

Learning management in higher education and social web. Integration into instructional design by early adopters

This work originates in a proposal for features and quality indicators, published as "Quality Assessment in Social Learning Environments" (XXX, 2011) on the integration of learning web management systems and social environments in the Higher Education. The work proposes the validation of the indicators and the need for a framework for a pedagogical model and an instructional design.

The paper describes the state of the art. Then, it validates the criteria and indicators of quality in the study, its objectives and methodology. The analysis of the obtained data leads to the conclusion that if we consider the progression in the engagement, we can conclude that the more it increases, the greater the correlation with the idea of "including social software in the instructional organization (teaching guides, etc.) of the training program."

The paper ends with some recommendations for content, teaching and learning, management and technology areas in Higher Education.

Introduction

This work constitutes the dissemination of research work within the program PhD in Interdisciplinary Applications and Problems of Information and Communication Technology, at the Higher Polytechnic School of the University of Alcalá de Henares. It also has the support of the Network of University Virtual Campuses.

The work arises from a proposal of features and quality indicators, published on the work, "Evaluation of Quality Learning in Social Settings" (XXX, 2011) on the integration of learning management systems and social web environments in Higher Education (HE), and from the need for pedagogical model and instructional design framework. It also addressed the need for its validation in presence of inadequate institutional policies, in the context of generalization of the social web as a singular means of communication and as space for coexistence of students and teachers. Subsequently, a research sponsored by the Network of Virtual Campuses of Spain was carried out, through the design of a questionnaire with these objectives.

Therefore, the study has as its main objective to validate the proposed indicators on quality in social learning settings, using the processed results and conclusions obtained from the questionnaire. We will do so within a broader process of formative research in which this study only validates the quality indicator which ensures the integration of social web tools in the instructional design of formative cycles of Higher Education.

It is also meant, as a result of the study, to obtain and propose methodological elements to include in the instructional design of programs and courses in Higher Education. This aim is consistent with the developments in the work and theoretical references of Charles Reigeluth (2012) on the educational paradigm of post-industrial society, and in other works of the author along the same lines.

Another goal also derived from the main study and from the work done on the state-of-the-art is to provide the faculty and college managers proposals, recommendations, and a description as regards teachers' disposition and degree of development in teaching practices of innovative teachers.

Moreover, this work is part of a research process under formative methodology: it is, therefore, a first step in a process along the line of instructional design with formative research.

Two years ago, it was noted (XXX, 2011) that virtual campuses have become a reality that occupies a usual and popular space of access. This fact is stated by the best known reports worldwide, including the U.S. and Spain: *Going the Distance: Online Education in the United States, 2011*, the Sloan (The Sloan Consortium, 2012) report, and in Spain the UNIVERSITIC2011 report published by the CRUE (2011). However, only technological aspects are emphasized in them. They do not address issues related to teaching methodology, learning or assessment, or to other instructional design variables. Neither do they address the emergence of social web environments or their integration. As a consequence, an opportunity

for methodological innovation has been lost. The social web is absent in all of them, which is logical for being a novelty, and since the general transformation of LMS' into environments for activity management in conventional education has been accepted with skepticism –grades management, students files, scheduling, activities and resources., But in no case do they manage the learning that takes place.

The widespread use and taking over of the social web by students is noted in the *avant-garde* international framework of Higher Education, in the Franklin Report (Armstrong and Franklin, September 2008). These facts are "habitats" where innovative teachers, those who adopt innovative methodologies and environments first, "early adopters" (Rogers, 2003), are trying new things in an isolated and sporadic way, without institutional support. Therefore, in Spain, the social Web is used in almost all areas of Higher Education, including academic and support areas. These areas tend to become "hot spots" where "early adopters" are testing their innovations, yet far from being widespread practices or being included in the formal institutional frame, or even with instructional design tools that are individually understood, or in areas or department groups.

Therefore, in the Spanish context of H.E., where it seems that –to some extent- the technical infrastructure for students and teachers to access to the function of the social Web is available, it makes sense to collect the requirements and traits that innovation needs so that it is carried out in the most efficient way. It is all about quality issues. Finally, as we shall see, there are quality reasons related to learning, in connection with the new ways in which the social web encourages cooperation, thoughtful and autonomous interaction of students, and participation models and the evaluation of their work by the teacher in the same process or in carrying out the task.

State of the art, antecedents and need of methodological elements for teaching that integrates tools of social web in learning management

We have researched antecedents and references on the importance attributed to social web environments as instructional resources, its integration in teaching programs and educational policy documents, the advantages they entail for improving learning in HE and the endorsed reasons. We have also researched on the validation of indicators of quality in this area.

It is commonly accepted that university minds and will mind the social web, as it happens with other institutions, services or businesses. But also in this case, their specific functions and activities -education management, learning, teaching and assessment- will be specially and strongly affected, besides the other mission of university –research-, as seen in the paper "La ciencia compartida" (XXX, 2011b). But unlike in other sectors, the social web will not only be used as an instrument of contact and relationship for the members of the university community, or as a way to widen participation towards other communities that interact with the different activities that the university deals with, or even with professional communities or alumni. There will be changes of great impact, as seen in the aforementioned paper and in "Evaluación de la calidad en entornos sociales de aprendizaje" (XXX, 2011c). The social web is not the only driver of these changes. In fact, it is just one part of the ecosystem of Higher Education (HE).

The social web is a technology with a deep potential to become a driving force of change in the field of H.E. In particular, when it refers to ways of teaching and learning, changes will affect the educational design as a whole. We mean that the places created for learning to take place, since they are open and because of the catalytic effects the social web technologies have and the fact that they are particularly attractive to students, promote a greater degree of independence and autonomy on the students, a greater degree of collaboration among them, and, as a consequence, a greater degree of pedagogic efficiency.

We have searched in Google Scholar and in research social networks: Mendeley, Academia.edu, and Research Gate. We have used as search terms phrases such as "Learning and Teaching in Higher Education" and "Teaching Social Software."

We have restricted the search to certain years: from 2005 to 2008, which is when social web bloomed. In this way we have achieved only significant results -papers in leading publications, posts in blogs linked to them or to well-known authors, with a number of quotes numbering around 50 and in all cases above 20.

As from then, Gartner's Hype Cycle is repeated (Linden, A., & Fenn, J., 2003) triggered by web 3.0 and by the semantic web (Carmichael, 2008) (Ohler, 2008) (O'Toole, 2013). What follows is based on selected works that fulfill those requirements.

Among those works, we distinguish two types of information, one on teaching practices and experiences –which seldom includes social web in their instructional design-, and another one on developing a theoretical framework which justifies the inclusion of these environments.

Antecedents of experience or models of teaching practice

Here is a review of our findings. The most significant and relevant one –even a referent on the topic- is the report by Alice Marwick on the U.S. (September, 2008).

1. The *UKOLN Web 2.0 in Higher Education in the United Kingdom: Observations on the growth of Web 2.0 and social Web technologies from a JISC-funded national adviser* (Kelly, 2008) report is funded by The Council of Museums, Libraries & Archives, the Joint Information Systems Committee (JISC) of the Higher and Further Education Funding Councils, as well as by project funding from the JISC, EPSRC and the European Union. UKOLN also receives support from the University of Bath where it is based. Its author is Brian Kelly (2008) of UKOLN, *University of Bath*. Together with other reports on the state-of-the-art of the social web in Higher Education in other countries (U.S.A., Netherlands, South Africa and Australia), this report is part of a broader one: *A review of current practice and develop developing international in the use of social networking (Web 2.0) in higher education*.

The paper is designed to document the author's personal experiences and reflections on the growing use of Web 2.0 in the higher education sector in the UK. It is a descriptive report on the use of social Web technologies within the UK higher education community. As in our case, the report attempts to provide strategic information. However, in this case, it attempts to describe the rationale for the use of different types of social web technologies in all university areas, not exclusively in terms of instructional design, quality or development of new models of educational intervention, but to reflect on the organizational implications of the greater deployment of these technologies.

Overall, the report points out only institutional cases without entering in particular instances of actual educational activities, with some exceptions we will analyze later. They point out institutional cases, presence on networks such as Facebook, considerations about the role and students and teachers attitude towards the environment and so on. It also makes considerations on the development of developments Elgg and Ning social networks, but without indicating integration models in the course or program design, or in the generation of teaching methods that include them.

2. The *Web 2.0 in Higher Education in the United States of America* report by Alice Marwick (September, 2008), New York University, is part of the Franklin report, as are the aforementioned ones, (Armstrong and Franklin, September 2008). It has great importance because the United States is a world leader in the use of Web 2.0 technology. There are numerous examples of social media used for educational purposes in the universities. Many of them are also driven by the most recent pedagogical theories, by student-centered and constructivist models of active learning that fitly correspond to the affordances of the social web. We understand affordances as defined by Kirschner's in http://www.tel-thesaurus.net/wiki/index.php/Educational_affordance. A detailed description of the term is also found in <http://redesabiertas.blogspot.com.es/2013/10/affordances-educativas.html> (in Spanish).

According to the report, in the U.S., the strongest tension is found among the most advanced experiences in the social web initiatives promoted by the institutions themselves, which in many cases are the most dynamizing agents, or the bottom-up current of early innovators on the one hand, and the strongest resistance and mistrust of more traditional and conservative faculty sectors on the other.

On the other hand, most IT help departments and universities on the whole do not yet include Web 2.0 in their virtual campuses because they are usually committed to the LMS previously hired, and change

is often resisted by authorities and teachers. In contrast, universities have adopted institutional technology policies that include social media for prestige and marketing.

Thus Marwick goes on to describe what happens in the U.S.: “Broadly speaking, academic use of Web 2.0 technologies can be broken into two types: faculty members using Web 2.0 to create or disseminate class material, and student creation of content, either independently, with an instructor, or through the auspices of a class assignment. While the former use is probably more prevalent in the United States than the latter, the true potential of Web 2.0 is found in classes and assignments which take advantage of student’s talents in order to inspire collaboration and content creation.”

She describes three significant examples of different subjects that use a variety of Web 2.0 applications to promote the objectives of the class. These are, undoubtedly, examples where explicitly or implicitly there is a clear instructional design. We will try to spot out those aspects in the cases we will analyze.

3. The *Web 2.0 for Content for Learning and Teaching in Higher Education* report (Franklin and van Harmelen, 2007, 28 May) includes a guide and an interesting repertoire of practices of four British universities.

In the main report, he provides an analysis of the social Web, along with a collection of the most frequently systems used for education. Then, he examines the case of four British universities that have adopted a strategic approach and implemented social web services differently at an institutional level.

In all cases, they offer students social web tools. Some of them recommend and give educational use to resources enabling specific initiatives and favoring a *habitat* for students where they can create personal environments. However, in no case – not even in the University of Edinburgh where initiatives of regular use are urged (“lead by example”) - do instructional design elements originate from the institution itself.

The University of Edinburgh is a more productive case. The key was a conference on “*Social technologies: from pioneers to mainstream use?*” held in November 2006.

As contributions related to teaching and instructional design the following conclusions were presented:

- “Social technologies are making teachers re-think their role.”
- “Online learning is becoming more participative than receptive, more collaborative than content based. Mobile technologies are increasingly important.”
- “Students use social networking tools all the time, sharing surprisingly personal information.”
- “Not all students use social collaboration software.”
- “If legal aspects are considered at the start of any project, the law can be made to work with you. The law is there to facilitate, not to penalize. Creative Commons provides a legal framework, and the Acceptable Use Policy needs to be appropriate.”
- “The risks of doing nothing are higher than the risk of doing something. Universities typically take too long to adopt new technologies. Institutional inertia can be a significant barrier to adoption of Web 2.0 technologies.”
- “Institutional concerns such as quality control, appropriate content, data protection, policing, administration, controlling containing, partitioning are all against the spirit of Web 2.0. Web 2.0 is all about filtering and feeding by users of large quantities of user-generated data.”
- They raised this idea, which later on became central: “Is it still appropriate for the University to provide services (e.g. email, diary) using the traditional approach of selection, support, maintenance, by central services?”
- “For students, commercial tools are sometimes better than University-provided tools (e.g. the university email system gives them very little storage space, and they can’t keep the same email once they’ve left the university). Should the university use commercial tools, with a University branding (Google offers this...), i.e. decouple provision from branding?”

Ultimately, they pointed out that a change in culture is needed. Acceptable use policies need to be reviewed. More sophisticated models are needed instead of rules that act as straitjackets. They should enable open access.

Another important issue highlighted by the report is the supposed heterogeneous ecosystem a university assumes to be (especially large ones such as University of Edinburgh) where innovations occur spontaneously and often not only unknown to the institution but by their close colleagues. This fact deprives us of genuine good practice of use the social web even with an instructional design that can be explicit but not formal.

In addition to the reports on the UK and U.S., the Franklin (Armstrong and Franklin, September 2008) report includes many partial reports from The Netherlands, South Africa and Australia. These ones do not offer substantial contributions on experiences in relation to what was seen in previous reports, although they do offer a synthesis report whose most interesting contributions are offered in the second part of this point and in the rest of this work.

4. Neil Selwyn (2012) in *Social Media in Higher Education* provides many examples of use and analysis (reports and studies) who are skeptical about the improvement that the use of the social web can produce on its own, particularly the social networks. But this analysis can have another interpretation. The exclusive use of those tools can lead to inefficient results that do not create learning or that even become distracters. But that is not a failure of the tool, but of the design frame that is being used.
5. The article *Findings on Facebook in higher education: A comparison of college faculty and student use and perceptions of social networking sites* to Roblyer et al (2010) is a study on options for use of social media by students and teachers in a university context. The methodology is significant: To determine the probability that Higher Education faculty use Facebook for personal or educational purposes, she takes a sample of Higher Education faculty $n = 62$ and students $n = 120$, at a medium-sized university in the southern part of the U.S.A. who was surveyed about the use of Facebook and email technology.

The article is not relevant in itself, but it points out existing trends, theoretical basis, and what's most important, it draws conclusions which can be extended to American universities: "*A comparison of faculty and student responses indicate that students are much more likely than faculty to use Facebook and are significantly more open to the possibility of using Facebook and similar technologies to support classroom work.*"

As regards cases, the most comprehensive description and the most up-dated relationship can be found in McLoughlin's work (2007) *Social software and participatory learning: Pedagogical choices with technology affordances in the Web 2.0 era*.

In any case, applications worth mentioning are those where different affordances of the social web are integrated into a continuum of activities obtaining the best and most appropriate use for each of them.

Antecedents of developing a theoretical framework.

As with other technological tools and environments, the growing popularity and dissemination of networks has led to believe that since networks provide new ways and purposes for communication between students and teachers, social communications on its own can become a factor in successful learning. In this context, interaction has been recognized as a key indicator of quality in online courses, which in a more elaborate analysis with experiments, evidence and research, it can effectively provide evidence that certain uses of networks, appropriately used in the context of a detailed design, may promote certain learning through particular interaction elements in activities.

1. Roblyer and Wiencke (2003), in developing a rubric for assessing interaction in online courses, identify five components: social and rapport-building designs for interaction, instructional

designs for interaction, interactive capabilities (interactivity) of the technologies used in the course, evidence of learner engagement, and evidence of instructor engagement. Each type of interaction contributes to the overall quality and potential impact of an online course.

2. Schwartz (2009) also believes that "the theory of tutoring" ("mentoring theory") can provide a theoretical basis for the definition of an instructional role for social networks. As a college professor, Schwartz judges his own experiences with students on Facebook. He follows that the exchange that occurs in the social networks, in theory, can be both a highly interactive valid form of communication instruction and an opportunity for educational counseling.
3. Anderson (2006b) argues that "Educational Social Software will find its niche in actual self-paced, continuous enrollment, informal, lifelong learning and other forms of more self directed learning."

Teaching experiences with social software (including instructional design)

Contrary to what happens with other tools and other environments (i.e. augmented reality, virtual worlds, and even whiteboards) about which there is more literature and expectations than actual practical experiences (and the existing few are highly publicized), in the case of experiences that integrate social software, or more specifically social networks, very few of them are outlined. And there are just a few referred and described experiences which have generated publications on activities that impact on a substantial change in instructional design. However in this paper, we will emphasize that, at least in a well-defined area, there is a relative abundance of experience in the use of social software integrated into educational practice with a certain level of educational programming.

4. Most of the contributions both of a theoretical and an experiential nature in the use of social software included in instructional design are found in the aforementioned report by Alice Marwick (September 2008).

About Pedagogy, she says that, "New pedagogical drivers come from innovative faculty, teaching communities, and students. The pedagogical foundation for using Web 2.0 in the classroom is related to both changes in students (content creators, digital media enthusiasts) and changes in learning theories. Learning is conceptualized as a bottom-up, collaborative, participatory process, as in student-centered, constructivism and active learning theories."

On participatory culture and knowledge production, within a vague enunciation of "theory of participatory culture," she notes that students "are no longer passive consumers but active producers of knowledge", quoting McLoughlin, C. & Lee, M.W. (2008).

About promoting digital literacy and critical thinking, she states that despite widespread claims that today's students are highly technologically savvy, often this doesn't translate to researching and evaluating online information."To encourage these competences, thus, would lead to digital literacy improvement.

On Learning Theories, in a tight synthesis of her ideas, she claims that the social web acquiesces theories related to Active Learning, Social Learning, and as stated before, with Constructivist Learning

Conclusions.

First general conclusion. - Most educational Web 2.0 uses are made on an ad-hoc basis, driven by motivated faculty, staff and involved students. And these experiences are, in most cases, unscalable.

Second general conclusion. - To really take advantage of planned and possible collaborative and interactive behavior facilitated by social media technologies, the coordination of efforts should be made university-wide.

Third general conclusion. - The experiences of integrated social web use in an explicit instructional design are very few -we could only detect three or four. In those few ones, even if they only have some

explicit design elements or with instructional implications that allows the perception of strong implicit design, are very valuable and fruitful.

Conclusions drawn from the aforementioned.

There are a number of problems that are common in all countries with a common infrastructure that offers students standard social web technology in universities.

The first problem is the general feeling -common to all Higher Education institutions and their students- that they are facing some uncharted territories that constitute the educational uses of Web 2.0 technologies.

There is a new state of responsibility in students. They have to discover the consequences of their public statements in the network, in assessment, in the perception of their skills and attitudes, and in the projection on their future career. And this should be taken by institutions.

The ideas, the composition of place, and the frameworks we have used so far are no longer adequate. Many boundaries have become blurred between the physical and the virtual, between the personal, academic, professional and social life, between formal and informal learning, between consumption and production of knowledge.

One of the problems to be faced is that of identity. The students themselves and institutions will face the need to ensure the identity and the nature of students and in general, of the staff online.

Whether a way to integrate the social web in the context of education is found or not, the lack of new pedagogical models will create uncertainty for academic and management staff, and among students. Another observed concern comes from the considered inevitable cultural change in faculty: The huge and rapid expansion of information accessible via the web, but especially coupled with the tools that can be used *to reuse and create new knowledge* online have created a very different work and communication environment.

It is commonly accepted that the social web offers a set of *affordances* that are not found with other technologies, especially, as regards the co-creation of knowledge and support to collaborative activities, even through the structure of universities and countries.

In each of the various cases, situations, and countries studied, to a lesser or greater degree, there are guidelines on integration of the social web for studying, especially in services, but they are always limited and partial. The aforementioned Franklin report (Armstrong and Franklin, September 2008) says that in each of the different countries there are limited institutional drivers, and few of them have developed formal strategies for the integration and effective use of Web 2.0 technologies across their institutions. In their report they have none, and we could not find cases of countries or of institutions with formal integration strategy leading to an integrated design.

The report underlines the frequency of guidelines that indicate a concern or anxiety about bad uses or problems arising from student use of social networks. Thus, codes of conduct have been developed regarding their use, trying to make sense and justify ethical issues and to protect themselves, staff and students through explicit regulations. Institutions seem to be very cautious about Web 2.0 and they observe the habits of young people carefully to try to understand how they should respond.

There is a realization that those tools improve teaching methods. Many professionals seek to update their practices, introduce new ideas and adapt the use of Web 2.0 tools. It is, thus, seen simply as part of their professional background.

There is also awareness that those tools enhance student learning. In many countries, there is an approach based on the student's experience that leads to a desire to use these technologies because they see young people engaged with them.

But there is also pedagogic uncertainty: Some of the staff, teachers and especially managers are not sure about the pedagogical usefulness of Web 2.0 tools. There is a lack of confidence about whether we have the appropriate pedagogies in the right place to make proper use of that technology.

There are also uncertainties about students' identity and personality, for several reasons to be stated. The first problem, which is inevitable and a constant since students are on the Internet, is the identification of students' personality on the social web. To this problem, others are added, such as that in the coming years we will see how students acquire a multiple personality. We, teachers, have already detected this when we have difficulty in separating personal from professional sphere on social networks. But the trend is to have a multiple personality, and a difficulty in establishing a separation between personal work/study personality and social personalities.

As regards instructional design, the conclusion is that it is not possible to ignore the new situations and possibilities that occur.

- New curricular opportunities taking advantage of access to primary sources as well as to ready-made productions, and media communication through the social web in activities and collaborative processes.
- New opportunities for assessment. There are processes that make it possible to track and register students' productions and tasks development through applications of the social Web. Big data will allow to obtain learning profiles and to personalize education.
- The development and integration of new virtual learning environments (including personal learning environments) that are based on social web technologies.

To all these questions this study gives a partial answer to, or affect them their approach.

Many of these issues are not dependent on the nature of the tools or on the social and professional commitment of teachers and students, but on the instructional design. Others are dependent on educational policy, which is beyond the purpose and scope of this paper.

Validation of criteria and indicators of quality. Procedure followed

The overall objective is to establish useful quality indicators within a framework of quality focused in learning, as defined and developed in previous works (XXX, 2011a, 2011c, 2012 and 2013). We want these indicators to be useful not only in a macro context of management, educational policy and curriculum design, but above all that they valued as of quality, a system that includes as indicators explicit and concrete answers to questions about whether the use of the social is included in the instructional design, if it is used to supply relevant information for assessment, if social web activities are integrated to the other components in the tutorials, and so on.

In this paper we also want to validate the sample used and its degree of significance.

Construction of indicators.

We have said that the integration of learning and social web management environments (XXX, 2011b) "for its relevance in the reflection about quality, cannot lack the same imperative that follow the previous learning systems: Teachers, managers, students and researchers need references on clear and common criteria quality based on consensus." In that sense, on an earlier work on learning on social and ubiquitous environments (XXX, 2011b) we posed a number of features and indicators classified into four categories:

1. Social Software. Use integrated or separate use
2. The social profile of student learning.
3. Manage, collaborate, share and add.
4. Social dynamics

where cross-shaped features appear related to instructional design, as for example in section 2 reads "Does the *social profile of student's learning* constitute a compulsory element to be included in the instructional organization (teaching guides, etc...) of a formative program?"

Naturally this requirement is transformed into the corresponding questionnaire we designed

Have you, as a teacher or teachers' coordinator, got a space and a method for systematically regular and structured gathering of individual student's production and contacts?

Do you plan and use any procedure to save and study students' personal characteristics in relation to teaching processes and assessment, and learning traits?

Objectives of the study

Validate indicators out of the information obtained in the questionnaire and suggest methodological elements to be included in the instructional design of Higher Education programs and courses.
Raise awareness on authorities and managers about disposition and models and in the practice of innovative teachers.

Methodology

Although at this stage this study is mainly qualitative, we will correlate traits of professional profile and of profile of use of the social web of teachers with assessment of pedagogic functions and instructional design from the affordances it supplies. We will estimate the mean of statistical distribution for confidence intervals. The study will be carried out as a whole using formative methodology. This is, therefore, the first stage of a process in line with instructional design with formative research (Reigeluth & Frick, 1999 and XXX, 2010).

Context of study

The population and the sample are composed of university professors performing varied functions and teaching types, sharing some common features:

- a. University professor who uses LMS and web services in their classes, integrated in a teaching methodology with a design that takes into account these resources in their different dimensions: objectives, activities, evaluation, etc.
- b. They belong to professional social networks, are members of the University Network or Virtual Campuses (Spain) or linked to virtual campuses of Spanish Portuguese and Iberian-American universities.

It is, therefore, the opinion of a committed faculty.

Data Collection

We have collected 154 valid questionnaires answered between Dec 7th, 2012 and July 18th, 2013.

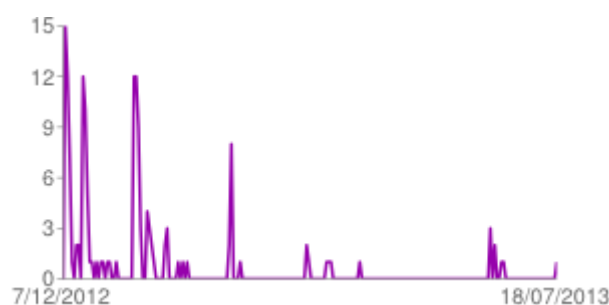
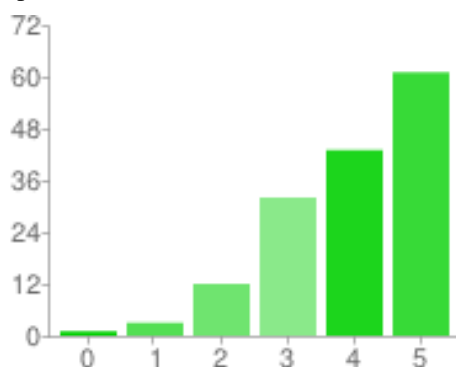


Figure 1. Number of daily responses.

Validation of results.

In all the cases, we correlate variables on the profile of the teacher in relation to the use they or their students make of the social web (Boolean variable) with variables on acceptance or use integrated instructional design, etc. of the social web, which is a discrete statistical variable, with values 0-5. In order to establish a correlation, it is necessary to estimate the mean of statistical distribution for the scores 5.x.

For this estimate, we use the estimate confidence intervals of 95% for the mean. So that, for instance, for item 5.3 we follow the procedure shown below. The same applies for the rest of the items. (Original in Spanish).



Disagree

Totally
agree

Figure 2. 5.3 The use of social software should be included in the instructional organization (teaching guides, etc...) of the training program.

Value	Description	No. of answers	Percentage
0 -	Disagree	1	1%
1		3	2%
2		12	8%
3		32	21%
4		43	28%
5 -	Totally agree	61	40%
	Total	152	
	Mean	3,947368421	
	Standard Deviation	1,098979633	

Table 1. 5.3 The use of social software should be included in the instructional organization (teaching guides, etc...) of the training program.

The confidence interval of 95% for the mean of statistical distribution is

$$\left(\bar{X} - Z_{\frac{\alpha}{2}} \cdot \frac{\sigma}{\sqrt{n}}, \quad \bar{X} + Z_{\frac{\alpha}{2}} \cdot \frac{\sigma}{\sqrt{n}} \right)$$

Where $\sigma = 1.098979633$, $N = 152$, $\bar{X} = 3.947368421$

With a confidence of 95% $\Rightarrow Z_{\alpha/2} = 1.96$

The radius of the confidence interval is: $1,96 \cdot \frac{1,098979633}{\sqrt{152}} = 0,174712477$

CONFIDENCE INTERVAL 95%:
 (3.947368421-0.174712477, 3.947368421+0.174712477) = (3.772655944, 4.122080898).

Analysis

1. Procedure

In the first place we will illustrate the procedure to be used and that we will repeat in several other cases. We will correlate the status of teachers regarding the use their students make of the social web (classified into several categories progressively more selective: Are you aware ..., Are you in touch with them through that network, etc...) with the factor "5.3 *The use of social software should be included in the instructional organization (teaching guides, etc...) of the training program.*"

To explain how we proceed in the cases mentioned, we will use the case of correlating the profile 2.3 "Do they get your instructions on the use and extent of use in your subject?" to the aforementioned 5.3. In this case the first variable is the teacher profile in terms of their answer about their situation, activity or attitude in relation to the integrated use of the social web (usually a *Boolean* variable, i.e., statistical variable with values 1 for "yes" and 0 for "no"). The second is the variable for the answer that identifies their degree of attitude towards the integration. Thus we obtain the Pearson's correlation coefficient for each pair of variables. In this case, we have correlated the items:

2.3 *Do they get your instructions on the use and extent of use in your subject?*
 and

5.3 *The use of social software should be included in the instructional organization (teaching guides, etc.) of the training program.*

For 2.3, we have obtained

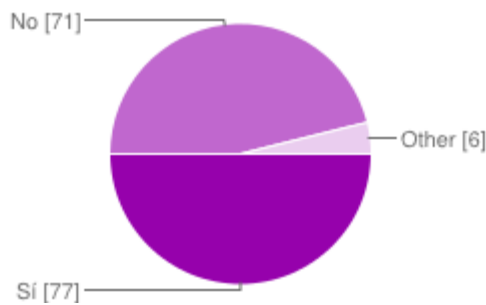


Figure 3. 2.3 *Do they get your instructions on the use and extent of use in your subject?*

Value	No. of answers	Percentage
Yes	77	50%
No	71	46%
Other	6	4%

Table 2. 2.3 *Do they get your instructions on the use and extent of use in your subject?*

And for 5.3

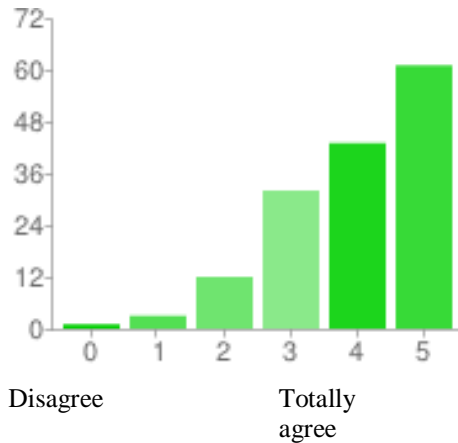


Figure 4. 5.3 The use of social software should be included in the instructional organization (teaching guides, etc.) of the training program.

Value	Description	No. of answers	Percentage
1		3	2%
2		12	8%
3		32	21%
4		43	28%
5 -	Totally agree	61	40%

Table 3. 5.3 The use of social software should be included in the instructional organization (teaching guides, etc.) of the training program.

In this case the Pearson correlation coefficient (r) is **0.303833133**

That is to say, there is a positive correlation between the two variables. There is interdependence but it low (0.303833133 in a range of 0 to 1). This fact should be interpreted as if up to a certain extent, the fact that teachers are involved in giving directions to their students "on the use and range of use in their subject" is correlated (that is greater than in the opposite case) with "The use of social software should be included in the instructional organization (Teaching guides, etc..) of the training program." But it the fact that it is relatively low should be interpreted to mean that there are some teachers who "give instructions" that are not favorable to the inclusion of social software in the instruccional organization. And also a minority, but to a greater degree, there are teachers who do not give indications to students. We assume that is because there is no opportunity or because they have not reached that degree of maturity in their innovation, but they do believe that "The use of social software must be included in the instructional organization (teaching guides, etc.) program training."

2. Analysis of the "inclusion of social software in the organization instructional (teaching guides, etc.) of the training program."

We will repeat the analysis for 5.3 in relation to the status of teachers. Through applying it, we obtain the following table

Item	Pearson correlation coefficient for <i>5.3 The use of social software should be included in the instructional organization (teaching guides, etc.) of the training program.</i>
Do you have evidence that your students use general purpose social networks (Facebook, Twitter, Google+...) to find help for their tasks or to get better academic results?	0,245919402
Are you in touch with them through that network?	0,205067166
Do they get your instructions on the use and extent of use in your subject?	0,303833133
Do you assess their activity on that network?	0,23890356
Do you coordinate that activity with the regular one in the virtual classroom (LMS or platform)?	0,301322411

Table 4. Pearson correlation coefficient for 5.3.

Results and conclusions of the analysis.

We will focus the study of this first report on the analysis of item 5.3 – to what extent teachers are in favor of including the use of social web in instructional design in relation to different situations. The rest of the study of the results from the analysis of the correlations of the subsequent will be done in future works.

Once we have applied the same analysis procedure described above to the other cases, we can conclude:

- a. Standard deviation and mean of statistical distribution values indicate a high and uniform acceptance in a highly bounded confidence interval (confidence interval 95% (3.947368421 - 0.174712477, 3.947368421 +0.174712477) = (3.772655944, 4.122080898)). That validates indicators in this population.
- b. The obtained Pearsonian coefficients of correlation allow accepting the hypothesis of acceptance of instructional design in a critical mass of teachers in all cases with the following conclusions from these correlations.

The results generally assume that among such teachers -early innovators- there is high consideration about integrating the social web with impact in the instructional design and in the institutional organization, and that that consideration of integration as something possible and positive for learning efficiency occurs in all cases irrespective of the degree of involvement or progression of their involvement, although there is an increase associated to it.

On the scale of situations of teachers regarding their students

1. Do you have evidence that your students use general purpose social networks (Facebook, Twitter, Google+...) to find help for their tasks or to get better academic results?
2. Are you in touch with them through that network?
3. *Do they get your instructions on the use and extent of use in your subject?*
4. Do you assess their activity on that network?
5. Do you coordinate that activity with the regular one in the virtual classroom (LMS or platform)?

There is no perfect progression: Each situation implies the previous one except the fourth. The activity on the social web can be coordinated without necessarily evaluating the activity on that net. And it implies a sense of engagement, involvement and trust in social networks as a factor to improve learning.

If we consider that progression, we can conclude that as long as there is greater engagement, the correlation with the idea of "include social software in the instructional organization (teaching guides, etc.) of the training program" increases.

Item	Pearson Correlation Coefficient
Do you have evidence that your students use general purpose social networks (Facebook, Twitter, Google+...) to find help for their tasks or to get better academic results?	0,245919402
Are you in touch with them through that network?	0,205067166
Do they get your instructions on the use and extent of use in your subject?	0,303833133
Do you coordinate that activity with the regular one in the virtual classroom (LMS or platform)?	0,301322411

Table 5. Pearson Correlation Coefficient for "include social software in the instructional organization of the training program.

In any case, when the commitment is greater, "they get instructions" and "coordinate that activity with the regular one in the virtual classroom ", the correlation between these teachers and the idea in favor of including social software in the instructional design increases.

The correlation, however low in the fourth situation "evaluate the activity of students in that network" is consistent with a possible fact: Teachers who practice formative assessment of learning through the social web have some vision or feeling of tiredness, discomfort or frustration for not having their job adequately compensated, a common scenario that matches the sensation of "burn out" that occurs in the vanguard of innovators.

And it is compatible with the opposite fact: The fact that teachers who besides coordinating and using the social web to complement the action with the LMS, evaluate web activity on the social web, are not more supportive of its inclusion in the instructional design than who do not evaluate those who do not evaluate it, is not compatible with the obtained correlations.

This finding opens an interesting element for research: Is it feasible a fully instructional design that includes assessment of the production in the social web and others, carried out by individual teachers with the current framework, without the support of the institution, not only in relation to means but also with proper organization? It seems that this would be the breaking point of voluntarism, of engagement.

Conclusions and recommendations

In general we always think it advisable to include a recommendation on the reports: The recommendations may include or be interpreted as guidelines, but in general they should not have a character so prescriptive as to stifle the experimentation that is needed with any technological innovation, particularly in the social web, when used in supporting learning and teaching in order to get the most out of the potential of this new technology.

The second recommendation is that no technology should be replaced by a new one just because it looks more useful, without having completed the initiated processes of innovation and experimentation. This is ultimately inefficient and wasteful, having to rethink on the validation to draw conclusions that could have been obtained by only having reached the previous conclusion.

The main conclusion we can establish is that there is faculty –the early innovators, the engaged ones, with whom it is consistent the sound conviction arising from practice that the social web has to be integrated in the instructional design at all levels, and that this integration should be taken into account in the institutional management.

If we consider the progression in the engagement, we can conclude that the more it increases, the greater the correlation with the idea of "including social software in the instructional organization (teaching guides, etc.) of the training program."

Finally, this work has supplied us with enough information and facts to deduce the need, in the future, to leave open the following research lines and to deepen aspects related to development, organization and university policies that we grouped into three categories: Content, teaching and learning, management and technology.

Content

Institutions should consider the long-term organization, management, financing, etc. of funds generated by students and teachers in the social web. Their ability to generate lessons on good practices, problem solving and research is something to be considered in a long term, which can promote professional practice of students after leaving college.

Teaching and Learning

Institutions should consider the organization, management, financing, etc. of projects that do research on the configuration of generated repositories, in particular, on metadata, for references that enable the use of materials in the instructional design and the exploitation of curriculum organization by subject, level, course of studies, departments, centers for educational research, etc. It is also relevant for repositories to become more accessible to students' learning processes through the use of social technologies, including marking and curation.

We do not consider this recommendation priority, but find that there is an ample sector that thinks it is necessary: It seeks to promote (manage, organize finance etc.) research on new ways of teaching using Social Web systems, taking into account the development of new social Web tools specifically for the educational field, with conditions that allow pedagogical experimentation.

Institutions must urgently consider supporting initiatives that analyze in detail the evaluation of work in groups using social web tools.

Institutions should consider supporting efforts to develop a range of appropriate evaluation methods for its application in the context of the development of instructional design using the social Web. This could be in the context of a broader program to encompass a full teaching model, teaching methods, evaluation methods, and social tools for learning, teaching and assessment.

Management

Institutions should consider organizing a working group to examine the forms of moderation (including peer moderation) and control of Social Web content. Moreover, they should develop best practice guidelines for their own use and to provide advice and examples of good practice to other institutions.

Institutions should consider the risks posed by associating individuals and institutions to social web services, and the ways in which risks can be monitored and mitigated. This could be done in the broader context of the risks associated with hosting all services and the equipment devoted to them.

Technology

Institutions should promote projects for the development of tools based on the Web to promote formative assessment (continuous monitoring) of group processes and group work, considering the individually effort in the group and the development of tools for learning analytics tools with social focus.

The lack of new pedagogical models creates uncertainty

When analyzing the state-of-the-art, we have seen that there is consensus on the existing uncertainty. It's something academics are sure about: the adoption of new pedagogic approaches to the use of Web 2.0 tools. That is something that is implicitly deduced from this study.

Currently, the institutional structures and processes are not prepared to integrate the needs arising from what appears to be necessary. For example, there is the need for standards and assessment practices that focus on the one hand, on tasks that provide judgments for summative assessment about a situation -the real one- which does not take into account the pedagogic practices of use of Web 2.0. On the other hand, that systems and evaluation strategies -normatively enshrined in Spain through exams and tests- miss can support to social Web-based processes.

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