Folksonomy, Tagging and Taxonomy for Effective Learning

_Perspectives of Learning 2.0 in the XXI century_

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**Abstract:**

This paper reflects upon the issues posed by students' extensive use of collaborative internet tools, or social web (Web 2.0). Internet-based cooperative activities are usually underrated by academic and official school practice, though students dedicate most of their time to the web. Moreover, the paper attempts to consider the innovative collaborative practices of Web 2.0, of social bookmarking (“Tagging”) as part of future teaching standards, and what are the perspectives in the near future. Finally, the aims of the paper are to understand the interactions between students' real life and learning and to explore possible, reliable, criteria for assessment of students' activities through Web 2.0.

1 Introduction

Students of all over the world have always been quite anxious about the assessment of their competences and progress on the part of teachers. The fear of being assessed and graded has considerably fuelled stress, stops both in formal and informal learning. In recent times, educators and experts have tried to overcome the students’ Angst of being assessed and graded through the use of Portfolios, showcases for a student’s best work and achievement. According to OECD - Programme for International Student Assessment (PISA, 2003 and 2006) Italian students show low levels of knowledge and skills in many subjects. The tools of collaborative learning through the internet (Web 2.0) may help to reduce the gaps and foster students’ performance inside and outside schools.

The current research on the strategies to make teaching more effective combine several factors, such as meeting cultural needs and technological tools, self-assessment and formal learning, acquiring secure competences and students’ motivation, and so on. Today teaching is plainly assumed not to be a mere transmission of knowledge. However, in most countries (including Italy) the school syllabus is often organized on the basis of a sequential
information acquisition and processing. Each topic undergoes a precise organization in time and ways (according to general, specific, and finally operational objectives) carefully explained, with the identification – in advance – of the skills the students have to acquire, dutifully described with appropriate indicators. These strict protocols are undoubtedly useful to get expert teachers to reflect on the curriculum and proposed activities, avoiding improvisations, but they prove to be increasingly inadequate to meet students’ needs. On the contrary, students oppose less linear and organic learning styles that coincide with the intimate nature of the web.

The expression “Web 2.0” does not refer just to the access of information on the part of users, but also to its representation, to its active sharing and creation of meaningful content within social communities at online level. Talking about and using the Web 2.0 at school does not imply a “School 2.0”: the school is not a computer programme just to upgrade. A school is a complex construction of knowledge, cultural and human relations, and of formal recognition of skills. It is not a matter of being webophobic, nor of webophilia¹, bearing in mind that the web is a pervasive and inclusive reality², a great part of the student’s individual life.

2 School and Web 2.0: Socializing is still all.

In 1624 the English poet John Donne wrote “No man is an island, entire of itself; every man is a piece of the continent, a part of the main.”³ I think we teachers should always remember that. The collaborative or socializing tools of the internet (Web 2.0) have contributed to linking and enriching young peoples’ lives in many forms and at own pace (both in space and time): audio, video, photo, chat, etc.

In the past decade users’ approach to internet has been aimed at finding and retrieve already structured information. With the advent of Web 2.0 the internet has profoundly changed as users have become active producers of knowledge, information, views of events, etc: the


² A very good starting point to explore the Web 2.0 is “Go2web20”, huge amount of internet resources characterized by the principles of interactive and social web. Another good example is “Exploratree”, free resource (originated in the United Kingdom), where students and teachers can up/download documents of various kinds, use and create interactive guides on every subject, always in a collaborative and personal way.

³ John Donne, Meditation XVII.
internet has enabled creative surfers to use cognitive tools, learning environments and strategies, critical thinking and autonomy. All these elements are probably the agents of what in 1974 Wittrock called the “generative process of information”.4

The term “Web 2.0” has not a solid or shared definition. Now it is a powerful trendy *leitmotiv* and owes its origin to a brainstorming session within the American group O’Reilly Media & MediaLive International occurred in mid-2004, also claimed the first Web 2.0 Conference in the October in the same year. In 2005 O’Reilly published what seems to remain the main literature reference to the topic: “What is Web 2.0. design Patterns and Business Models for the Next Generation of Software”.5

According to O’Reilly, there are seven animating principles of Web 2.0:

1) The World Wide Web as a platform

2) Exploiting the connective intelligence6

3) Database management as a basic skill

4) End of updating cycles

5) Light programming models. Search for simplicity

6) Software is not limited to a single device

7) Experiences enriched by the user

The paradigms of modernity seem to be speed, plurality of voices, and connectivity. As De Kerckhove put it down,

“The multiplication of contacts everywhere opens the possibility to unify the answers worldwide. Today economies are revised instantly, electricity embraces the globe into a single network. Any move on the stock exchange has effects on investment worldwide. This acts as a multiplier both for good and bad. Never as today was important as the intangible value of ideas

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associated with a product, with a company; these ideas included a flow of collective intelligence. Our hardware, material reality, contracts and implode on itself because our communication technologies reduce exponentially the intervals of space and time between operations.”

3 Cooperative activities and “Learning 2.0”

Cooperation through the internet, and learning through Web 2.0 and students’-centred activities can offer a vital contribution to the daily school practice. Web 2.0-based activities can form examples of personalized syllabuses, e-Portfolios, peer-reviewed tasks, and what Papert calls “strategies for pupils’ re-empowerment”8. Teaching ideas and activities suggested through the Web 2.0 may represent a formidable source of what once was called “authentic” material. For example, language examinations such as UCLES (University of Cambridge), Trinity College London, Delf (Alliance Française), ZDF (Goethe Institut), usually have reading and speaking papers taken from photos, articles, and so on. Tools as FaceBook, Flickr, WetPaint (to create personal collaborative websites or wikis), Wikipedia (the free online encyclopedia), and YouTube can give an effective contribution for creating authentic material. Everything can be combined with the tools of instant communication (Instant Messaging) of Web 2.0, as Meebo, Skype, or Twitter, especially when exams take place in distant places.

During personal experimentation in class, I asked the students to complete activities with blogs, to collaborate in writing documents and spreadsheets with Google Docs (http://docs.google.com), with online productivity suites as Zoho (www.zoho.com). This classroom experimentation has involved the students of the final year of my former High Secondary School (“Liceo Classico”, 18 years old) and has lasted two months. The students have also prepared multimedia presentations and chosen Web 2.0 tools as Trailfire (http://trailfire.com) to create a teaching and learning resource. According to the topic previously defined in common, the students have also kept a record of the material found through the websearch and “reminders”, like Google Notes and tags. I also managed to encourage the students to mark sites with “Social bookmarking” with del.icio.us (http://del.icio.us) and to create conceptual maps to upload using CMap Tools

All these activities can be easily managed in class and make learning more pleasant and varied.\(^9\)

According to Mark Wolley\(^{10}\), people and students derive many benefits from networking through the tools of Web 2.0, to infer the democracy of the same Web 2.0 and knowledge originated with the following characters:

- collective intelligence = collaborative
- transparent = instant gratification
- not hierarchical = democratic
- potential for passion = personal property
- open to the public = real recognition
- permanent resource = searchable

4 Assessing learners through Web 2.0. The teacher’s role

Assessing learners through Web 2.0 involves the redefinition of the teacher’s role: this teacher becomes a “network administrator and curator of knowledge”. The Web 2.0 seems to transform knowledge into active learning to some extent, while assessment is still essential for a formal recognition of learned competences. If the construction of knowledge is a collaborative process, then the assessment changes with the advent of the Web. Assessment is not merely a “teacher’s job”: peer review and assessment are quite common features today. Nevertheless, assessing students’ work is not easy, since we may not adequately appreciate the individual contributions, especially in group-work and because intellectual plagiarism is always round the corner. Thus, evaluating the acquired information is vital; likewise, it is essential to understand the cognitive steps that have lead to information processing. As Siemens put it, “When knowledge is abundant, the rapid evaluation of knowledge is

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\(^9\) See Victoria A. Davis (2007). “The Web 2.0 Classroom”, from Centre4, connective plataform of New Zealand schools and universities. Other studies are by Downes, Murphy e Nikolov (see Bibliography, at the end of the paper).

important.”

The Web 2.0 requires the teacher to redefine what is knowledge and the teacher’s role or function, because teaching has traditionally been bottom down, while the current structure of the web and the organization of knowledge in the age of mass communication and interaction are bottom up. This mass of information is structured through the use of “folksonomies”. As we will see later on, tagging and (social) bookmarking seem to recreate the mental models of large audiences of users (the “folksonomies”) on the one part; on the other, they contribute to give information and knowledge a new identity. The Web 2.0 obliges us to reflect on the dichotomy between taxonomic precision and folksonomic sharing. When we believe appropriate to the tasks, collaborative learning through the web offers an alternative to traditional approaches and models, because the web is structurally related to the collaboration among equals and to the production of large quantities of material. However, the abundance of information may be counterproductive (Morville, 2005): the cognitive overload might not enrich pupils but mislead them. We have not to abhor redundancy or visibility of information tout court. Visibility has always had an important profile for ages. For the English philosopher John Locke, for example, visibility was among the necessary conditions for perceiving and dignity of existence. Today visibility comes again in De Kerckhove’s words: “The new thinking connective system is the screen”. People exist as they put a personal diary on the web, collect and publish materials in blogs. People like David Pogue in the USA or Beppe Grillo in Italy contribute to orientate consumers’ preferences and to inform them about politics and future trends.

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15 “The new system of connective thinking is the screen”. Interview of Derrick De Kerckhove with Álvaro Bermejo on “Communication in Evolution: Social and Technological Transformation”, for the “McLuhan Program in Culture and Technology” University of Toronto in Canada.
5 Tagging and taxonomies of Web 2.0. Towards a school view and assessment

For Linneus, to collect, to analyse, to systematize the knowledge and the experiences were the primary need of any cultivated person. Today, the process of organizing the resources in the internet can be partially effective and extremely difficult because the net is always evolving. Therefore, it is hard to determine what to measure and evaluate. In opposition to the announced proposals for personalized learning, often left onto written documents just for official use, knowledge in the age of Web 2.0, in the XXIst century, is in constant flow and renovation. As a matter of fact, knowledge takes advantage of the following elements:

i. adaptability
ii. connectivity
iii. democracy
iv. pluralism
v. rapidity

Various attempts have been made in order to identify the necessary skills for the present age. One of these attempts is by the Partnership for 21st Century Skills, a consortium of famous American companies and institutions ranging from Apple to Intel, from Cisco and Microsoft to the American Federation of Teachers and the Department of Education, and others. All agree in identifying the best strategies to respond to the need of improving the pupils’ competences for contemporary life. In the guidelines promoted by the Partnership we can find a number of themes that are at the core of the debate over education in Europe, such as the partiality of current studies, the abundance of subjects without an effective mastery, the excessive time spent at school, short-term memorized chunks of syllabus without any reference to Life long learning, as suggested by the European Union instead:

- Critical thinking and problem-solving skills
- Communication skills
- Creativity and innovation skills
- Collaboration skills
- Contextual learning skills
- Information and media literacy skills

16 See the Life Long Learning Programme of the European Union in the EACEA website.

All these elements listed above tend to emphasize school activity in terms of acquisition of competences (skills) and not just “contents to fill”. Moreover, these elements imply educational activities that fully involve the students in the process of education and in feedback after learning. The typical linear and heavily structured organization has sometimes prevented students from being actively involved in the process of learning, as well as a quick response to their needs. In addition, measurement and assessment have been about the finite product of education. The Web 2.0 may contribute to facilitate both syllabus organization and feedback, together with the assessment of education as a process: for example, a blog can easily be transformed into an “E-Portfolio”, with its performances and notes.

The classification of knowledge and skills acquired through the Web 2.0 is made thanks to “Folksonomy”. According to the anonymous definition in Wikipedia,

“Folksonomy is a neologism that describes a collaborative categorization of information through the use of keywords (or tags) chosen freely. In more concrete words, this term refers to the methodology used by groups of people who spontaneously organize into categories for the information available through the internet (see Web 2.0)”.

Immediately below, the anonymous compiler appropriately continues:

“The origin of the words folk (or folks) and sonomy (contraction of taxonomy) was attributed to Thomas Vander Wal. Taxonomy derives from the Greek word taxis (“order”) and nomos (“economy”, “administration”).”

Folksonomy may not be as precise as Bloom’s taxonomy that focuses on a hierarchical structure of activities. Bloom explored the three domains of educational activities: cognitive, affective, and psychomotor. Unfortunately, it seems that school practice has often overstressed the importance of the cognitive domain only, leaving the rest in the shadows. On the contrary, the structure of knowledge in the age of Web 2.0 varies according to the users’ needs – including affective links – to the extensive (or not) use of tagging (that is marking, labeling the web resource): aggregating and categorizing information are at the basis of Web 2.0, are its values.


“(…) The tag is the message. The tag is the nature of the Internet. Without the tag, without thus opportunity to share messages that are processed and sent out over the network in different pieces that follow different routes, the Internet would be a system only point to point and not distributed as it has been.”21

Once again, the questions are still about “order”: what, when, why and how to “order” the information acquired thanks to the web. In Bloom’s words, our students still “separate”, “compare”, “analyze”, “report”, etc. My personal classroom experience suggests that students include a great deal of affectivity in using the web and their tools, then, it should be necessary to define the tools used and the value of the outcomes.

Today we have several interesting examples of communities of users dedicated to the establishing free spaces of information management, documents, and knowledge. Scribd, ThinkFree, ThinkTag, and Zoho may be the best cases in which the tags (labels and marks) function as indicators of the cultural value of the tagged documents, usually dealing with cultural studies, scientific debates, events, and so on. ThinkFree and Zoho are cases apart: the member of the community contributes (individually) to a repository of documents using wordprocessors, spreadsheet, presentations, webnotes exclusively online with productivity tools programmed into AJAX language (Asynchronous JavaScript and XML). Thus, the author and the final user, no matter far they could be, adopt rich internet applications, usually interactive and likely to share desktops, regardless of existing operational systems and machines.

According to the present state of the technological art, it seems that the formal measurement and assessment of the acquired skills at school and through the Web 2.0 are antithetical practices. The more precise the formal recognition of learning at school is, the more shared and sometimes anonymous is the knowledge and information discussed through the web.

At this point it might be useful to point at a possible ranking of the tools of Web 2.0 and their applications at school. The different tools often fall into various categories or the same ones because of their nature: for example, a social network usually includes an instrument for blogging, bookmarking, or information management. The concrete example of all this mix is provided by Elgg. Elgg combines blogs, e-portfolios, and social networking, and also includes many other functions such as file repositories, community tags, and podcasting. The service represents a new breed of open source, group software with the emphasis both on individualizing resources and on creating a welcoming social network. However, the educator should bear in mind that the mastery of technology is not the ultimate goal of the process of

teaching and learning. Then, educational activities should refer to the relevance and quality of the information and knowledge produced, not just to the technical skills. Criteria for Web 2.0 activities should stress the ability to perform group work and problem solving as better as possible. The focus should be about the relevance of 1) objective; 2) procedure; 3) product.

A. Social Networking: describes all those instruments to establish spaces that promote or facilitate the creation and life of online communities and instances of social interaction. The best known examples for the creation and management of the social network are Facebook, MySpace, and Ning.

B. CMS (Content Management Systems): We refer to those tools that encourage reading, writing online, the distribution and exchange of cultural material from various sources, with tagged, classified information. Famous cases are Joomla, Magnolia, and Wordpress, the well-known software for creating blogs; finally, RSS (Real Simply Syndication), that automatically provide the user with the desired contents.

C. Social and intelligent organization: They are tools and resources to tag, mark, and index the content, to facilitate the storage and retrieval of information. A common example is “del.icio.us”.

D. Applications and services (mash-up\(^{22}\)). Here we include all those tools, programmes, online platforms and mixed/hybrid websites that aggregate information and content dynamically, coming out from a multiple number of sources. Notable cases are Digg, Flickr, or Google Maps.

6 Conclusions

Web 2.0 is an opportunity: there are convergences between web consumers and creators, while the borders between reading and writing, between public and private spaces progressively disappear. The unified role of consumer and creator helps educators to meet students’ needs better and, at the same time, foster the appropriate and learned use of cognitive tools that make knowledge readily available for a greater number of people.

Researchers at all levels (students, faculty, staff) can quickly set up a social bookmarking page for their personal and/or professional inquiries.

Beyond technical limitations, computer operational systems and machines, the tools of Web 2.0 overcome the existing differences and make everyone capable of “producing knowledge”.

The users of Web 2.0 technologies become capable of pursuing their learning objectives, of processing the information effectively, and of producing a final meaningful outcome that is not limited to school but is personally motivated and actively elaborated.

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