

# Using Blogs, Podcasts and Google Sites as Educational tools in a Teacher Education Program

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## Abstract

Recent research shows that teachers' familiarity, confidence and skills in integrating technology into the curriculum are dependent on the quality of training programs they attend. Aware of this context and responsible for preparing digitally wise teachers an ICT (Information Communication Technology) training program was implemented with a groups of 81 in-service teachers, who used different Web 2.0 tools - blogs, podcasts and GoogleSites - to design and create digital resources to use in the real classroom. In this article we describe the training experience, present and reflect on teachers' feedback and discuss implications for the design of education programs.

## INTRODUCTION

The informed and responsible citizens of the 21st century must be technological prepared to be: a) capable information technology users, b) Information seekers, analyzers, and evaluators, c) Problem solvers and decision makers, c) creative and effective users of productivity tools and d) Communicators, collaborators, publishers, and producers. In Portugal, at varied different levels, educational policies recognize the importance that both professional development programs for teachers currently in the classroom and programs for preparing future teachers should provide technology-rich experiences throughout all aspects of the training, because, as stated in the 2008 UNESCO report, "Schools and classrooms, both real and virtual, must have teachers who are equipped with technology resources and skills and who can effectively teach the necessary subject matter content while incorporating technology concepts and skills. Interactive computer simulations, digital and open educational resources, and sophisticated data-gathering and analysis tools are only a few of the resources that enable teachers to provide previously unimaginable opportunities for conceptual understanding" (UNESCO, 2008, p. 1).

Recent research, however, shows that, in most cases, educational practices in Portuguese schools have remained unchanged: teachers continue to teach in traditional ways and when they use computers and the internet it is not for enriching technology-supported learning opportunities for their students. The greatest futile public assumption was that making computers available to educators would automatically result in their implementation in the classrooms (Piano, 2007). It is critical issue to prepare technological proficient teachers that provide the learning opportunities that facilitate students' use of technology to construct knowledge, to communicate and to be aware of the importance of the lifelong education. The key question that guided the present research was to verify whether a technological learning experience using the Web 2.0 tools in teacher education programs helped teachers to understand the benefits technologies can bring to create learning environments that prepare wiser 21<sup>st</sup> century citizens.

## WEB 2.0: A NEW PARADIGM

In its early stage, the Internet served military purposes and the exchange of information between bases, but as an agile and secure mean of data transmission, it quickly became a target for universities and investigation centers which discovered in this tool a way of exchanging knowledge between investigation units from all over the world. Since then, there was a fast and growing expansion of the Internet, which embraced industry, commerce, health and obviously, education.

According to Ravache (2006), in 1994, there were about 10 thousand pages in the virtual web. However, in those days only the ones responsible for each website could insert information on the web. It was the era of the rise of major portals, such as, Sapo, Yahoo, Aol, among others. The web was an almost infinite repository of information; however the content was used in unidirectional way, that is, from webmasters and web designers to users. However, as states Rosen (2006), every ten years new technological trends emerge: in the

70's we had the mainframes, in the 80's the client server technology, in the 90's the Internet and in the 2000 decade ...the Web 2.0!

With the change of paradigm from Web 1.0 to 2.0, new communication scenarios in the internet were set up and different roles were offered to the web users. In the new generation of the Internet, also called Web 2.0, terms as Blog, Podcast, Hi5 or Del.icio.us, are just some examples of tools that are part of the variety of systems available on the global network. But more important that the quantity and versatility of the tools is the new attitude that is now available for each user: they can produce their own documents and publish them on the web automatically, without need of large knowledge of programming environments and sophisticated computer systems (Coutinho, 2009a). The term "Web 2.0" emerged in a conference brainstorming session between O'Reilly and MediaLive International (O'Reilly, 2005). Far from having "crashed", the web was more important than ever, with exciting new applications and sites popping up with surprising regularity; O'Reilly said then that "Web 2.0 is the business revolution in the computer industry caused by the move to the internet as platform, and an attempt to understand the rules for success on that new platform. Chief among those rules is this to build applications that harness network effects to get better the more people use them" (O'Reilly, 2005, online).

Each day increases the usage of tools, such as blogs, wikis, podcasts and RSS feeds, among others that are generally called social software (cf. Hayman, 2007), that represent the new paradigm of this social and collaborative Internet. Although many of us haven't realized that something has changed in Web, - "Web 2.0? I didn't know there was a 1.0?" (D'Sousa, 2007, p. 6) - the fact is that the "Read Only" Internet changed to a "Read Write" model. The advantages to the users are many and some still have to be discovered: a) the content that used to be static, can now be divided and reunited in different ways to fulfill the interests and needs of each individual; b) the contents are created online in a collaborative way and according to the most dominant interests of a huge number of users; c) a new social community emerges, a space where "the web surfer negotiates the connections within a social or idea network, exchanges bits of content, creates something new, and then the cycle begins again" (D'Sousa, 2007, p. 6).

For Alexander (2006, p.33) the social web "emerged as one of the most relevant thing in web 2.0", it is a way to make the use of the global network in a collaborative way, decentralized of authority and with freedom. Interpreting the ideas of O'Reilly (2005), Alexander (2006) believes that the main features of the Web 2.0 are: a) the web as platform; b) the end of the Software Release Cycle; c) Rich interfaces easy to use and handle; d) The success of the software depends on the number of users who can help to make the system better; e) Many users can access the same page and edit information; f) Users must be treated as co-developers.

## **TEACHERS AND TECHNOLOGIES**

The use of technologies in the classrooms is a central topic for educational policies in Portugal and so, in the last years, an increasing volume of public funds was invested in the equipment of all public schools with computers and internet access. However, research shows that although these initiatives have significantly increased the number of "wired" schools across the country educational practices have remained unchanged: teachers continue to teach in traditional ways and students rarely use computers and the internet for learning activities (Gil, 2001). The greatest futile public assumption was that making computers available to educators would automatically result in their implementation (Coutinho, 2007a).

Reporting the situation in the USA, Cuban (2001) maintains that technology in education has been driven by a push to sell technology products, a vision of educational transformation, and the social concern of equitable access to technology and technology education: computers are "oversold" but "underused", and he believes the failure of technology integration is due to a lack of professional development for teachers in technology-supported pedagogy. Like Larry Cuban we believe no school reform is possible without technologically proficient teachers who use educational technologies for instructional purposes. Recent studies show that teachers in Portugal lack adequate training in using computers and the internet in their teaching learning practices (Silva, 2004; Silva & Miranda, 2005).

Many teacher education programs view technology as a subject to be added to the program rather than a tool to be integrated into current curriculum (Brito et al., 2004); however, for changes to occur in teaching practices, teachers need to be introduced to curricular activities with technologies, then given time to practice and transfer knowledge and skills in technology to the classroom (Downes et al. 2001; Coutinho, 2009b). Teachers do not adopt new pedagogy simply because they think they possess the skills and knowledge to do so (Ulmer & Timothy, 2002; Silva & Miranda, 2005). It is crucial to prepare teachers who are proficient creating technological environments where knowledge is constructed by engaging students in learner-centred

models where interaction and cooperation are essential for success (Schwab, 2000). Learning models that take into account the internet resources and enhance collaborative learning strategies (King, 2002; Woodbridge, 2004). Web 2.0 tools with their collaboration-supporting features are some of this new knowledge sharing technologies that can successfully be integrated into the curriculum of teacher education programs both at pre and in-service levels (Coutinho, 2007a, 2007b; Coutinho & Bottentuit Junior 2007a; 2007b; 2008a; 2008b; 2008c; Coutinho, 2009b).

## **METHOD**

The descriptive survey (Babbie, 1997) we present in this paper was developed in school year 2008/09 and enrolled three different groups of teachers who attended a program on Educational Technology (ET) as part of a professional development program in education. ET is a 3 hours/week face to face program that aims to prepare teachers to integrate technologies in the curriculum. During eight weeks, teachers created a blog for classroom activities where they posted summaries of course readings, images, videos and also podcast episodes that were produced using Audacity software and containing a audio recorded lesson for students to listen upon a chosen curricular topic. Teachers´ also get familiarised with GoogleSites, and, in small groups (2-3), they used the Web 2.0 tool to build a WebQuest upon a chosen curricular topic. All digital artifacts created by teachers in groups or individually were considered for final assessment (60%) together with a final written exam that was administrated at the end of the semester (40%).

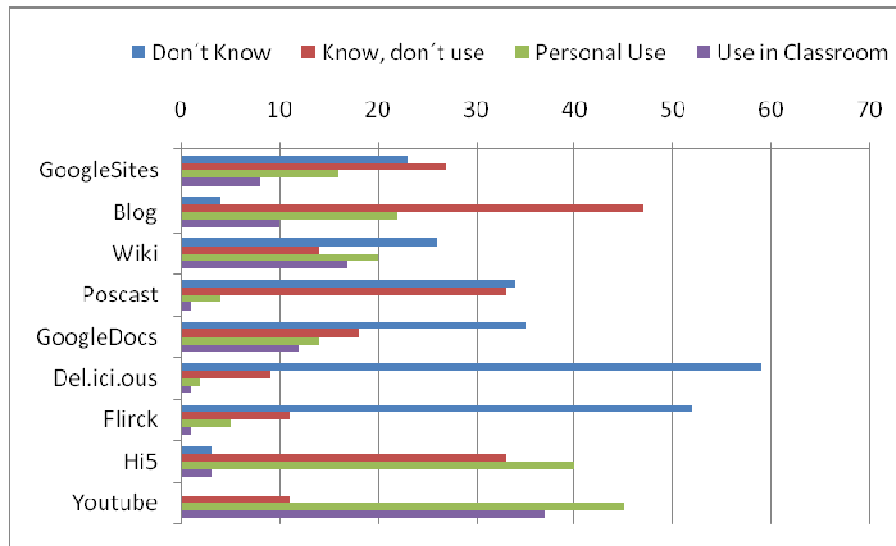
In order to evaluate the ICT training program, a final electronic questionnaire was sent via email to all participants. It was developed by the authors upon a similar questionnaire used in previous studies (Coutinho & Bottentuit Junior, 2007a, 2008; Coutinho, 2007a; 2007b). It consisted of 20 items evaluating four different dimensions:

1. Personal data (dichotomy/multiple choice): gender, age, time in the profession, teaching area.
2. Acknowledgement of the Web 2.0 concept (dichotomy Y/N)
3. Familiarity with Web 2.0 tools/services (multiple choice: I didn´t know/I know but did not use/I use for personal purposes/I use in the classroom).
4. Opinion on the educational value of blogs, podcasts and GoogleSites (open-ended).
5. Overall opinion on the potential of Web 2.0 tools for education (7 items in the format of a 5 points Likert scale)

Quantitative data were analyzed using SPSS 13.0 software. Open ended questions were analyzed using categorical content analysis techniques (Bardin, 2004). 81 teachers participated in the study. As to gender 28 were male and 53 female; 67,9% had ages between 31-40 years old, 17,3% more than 40 years old and only 3,7% less than 30. All worked at intermediary and secondary schools (K 9-12) around the district. Most were teaching the curricular areas of Economy (27,2%), Informatics (16%), Visual Arts (14,8%) and Mathematics (9,9%). As to awareness of the emergency of the Web 2.0 paradigm before attending the course, 41 said they knew the concept and the other half (40) said they were not aware of the new web paradigm.

## **RESULTS**

The first question of section 3 of the online questionnaire asked: *What Web 2.0 technologies did you know, know but did not use, used for personal purposes or used in the classroom?* Teachers had to choose one option for each Web 2.0 tool. Results are shown in Graph 1.



GRAPH 1 – Web 2.0 technologies Teacher’s known and/or use

We can verify that Del.icio.us and Flickr are the Web 2.0 tools that teachers are more unfamiliar with, and blogs, Hi5 and Youtube the tools teachers better know, although they do not use them. For personal use, Hi5 and Youtube are the most quoted tools. As to classroom use, most Web 2.0 technologies are never or scarcely used by participant teachers; Youtube (n=37) and Wikis (n=17) are the tools teachers use more for classroom activities. However, this does not necessarily mean that teachers use these tools in the classroom to develop student centred learning strategies; in previous studies the author and collaborators verified that Youtube was used in the classroom to present videos and Wikipedia as a source of information, but not for classroom activities that enrol students in learning activities where knowledge is shared and constructed (Coutinho, 2007; Costa et al. 2009). Jonassen (2007) synthesizes the several forms in which technologies can be used as cognitive tools: a) to support the construction of knowledge (representing the ideas in conceptual maps or conceiving multimedia products), b) to support the exploration through access to the information and the comparison of different perspectives, c) to support learning through practice, such as when it occurs in the simulations, d) to support learning through conversation (collaborating with others, discussing and defending ideas), e) to support learning through reflexion.

### The educational value of the Web 2.0 technologies used in the ICT course

#### Blogs

*Do you believe in the potential of blogs for teaching and learning? At what levels?*

All teachers who answered this question - except for one - agreed that blogs were powerful tools for developing active teaching and learning. The most valued reasons for using blogs in teaching and learning are:

1. Blogs increase communication both inside and outside the classroom;
2. Blogs increase students’ motivation;
3. They can be an excellent online space for knowledge sharing;
4. Blogs are useful as e-notebooks, helping students to take note and reflect on learning;
5. They are ideal as a space for classroom debate;
6. They allow to teach the same curricular subjects in a different way;
7. Teachers can use blogs as a specialized repository of curricular contents;
8. Blogs are easy to use, create and leave comments;
9. They allow students to share resources and ideas.

*Do you intend to use blogs in your classroom? What pedagogical purposes?*

The majority of the teachers answered positively to the question (2 teachers said “No”, other 2 said “Maybe” and other 4 said they were already using blogs in the classroom). As to pedagogical purposes for using blogs, teachers said they would use the tool: i) as a portfolio, for students to leave the work develop all year around, ii) To promote interactions inside and outside the classroom, iii) To post films, news, texts and classroom resources, iv) To diversify pedagogical methods, v) to show to the community the classroom productions, vi) as a support for extra classroom activities, vii) for students to share experiences viii) as a motivational tool.

*Do you intend that your students create and manage their own blogs?*

Again the great majority of the 70 respondents answered positively to the question: 67 said “Yes”, 1 said “No” and 2 said “I’ll try”. It was also important to verify that teachers intended to encourage their students to create and manage blogs for classroom activities. According to the literature, the innovative nature of the pedagogical practices with ICT if not accompanied by training actions that can stimulate a practical and reflective practice among teachers, does not have, by itself, the capacity to operate great changes in the teacher’s pedagogical practices; it is important to invest in training models which allow teachers to use and create digital learning resources, to share problems and to explore new projects with their peers before they try them with their students (Baylor & Ritchie, 2002; Coutinho, 2008; 2009b).

### **Podcasts**

The creation of podcast was considered difficult for 56% of the teachers who answered the question. However, 97% answered they believed in the potential of the tool for educational purposes. Arguments in favour of podcasting are pointed out by the course participants:

- . *It is really a new and innovative way to communicate with students (T3)*
- . *It is a tool that enhances motivation to learn (T6)*
- . *It enables teachers to give students summaries of the main curricular topics (T10)*
- . *It allows students to listen to the curricular subjects anytime and anywhere (T21)*
- . *A powerful tool for distance education (T22)*
- . *A powerful tool for language teaching and learning (T25)*
- . *Students like MP3 and MP4, so why not to allow them to download educational contents?(T27)*
- . *Very useful for students to listen to classes that they could not attend (T34)*
- . *It allows a different way to learn the curricular topics (T37)*
- . *It allows teachers to adapt teaching to different learning styles (T44)*
- . *We learn using different senses, listening is one of them and must be explored (T49)*

Asked if they intended to use the tool in the classroom activities, the opinions were not unanimous; 45 said “Yes” 12 “No”, and other 12 said “Maybe”. In fact, as educators we felt that teachers needed more time to get familiarised with the tool in order to reflect on learning strategies for exploring it in the real classroom. In fact, the course length was short for teachers to get acknowledged with so many different technologies, in particular podcasts, but the answers we got confirmed our expectations: teachers developed positive attitudes and were challenged by the Web 2.0 technologies they experienced in the course.

### **GoogleSites**

Difficulties in using GoogleSites were pointed out by 25% of the 75 teachers who answered to this question. However, technical limitations of the software when compared to Frontpage or Dreamweaver for the construction of personalized websites were also pointed out by 5 of the respondents. As to classroom use, 55% said they intended to use GoogleSites and 8 teachers said they were already using the tool in the classroom. According to the feedback obtained, the pedagogical potentials of GoogleSites are diversified and can be adapted to many and different pedagogical contexts: i) to build class websites; ii) to create WebQuests; iii) for collaborative work, iv) for students to use as an individual/group e-portfolio; v) to organize and share classroom resources, vi) to diffuse classroom work to the educational community.

### **The potential of Web 2.0 technologies for educational contexts**

Table 1 shows results of the 7 items that evaluated the overall opinion of course participants on the potential of Web 2.0 tools for education. One item in negative statement intended to confirm the internal coherence of the answers. Results are presented in total scores (n) as well as % of degree of agreement on each statement as

well as the weighted mean obtained for each item (M). For data interpretation we considered that the numeric values for means under 3 (for positive or reversed negative items) meant “disagreement” with the statement, values between 3 and 4 “indifference”, and values over 4 that respondents “highly agreed” with the statement.

		N=64-68		
		n	%	M
1 To work with Web 2.0 tools helped me to better deal with technologies				
	Strongly Disagree	1	1,5	<b>4,25</b>
	Disagree	1	1,5	
	Neither Agree or Disagree	7	10,4	
	Agree	<b>29</b>	<b>43,3</b>	
	Strongly Agree	<b>29</b>	<b>43,3</b>	
2 Web 2.0 tools are powerful educational tools				
	Neither Agree or Disagree	1	1,5	<b>4,58</b>
	Agree	25	38,5	
	Strongly Agree	<b>39</b>	<b>60,0</b>	
3 To use Web 2.0 tools encouraged the habit to search and use information on the internet				
	Strongly Disagree	2	3,1	<b>4,14</b>
	Neither Agree nor Disagree	7	10,9	
	Agree	<b>32</b>	<b>50</b>	
	Strongly Agree	23	35	
4 Web 2.0 tools allow teachers to develop students´ digital skills				
	Neither Agree nor Disagree	2	3,1	<b>4,59</b>
	Agree	22	34,4	
	Strongly Agree	<b>40</b>	<b>62,5</b>	
5 I don´t believe in the potential of Web 2.0 for learning				
	Strongly Disagree	<b>43</b>	<b>66,2</b>	<b>1,43</b>
	Disagree	18	27,7	
	Neither Agree nor Disagree	2	3,1	
	Agree	2	3,1	
6 Web 2.0 tools promote knowledge sharing and construction				
	Agree	23	34,8	<b>4,65</b>
	Strongly Agree	<b>43</b>	<b>65,2</b>	
7 To use Web 2.0 technologies is essential for any 21 <sup>st</sup> century citizen				
	Neither Agree nor Disagree	6	9,3	<b>4,38</b>
	Agree	28	43,1	
	Strongly Agree	<b>31</b>	<b>47,7</b>	

TABLE 1 - Opinion of participants on the potential of Web 2.0 tools for education

The first overall analysis of Table 1 shows that, in most, teachers´ either *agree* or *strongly agree* on the potential of Web 2.0 tools to teach and learn (all weighted means with values over 4, confirmed by the low score on the negative statement of item 5, with 66,2% of the respondents saying they strongly disagree with the statement).

An item by item analysis shows that the participants *strongly agree* that Web 2.0 tools “are powerful educational tools”, that “promote knowledge sharing and construction” and that “allow teachers to develop students´ digital skills”, concluding that “To use Web 2.0 technologies is essential for any 21<sup>st</sup> century citizen” (all items with M values between 4,38-4,59). They also *agree* or *strongly agree* that “To work with Web 2.0 tools helped to better deal with technologies” (M= 4,25) and that “To use Web 2.0 tools encouraged the habit to search and use information on the internet” (M=4,14). In synthesis, course participants are aware that Web 2.0 tools are powerful educational tools that enhance competences that any 21<sup>st</sup> century citizen must have for participation in the learning society.

## DISCUSSION

Web 2.0 technologies offer educators amazing opportunities for creating effective and engaging learning environment for their students. The ICT training program we present in this paper sustains the need for new approaches that focuses on the integration of the technologies into the daily work of the teacher. Research shows that ICT use tends to change the pedagogical approaches the teacher employs (Downes et al., 2001), and so, in training programs, after getting familiarized with the technical issues of the technologies, teachers must be encouraged to create, in groups of peers, digital resources to use in the real classroom (Coutinho, 2008; 2009b). Of course they that they need time to acquire and transfer knowledge and skills in technology to the classroom, and we are aware that the course length was short for that process to occur. However, the enthusiasm maintained by teachers in face to face sessions as well as in at distance activities, the quality of the artifacts developed as well as the feedback obtained on the final online survey, show that teachers valued the learning experience with Web 2.0 tools and that they had a firm intention to integrate technologies in their teaching practices. Of course that teachers perceptions on the potential of the Web 2.0 technologies experienced in the course vary according to teachers' prior proficiency and digital skills; in fact, the majority agreed that blogs were intuitive and easy to explore in the classroom, but when it comes to podcasts some are still resistant to the adoption of the technology recognizing they needed more time to gain expertise and technological training for creating good quality podcast episodes.

The integration of technologies in the classroom requires new roles, new pedagogies and new approaches to teacher training (Schwab, 2000). The emerging knowledge-based society and the wide-spread use of ICT generate the need for new digital skills and competences for employment, education and training self-development and participation in society (Punie & Cabrera, 2006). As educators in teacher training programs we can't give up our responsibility to prepare digitally wise teachers (Coutinho & Bottentuit Junior, 2009); we know we have in our hands the opportunity to challenge more and more teachers to get aware of the potential that Web 2.0 technologies offer to educators whatever the curricular grades and areas they teach (Solomon & Schrum, 2007). In our eight weeks course we feel that the participant teachers become aware of the emergence of a new paradigm and that educational practices won't be the same as they were before attending the ICT program. Dewey (1916) said in the beginning of the XX<sup>th</sup> century, that "If we teach today as we taught yesterday, we rob our children of tomorrow". Our challenge is then to prepare teachers that benefit fully from the new opportunities offered by ICT, as competent users of technologies in general but also as learners and educators of a new generation of digital citizens.

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