both in the private and academic; the student does not differentiate the web based on the scope of use but he exploits the potential of the web according to the purpose: if a web tool facilitates fast communication between people, this can be used indiscriminately both for social interactions and for interactions in academic work. To research the student relies on the web as a kind of library; indeed the first website of research is wikipedia; to view maps online the student relies on google maps (basic/street maps) and google Earth; it is interest that some students begin to use facebook youtube for their scientific research. The creation of a facebook group dedicated to the academic course is now common and popular, this is used to exchange general information on the lessons and the exams. For the preparation of exams, the student uses Skype and chat to communicate in real time with colleagues; Dropbox is widely used for the transmission and sharing of documents and create online file archive . Students are active in the web to communicate and share files but they do not use online tools to share editing: in large part because the students do not know the share platform. In academic field, students usually tend to use web services that has already used in social life.

The student profile is similar to that of professors: from the data provided by the students, the professors use the web so prevalent for communication and to transmit documents, in particular to transmit the lesson's paper. In general, students have a positive opinion about the use of web in academic learning; they consider effective web tools in the following order of importance: 1) to transmit and share content with other students; 2) to easily avail of the material of the lessons; 3) to communicate with other students; 4) to do research; 5) to to work in a shared manner with classmates; 6) to make revision with the professor.

To experience new dynamics of interaction between students and professors, during the course we experienced a platform web 2.0 called GisCake. The platform GisCcake is developed by the Spin-off (start-up) called Artù at the University of Florence. The platform has the objective to allow the sharing and interaction between users operating in the territory for the purposes of both educational and professional. The online platform is configured as a online map, that can be processed and drawn in shared by multi-users. This collaborative instrument is a SaaS, i.e. Software as a Service; the SaaS is an online software of cloud type, the user doesn't install the program on desktop but he uses the program on web with account access. In particular, the platform is a multiplayer web-GIS (geography information system); it is a "virtual work", where the users can map their projects and they can draw new geographic elements in manner multiplayer and real time. GisCake is a real-time online coworking that allows multiple actors to share, review, comment, modify and safely store their files. It gives people the possibility to remotely access documents and organise a precise workflow in a collaborative way.

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make revisions with the students? (choose between: yes: one professor, yes: more than one professor, no); if you answered YES, which web platforms is used by the professors? (choose between: skype, chat, other); do you consider useful and effective the use of new web tools offered by internet for academic courses? (choose between: yes, no, I don't know); if you answered YES, to what functions of web tools do you consider most effective for the learning? (choose between: for my researches, to communicate with my mates, to transmit and share files with my mates, to work in a shared manner with my mates, to take easily the materials of lessons, to make revisions with the professor, other).

GisCake is useful to shared activities such as commenting and editing images, files and shared maps.
Through a historic change and access, the platform allows to certify the work done by the users on a project.

The platform is in phase of development, in the two university courses, the test was carried out with an alpha version; the alpha version allowed to share images between students and professors, to insert make comments on the images drawn by students and, therefore, to determine a kind of virtual review. The experiment can be considered positive because the use of the platform has allowed us to speed up the academic reviews, to organize in efficient manner the deliveries intermediate before final exam, to have a detailed historic report of reviews, to boost dialogue and interaction between students and professors, to establish a synergistic relationship between students and professors. It is important to highlight that the platform has not replaced the traditional review conducted face to face between students and professors, the online platform is been configured as a support tool to teaching: in traditional review, professors have dealt with the issues related to the content of the work; in the review through the platform the professors have treated the more technical aspects related to the cartography. In addition, by a group of students who work and / or o live far from the university, it has been applied to the Council of the degree course in urban and regional planning to use the platform GisCake for other courses in addition to the experimental ones. An important feedback that shows that the objectives of optimizing and simplifying the reviews with the platform is partly achieved by students and considered as useful. After the test, we have submitted a new questionnaire to students about the use of SaaS. We are below the questionnaire and results[7]. Question one: How do you evaluate from 1 to 5 the use of the platform GisCake in the development of the course? response: 2% value 1 (very negative), 8% value 2 (negative), 51% value 3 (sufficient), 24% value 4 (good), 15% value 5 (very good); question two: Did GisCake facilitate the review with professor? response: 8% value 1 (nothing much), 11% value 2 (little), 21% value 3 (sufficient), 41% value 4 (much), 20% value 5 (very much). In general, the students rated interesting and useful to use an online platform to implement the methods of comparison and review with the professor, the negative assessments are determined by the technical limitations of the platform still in development. An interesting aspect concerns the approach of the students to the use of collaborative platforms. After the experience of GisCake, the students have experienced independently other online platforms for collaborative editing; they took greater awareness of the potential of web about tools that facilitate and simplify teamwork. In the course of planning the certification of the effectiveness of GisCake is highlighted by the spontaneous initiative of students: students have applied to extend to other courses online platform[8].

4.   Final reflections

Italian students and society are introjecting the web 2.0 much faster than academia. Provide tools that promote collaboration 2.0 is useful not only for teaching but especially for the future world of work. In fact in this, being very competitive and dynamic, master

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[7] Students have completed the questionnaire anonymously.
[8] At the moment this possibility has not materialized due to logistic and technical reasons.

new web technologies and the pratice to work remotely can be a fundamental added value. The multidisciplinary and integrative collaboration, which involves both the planning design, passes more and more information from the channels that are not going to replace the classical practices of interaction within the work flow but these are combined.

The test showed how to have within a single virtual space data, documents, images and maps, about a shared project, constitutes a common basis of work that is recognizable and traceable back in certifying this process so indirectly.

Experimenting further, still in place, with the government is giving good feedback in this regard. For two months we are experiencing GisCake with the municipality of Roccastrada with the office manager of planning for the design of the instrument of local planning landuse. In the work of an interface between the university technical assistance team and the local project team, we are using the platform Giscake in a more classical mode of revision work. Even if the user is just one, in this case must be considered, however, that this is an actor that is the real office of the municipality. The manager exchanged daily opinions on the documents and maps online, that are functional to local landuse planning and, during the regular working meetings, we start from a base already virtually discussed gaining in efficiency, time, and effectiveness, clarity in work.

Certainly, the platform is still immature to be transferred to the professional world, but thanks to the improvements of these tests outside the academy we hope to reach an optimum for the next academic year. In doing so the simulation teaching will be optimal and better prepare students in the planning and design 2.0.

Certainly, the platform is still immature to be transferred to the professional world, but, thanks to the improvements of these external tests, we hope to further enhance the platform so as to align the needs of the professional world with those in academia. In doing so the simulation teaching will be optimal and better prepare students in the planning and design 2.0.

It is also interesting to note that in classes where governance and collaboration process is not the main topic, in fact, already educates students to see the work as a shared process of choices and a place for discussion in a modern and smart way.

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