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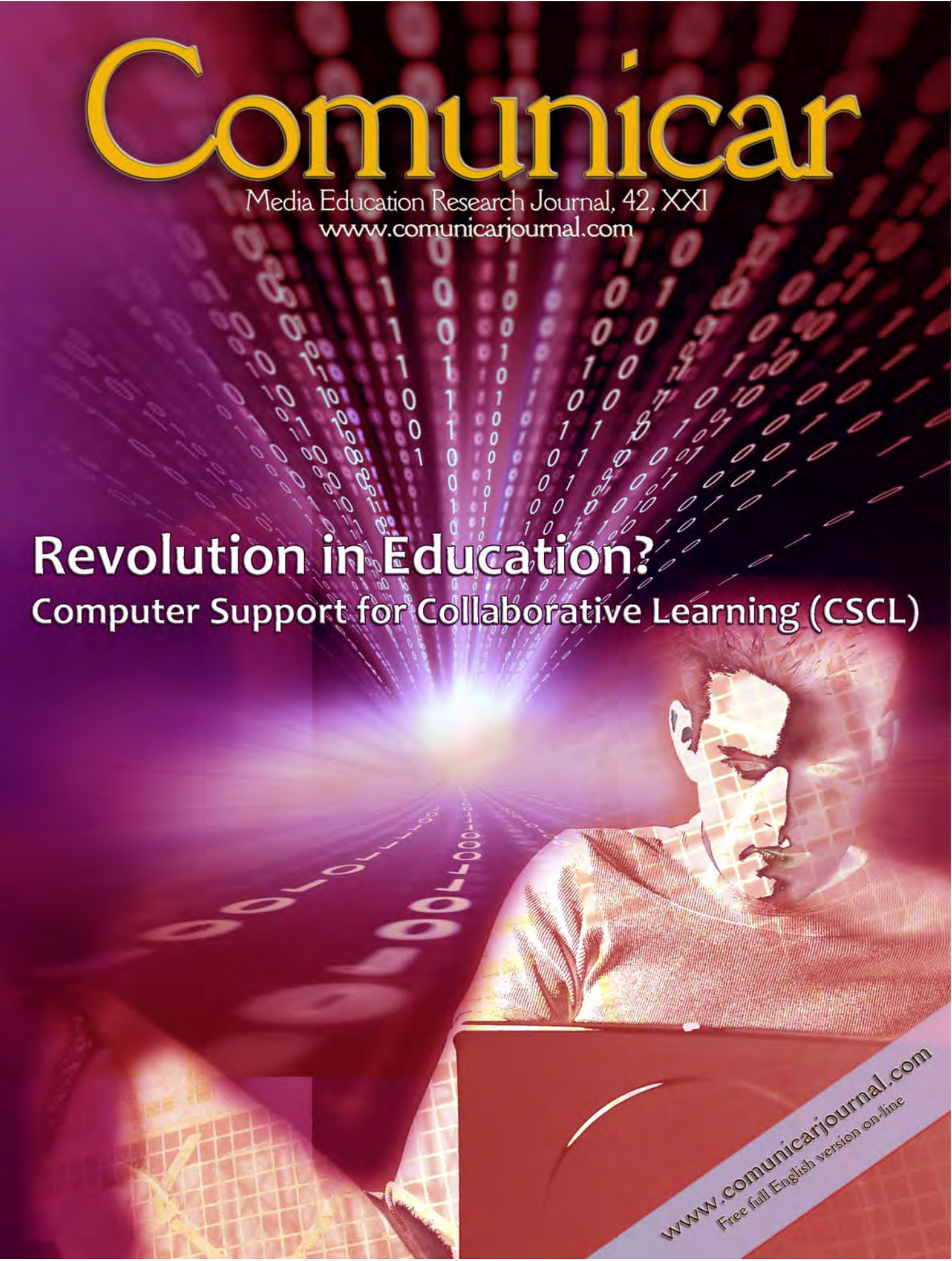
Computer Support for Collaborative Learning (CSCL)



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CONTENTS

Comunicar, 42, XXI, 2014

Revolution in Education? Computer Support for Collaborative Learning (CSCL)

FOREWORD

DOSSIER

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CONTENTS

Comunicar, 42, XXI, 2014

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1. GENERAL INFORMATION

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Contents are moderated by means of peer review, in accordance with the publication standards established in the APA (American Psychological Association) manual. Compliance with these requirements facilitates indexation in the main databases of international journals in this field, which increases the dissemination of the papers published and therefore raises the profile of the authors and their centres.

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Editorial

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From Infoxication to the Right to Communicate

Desde la infoxicación al derecho a la comunicación

Dr. J. Ignacio Aguaded
Editor of «Comunicar»

We spend hours hooked to our screens for many and various reasons: for work, study… but increasingly for pleasure and to feel connected. Twitter, Facebook, Whatsapp are now part of our everyday language and habits. The latest figures for 2013 show that there are 6 billion mobile phones in use around the world one for each inhabitant – but unevenly spread among regions and social classes.

According to recent stats, teenagers in Germany and the USA spend more than seven-and-a-half hours a day using these media in what can only be described as a total convergence of the audiovisual, multimedia and digital. We are witnessing compulsive hyperconnection, a global excess of information, an obsession for perpetual communication but which is devoid of content… Infoxication, infopollution… are now real factors affecting our lives. Overexposure to the media is generating more infrainformation. Moles saw this coming decades ago, that this pollution of information was going to require «an ecology of communication». There have been many responses to this situation and most seem to take to it like «a fish to water», blithely unaware of the changes that these technological absorbents, which are increasingly universal, accessible and cheap, have on our lives. Media have become the mod cons of our lives today, almost like «extensions of our personal selves» as Marshall McLuhan put it. There always appears a radical reaction, none more so than Nicholas Carr, who left his hyperconnected life behind to retire to the Colorado mountains, as he relates in his book «The Shallows: What the Internet is doing to our brains»? (Taurus, 2011).

However, when faced with media, there really is no other sensible choice other than to learn to live with them since we cannot live without them unless we go on a spiritual retreat from civilization, like Carr. As an individual response, empowerment is the best strategy in order to consume media in an intelligent way, and enjoy and make the best use of them in our everyday lives; to learn about them, get to know them and relate to them. Citizens' media competences, a skill that is sadly lacking in today's school curricula, is the key for preparing people to understand the media message, with an overview and a critical eye, to establish a healthy relationship between the two.

But we need more than just individual actions and educational initiatives; we need worldwide communication strategies. As a universal human right in our hypecommunicated society, it is crucial that governments develop communication policies that defend the right of citizens to communicate and to have access to good quality communication. For this reason, a group of professors and academics in Chile set up PolComChile «Public Communication Policies» (www.políticasdecomunicacion.cl), a space for reflection, research and proposals that aims to reconfigure and establish a digital-media system that is pluralistic, diverse and participative along the lines of the «Universal Declaration of Communication Rights». They have drawn up a 12-point manifesto which, on a social and community level, amounts to

Editorial

the best instrument available to counter the effects of infopollution and the infrainformation that follows in its wake. These are:

1) Communication as a right, as a basic human right that must be embodied in structures and communicative practices worldwide.

2) A media system, with regulations that respect the right to communication, in line with digital convergence and respect for plurality not only from public service media and the private sector but also from the third sector.

3) Encourage pluralism, because the media must represent social, cultural, geographical, rational and ideological diversity beyond the agenda of a few proprietors in whose hands the major media outlets are concentrated.

4) A space for publicity that is state-owned, pluralistic and open to all media regardless of their orientation or supports.

5) Regional, local and community media, to encourage initiatives that promote pluralism in news reporting and territorial diversity.

6) Internet, as a universal public service. Connectivity must be the duty of the state, as well as the development of digital competences in its citizens in order for them to make intelligent use of the Net.

7) The entities that manage and promote communication as a citizen's right must be properly institutionalized and independent.

8) Media and digital education, based on an active state policy that encourages the instruction of citizens as critical, creative and participative beings when dealing with digital and audiovisual media.

9) A television that is educational and cultural, with the creation, implementation and sustainability of educational and cultural television programming in the context of digital media. This should generate a space for citizens to meet and express their various cultural backgrounds.

10) Public television of real quality committed to the common good, as an expression of cultural diversity.

11) The promotion of an audiovisual industry that generates content which is plural in form and crosses over media, and has multiplatform applications within the digital convergence.

12) A communicative citizenship, with the encouragement of public-private sector alliances, citizens' organizations, universities… which, with projects, observatories, experiences of good practices, research, seminaries and workshops… generate information and knowledge for the citizen and effectively encourage people to avail themselves of their communication rights.

These measures are some of the best strategies for making communication a right for all citizens. Yet for this to happen, public policies are needed that can diagnose the major problems behind the infopollution and infoxication we see all around us, and that can set out clear plans and preventive actions based on citizens' rights.

Free citizens, citizens who can communicate… in a dizzying and dynamic panorama of digital transformation in communication. Six billion mobile phones that are more and more «intelligent» require citizens to be educated and well-instructed in media as well as the development by governments of plural policies of communication as a universal human right.

© ISSN: 1134-3478 • e-ISSN: 1988-3293 • Pages 7-8

Comunicar 42

Dossier

Special Topic Issue

Revolution in Education?

Computer Support for Collaborative Learning (CSCL)

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Introduction

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Revolution in Education? Computer Support for Collaborative Learning (CSCL)

¿La revolución de la enseñanza? El aprendizaje colaborativo en entornos virtuales (CSCL)

Topic Editors:
Dr. Bartolomé Rubia, University of Valladolid. GSIC-EMIC Group (Spain)
Dr. Montse Guitert, Open University of Catalonia. Edul@b Group (Spain)

The issue of learning has been one of the great debates in Education for the past two centuries. Educational institutions start by questioning how to deal with the teaching process, «educational model», «ideology», «method»... but do they make the same effort when focusing on their students' learning? With the French Revolution the servant became a citizen, and with this concept the school as we know it was born and evolved through the nineteenth and twentieth centuries, but with very few changes, as suggested by Manuel Area. The question of how learning is understood in this period in terms of methodology means that we could extend the classical structure of individual bookish training and banking, to a more open, social and dynamic training group process. The pressure of social change has produced this transformation in philosophy and methodology in the school, because it has evolved in the way we understand learning. Learning theories helped us understand the logic of human development. Vygotsky and Piaget, in their writings on thought, language, maturation and development, show us the complexity of the learning processes associated with the brain's mechanisms for evolving and maturing. From Freinet's pedagogy, Rousseau, Neill, Makarenko and Cousinet and Ferrer i Guàrdia have helped us develop pedagogical models for processes of cooperation and peer learning. They understand learning from the perspective of relationship and cooperation, mainly from interaction, and show how students faced with appropriate tasks can increase their mastery of critical concepts.

These principles have helped us to create a way of understanding and developing educational activity, dynamics and practices of the student's classroom setting. If our brain is able to evolve and pass from instinct to higher thinking processes, we have to help this development by supporting the educational processes to provide greater capabilities. We learn socially from our language learning, so we therefore create models of the world around us in the form of language, concepts that are constructed in reference to what the social group agrees. We also interact to learn, and it helps us to mature and develop concepts, to establish procedures and acquire shared attitudes towards life. Pierre Dillenbourg points out that the word «collaborative» refers to four aspects of learning: the situation needed to enable collaboration between people of the same status (a teacher and his-her students) e.g., the interactions to facilitating collaboration, for example when there is negotiation instead of instruction, the learning mechanisms themselves, supported by dynamic assimilation and accommodation, for example, from the perspective of group agreement on what they have learned, and finally, the effects of collaborative learning which is supported by recording different dynamics of learning and action that build results beyond

Introduction

the content that is learned. If we keep this perspective in mind as we build our thinking and learning, we become aware that the dynamics of training must help the peer relationship, improve communication and reach agreements/behavioral concepts in ways that make us equal, responsible, free and respectful of others.

This training might help us reach a synergistic partnership and exemplary society, as it promotes the ideal school and college. These «advances» or theoretical perspectives have clarified school practices during the past fifty years, materializing visions into something more methodologically recognized, accepted and extended in the approaches of the school ideologies, converting words like «group work», «learning by doing» and of course «collaboration», into perfect concepts.

They have also been the basis for innovation in education, sometimes extending to all levels of education, including higher education. A significant example has been the reform of the European Higher Education Area, which has broken with the long tradition of individual banking model of the university.

But, what has happened in education with its new models and collaborative concepts of learning with the arrival of information and communication technologies in the classroom? In essence it has seen a decline since the seventies and eighties from the pedagogical models of the open and collaborative group, returning to individual models where the learning process is like a one-way street focused on training. Clear examples of these models were computer-assisted instruction (CAI) or computer-based instruction (EBO), which see training as a process through the implementation of targeted routines and individual dynamics, which help the learning procedures and concepts through behaviour-shaping mechanisms. In this case, the technology was probably at fault for its inability to facilitate open global processes to the normal grouping work already in operation in schools.

But as the winds of progress blew through schools, with the introduction of technology, we relied on models that did not facilitate the development of a collaborative learning perspective. Practical examples may be found in the school setting in the eighties and nineties of the twentieth century as the basis for the creation of resources for schools; the resources of the National Information and Communication Technology Plan (PNTIC) in Spain were a clear example, as well as dynamic ones which have spread as far as CLIC' RACO (www.xtec.cat/web/recursos/recursos).

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As a reaction to the unfortunate introduction of technology in education and in an attempt to build tools to make learning and development easier there came «computer supported collaborative learning» (CSCL), in response to the integration of behavioral order models, and taking into account the need to apply technology to dynamics. So in the 90s we begin to consider that technology and all its uses, with collaborative/cooperative aspects, must be incorporated in the methodologies. There then ensued a debate that ultimately ended up with the imposition of «collaborative» as the magic word. It is at this point in the mid-to-late nineties when the first virtual universities and creation concepts appear in the form of online learning, virtual learning environments, cooperative learning in virtual environments, or online collaboration. Consequently, with the works of Dillenbourg, Roschelle and Teasley, Koschmann, Kirschner, Gros and many more authors, a new perspective emerges as the basis of educational processes in which empowerment is pursued in different ways, in terms of concept and methodology, planning and implementation of technology-supported learning processes.

These authors understood the use of technology for learning as a process of resource usage to help us work together in a coordinated and synchronized way. That is the result of a continued attempt to construct and maintain a shared conception of a problem; it helps us to learn, where the responsibility and involvement in solving the problem is a function of the whole group. As Panitz advocates, invoking another of the classics, collaboration as a philosophy of interaction and personal lifestyle where individuals are responsible for their actions, including apprenticeships, on the basis of equality and responsibility.

There are four basic characteristics in these processes which condition technology so that this functionality exists; the resources should allow students:

To work to develop a dynamic that fosters positive interdependence among members of the working group or class group. This means that work must be organized in such a way that if there is that level of responsibility and respect among students, it will be effective and carried out properly. Moreover, it is critical that resources enable planned activities and processes to produce face-to-face interaction. It is essential that training dynamics be organized so that students have to generate a proper relationship and organization of their work, a relationship that forces them to develop the activity. To achieve this, educational activities must promote individual and group responsibility. Learning is a process that makes our brain function, but we do it as a community; if we want to avoid inequalities in access to learning, we cannot lose sight of achieving an important level of individual and group responsibility. And so, as we generate educational plans that require the learner to develop this series of social skills, they learn to live and work in community. It is essential that the tasks and results be organized as a process that involves the internal dynamics of organization, conduct and conclusion of the negotiations to help build the knowledge to be acquired by students.

These conditions in which to produce a type of collaborative learning require that when technology is used to achieve this, the machines must not only be reactive but be mindful of the demands of space, process and storage that these dynamics need. So this becomes a call to technology to configure 'machines' in the sense of allowing these types of processes to become reality. But in terms of the birth of CSCL, we can now say that we are changing the model or even paradigmatic concept, because although the training processes are focusing on learning about collaborative planning, technology is changing its role. During the birth of CSCL as a concept of technology usage, technological resources enable dynamic support for training but in many cases they do not integrate the dynamics themselves. An example from the nineties is the use of the BSCW platform. Many of us participated in experiences which included technologies that allowed collaborative dynamics where the system helped and supported cooperation training, but group processes, relationship and collaboration are developed face-to-face beyond the resource, which only served to support shared documents or explore the relationships between members of the classroom through their interactions (reading documents, comments, etc.).

Today this is changing, and technological resources enable more comprehensive uses, and learning dynamics occur within the resource. What happens, then, when technology becomes a transparent element that is present in all actions? Nowadays, technology has developed ubiquitous systems which allow the user to perform actions in a totally transparent way and without receiving the technology that supports it. The actions are carried out with applications that integrate all the actions that the user needs to

perform collaborative learning processes. This collaborative learning in the network is defined by the Network of Collaborative Learning in Virtual Environments (RACEV) as «a shared process, coordinated and interdependent, in which students work together to achieve a common goal in a virtual environment. Collaborative learning is based on a process of activity, interaction and reciprocity among students, facilitating joint construction of meanings and individual advancement to higher levels of development» in which technology appears only as a work environment; the most profound technologies are disappearing, and the presence of learning processes related to the contributions made by the networks to new ways of learning are the most vivid example of collaborative processes.

In this sense, this monograph provides evidence of the evolution that collaborative learning processes have undergone in digital environments, focusing on different dimensions and facets of the uses of technology, innovative experiences of good practices developed and methodological contributions in the elaboration of this collaborative revolution. Thus, CSCL in the university is the topic that features heavily in the first five papers in this issue, specifically the first three deal with the methodological aspects of collaboration. The article by Pérez-Mateo, Romero and Romeu (Barcelona), entitled «Collaborative Construction of a Project as a Methodology to Acquire Digital Competences», discusses the importance of the methodological definition of CSCL processes and how methodology for collaborative projects enables the acquisition of ICT competences by students and their perception of a virtual university such as the UOC.

The second, «Planning Collaborative Learning in Virtual Environments» by Hernandez, Gonzalez and Muñoz (Madrid, A Coruña and Lugo) highlights the importance of planning in CSCL, planning that is both technological and methodological in terms of the configuration of working groups in order to encourage exchanges and community learning.

The third aims to experiment with teaching methods such as VLE integration and PLEs, and analyzes developments in the construction of PLE by students, with special emphasis on building a personal learning network. On the other hand, «Environments and personal learning networks (PLE-PLN) for collaborative learning» by Marin and Perez Negre (Balearic Islands), examines strategies that facilitate and promote collaborative learning. The fourth, entitled «Audioblogs and Tvblogs, tools for collaborative learning in Journalism», Lopez and Gonzalez (Valladolid and Madrid) analyzes how blogs promote abilities and individual and group skills, in order to determine the advantages and challenges of collaborative learning in the virtual environment of the blogosphere from a college experience. Meanwhile, Gewerc, Montero and Lama (Santiago de Compostela) present an analysis of the impact of social networks for collaboration and communication processes at university, entitled «Collaboration and social networking in higher education».

The next block includes three items related to collaboration at the level of primary and secondary education. The sixth article, entitled «ICT in collaborative learning in elementary and secondary classroom», García-Valcárcel Basilotta and Lopez (Salamanca), analyzes the contributions of technology in collaborative work processes in the classroom, from the point of view of teachers in primary schools. Olive and Paiva Arancibia (Chile) present the results associated with the processes of meaning that teachers and students built from the basis of their participation in the staging of a project design implemented with the use of collaborative learning with ICT, entitled «Meaning Processes mediated through a Protagonists' Collaborative Learning Platform». The study of this block, entitled «Exploring Student and Teacher Perception of E-textbooks in a Primary School», by Oliveira, Camacho and Gisbert (Tarragona), uses an exploratory study to examine the practices of meaning-building by students and their perceptions, as well as those of their teachers, while they interact in learning activities with an electronic textbook. The ninth paper, «Communities of practice: an intervention model from collaborative learning in virtual environments», by Fernandez and Valverde (Cáceres), takes place in the field of non-formal education and presents a study on the creation of a community of practice; the subjects are gipsy women for contextualization and subsequent design, followed by the implementation and evaluation of training with e-learning on equal opportunities and social leadership. This edition ends with a work by Leinonen and Durall (Finland) on «Design thinking and collaborative learning» as an alternative approach to develop research on collaborative learning by means of technology.

Enrique Martínez-Salanova ©2014 by Comunicar

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● María Pérez-Mateo, Marc Romero & Teresa Romeu
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Collaborative Construction of a Project as a Methodology for Acquiring Digital Competences

La construcción colaborativa de proyectos como metodología para adquirir competencias digitales

ABSTRACT

As a result of the emergence of Information and Communication Technologies (ICT) we are currently experiencing a period of major changes. Higher education plays a key role in helping students to acquire the competences which enable them to be autonomous in both academic and professional environments, where ICT literacy and collaborative processes are considered crucial. This study analyzes students' perceptions about how the collaborative construction of an online project facilitates the acquisition of digital competences. It examines the methodological approach, within the context of the Open University of Catalonia, of the subject: «ICT Competences». This subject is conducted fully online at the UOC, and learners are required to engage in a collaborative project organized in 4 phases: starting, structuring, developing and concluding. Based on an evaluation research approach, quantitative and qualitative data from a survey have been triangulated. The results support the pedagogical methodology which forms the basis of this subject and indicates that collaborative projects facilitate the acquisition of digital competences, highlighting those linked to digital teamwork and digital attitude. The conclusions reinforce the importance of Computer Supported Collaborative Learning (CSCL) processes, the need to put forward pedagogical proposals for the acquisition of both digital and collaborative competences and the relevant role of the teacher in this process.

RESUMEN

Actualmente presenciamos una etapa de importantes cambios como consecuencia de la emergencia de las tecnologías de la información y la comunicación (TIC). La educación superior ejerce un papel clave para ayudar a los estudiantes a adquirir las competencias que les permitan desenvolverse en los entornos académico y profesional. Entre éstas, las vinculadas a las TIC y los procesos de colaboración se consideran claves. La finalidad del presente estudio es analizar la percepción de los estudiantes a fin de evidenciar cómo la construcción colaborativa de un proyecto digital facilita la adquisición de las competencias digitales. Para ello, se aborda el planteamiento metodológico de la asignatura «Competencias TIC» de la Universitat Oberta de Catalunya, la cual se desarrolla a través de un proyecto colaborativo en red organizado en cuatro fases: inicio, estructuración, desarrollo y conclusión y cierre. Mediante una investigación evaluativa se triangulan datos de naturaleza cuantitativa y cualitativa provenientes de un cuestionario. Los resultados muestran la evolución en la propuesta metodológica de la asignatura a la vez que ponen de manifiesto cómo el proyecto digital en equipo facilita la adquisición de las competencias digitales, destacando concretamente las vinculadas al trabajo en equipo en red y la actitud digital. Las conclusiones refuerzan la importancia de los procesos CSCL, la necesidad de trabajar propuestas pedagógicas para la adquisición de competencias digitales.

KEYWORDS / DESCRIPTORES

Collaborative learning, virtual learning, digital literacy, competences, virtual environment, teaching practice, social web. Aprendizaje colaborativo, aprendizaje virtual, alfabetización digital, competencias, percepción crítica, práctica docente, web social, wikis.

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1. Introduction

The Parliament and the Council of Europe (2006) have laid down eight key competences for lifelong learning, and among these, digital competences are included. Given its rapid expansion, ICT are understood to be one of the most effective agents of social change (Domingo & Marquès, 2011). Digital competences are at the same time considered to be transversal in that they facilitate the acquisition of others (Punie, 2012).

In accordance with the European Commission, we will adopt in our case the term digital competence to refer to the «set of knowledge, skills, attitudes, strategies and awareness which are required when ICT and digital media are used to perform tasks, resolve problems, communicate, manage information, collaborate, create and share content, and build knowledge in an effective, efficient and adequate way, in a critical, creative, autonomous, flexible, ethical and a sensible form for work, entertainment, participation, learning, socialization, consumption and empowerment» (Ferrari, 2012: 3).

As this definition reflects, digital competences have been attributed with a set of skills that go beyond the use of ICT as an instrument (Pérez & Delgado, 2012). At the same time, the European Higher Education Area acknowledges the importance of the carrying out of collaborative activities to be developed in today's society, defining teamwork as a generic competence (González & Waangebar, 2003). The processes of collaboration are even contemplated as one of the key characteristics of online learning (Garrison, 2006; Harasim & al., 2000). Experts have referred to this educational paradigm as Computer Supported Collaborative Learning (CSCL). CSCL focuses on the use of technology as a mediation tool among the collaborative methods of instruction (Koschmann, 1996). In accordance with Kirschner (2002), CSCL is regarded as a tool which permits educators to hold on to current constructivist approaches in order to develop the processes of teaching and learning, involving dialogue and social interaction among the group members, students and geographically dispersed teachers.

The advance and integration of digital technologies are making a great impact on education, changing the methods of teaching-learning, curriculum, learning objectives and the role of students and teachers (Wen & Shih, 2008). ICT promote this change of role insofar as they facilitate opportunities for active learning (Williams & Chann, 2009), changing the role the student and teacher play.

The changes in the role of the students and their active participation in the creation of educational content have been strengthened by the so-called Web 2.0 (O'Reilly, 2005). Web 2.0 incorporates technology, knowledge and users as essential aspects and is characterised by the collective creation of content, the establishment of shared resources and collaborative quality control between users (Ribes, 2007), adopting an active role, of reader and/or editor.

The tools associated with Web 2.0 increase and reinforce the possibilities for collaboration, communication and production of knowledge (Rhoades, Friedel & Morgan, 2009; Dimitriadis, 2012). The wiki stands out as one of the Web 2.0 tools in that it facilitates processes of collaboration. Bruns and Humphreys (2005) propose the use of wikis in education as spaces of communication where some of the skills are developed and, fundamentally, attitudes towards a new type of technological literacy which is «critical, collaborative and creative» and goes beyond the mere instrumental mastery of the tools and communication environments which ICT offer.

Supported by the literature in this field (Dillenbourg, 2003; Martínez & al., 2003), a group of researchers from the Open University of Catalonia (UOC) began in 1998 a new line of work in collaborative learning in virtual environments based on student activity through the use of ICT. In recent years, our analysis has shown that the student must acquire digital competences in order to optimise the process of learning in a virtual environment (Guitert & al., 2008) following a collaborative methodology (Guitert, Romeu & Romero, 2012). Afterwards, we focus on project work in terms of a collaborative methodology for the acquisition of digital competences. In a complementary manner, different studies linked to online collaboration have been carried out (Pérez-Mateo, 2010; Romeu, 2011, among others). This present study takes a greater look at collaborative methodology between students.

2. Materials and methods

The objective of the present paper is to analyse the perception of students to demonstrate how the collaborative construction of a digital project facilitates the acquisition of digital competences. The study will address the following research questions: To what extent have they perceived that they acquired digital competences following the use of a collaborative methodology? How do they rate the methodology for the collaborative construction of knowledge?, How do the value the wiki as a tool for developing a project in a collaborative manner?

2.1. Scenario

This present research falls within the context of the UOC, in which the process of teaching-learning takes place entirely online. In particular, we focus on the analysis of a case from the perspective of Stake (2005): a transversal subject which is ICT Competences (ICTC) that is part of a block of basic training in the degrees at the UOC. ICTC are obligatory for most degrees and recommended in the first term of the university. Its objective is that students begin in a gradual and integrated way with the acquisition of transversal competences at the UOC, «Use and application of ICT in an academic and professional environment» and «Online team work». These competences are outlined as: Search and selection of information online, Processing and development of digital information, Presentation and dissemination of digital information, Basic notions of digital technology, Work planning in a virtual environment, Management of a digital project, Communication strategies in the Net, Teamwork in an online environment and Digital attitude.

The methodological approach is project-based learning (Railsback, 2002); concretely, developing a collaborative digital project is contemplated. To develop it, students form groups of 4 participants, having their own group space which integrates different tools. Among these, the wiki stands out as the tool that links all the process of creation of the project. The development of the project is planned in 4 phases (Starting, Structuring, Development, Concluding), each of which puts forward a set of interrelated activities (figure 1).

The starting phase provides an environment for creating working teams and perform the initial searches. This assists the students in setting out the theme of the project. The second phase involves making a deeper search for information to structure the project. Subsequently, the project is developed: the processing and the development of the information gathered are carried out. Through this step, the first version of the project is achieved. Finally, the closing and dissemination of the project are done; sharing and discussing the final version of the project.

The approach to be carried out is not only oriented to the use of technological instruments but also to the putting into practice of key methodologies and skills for working in a virtual environment. The teacher orients and facilitates this process of construction in an ongoing way. This assessment is based on continuous evaluation (group and individual), thereby assuring the progressive acquisition of competences in each phase.

The resource «Collaborative Digital Project»[1] (http://389658.uoc.wikispaces.net/?ajax=true) involves the implementing of a consistent methodological proposal with respect to project work, being applicable to groups of students of varying profiles. Such a resource represents a methodological advance for the completion of the subject. Its objective is to introduce students to a methodology for project work and provi-

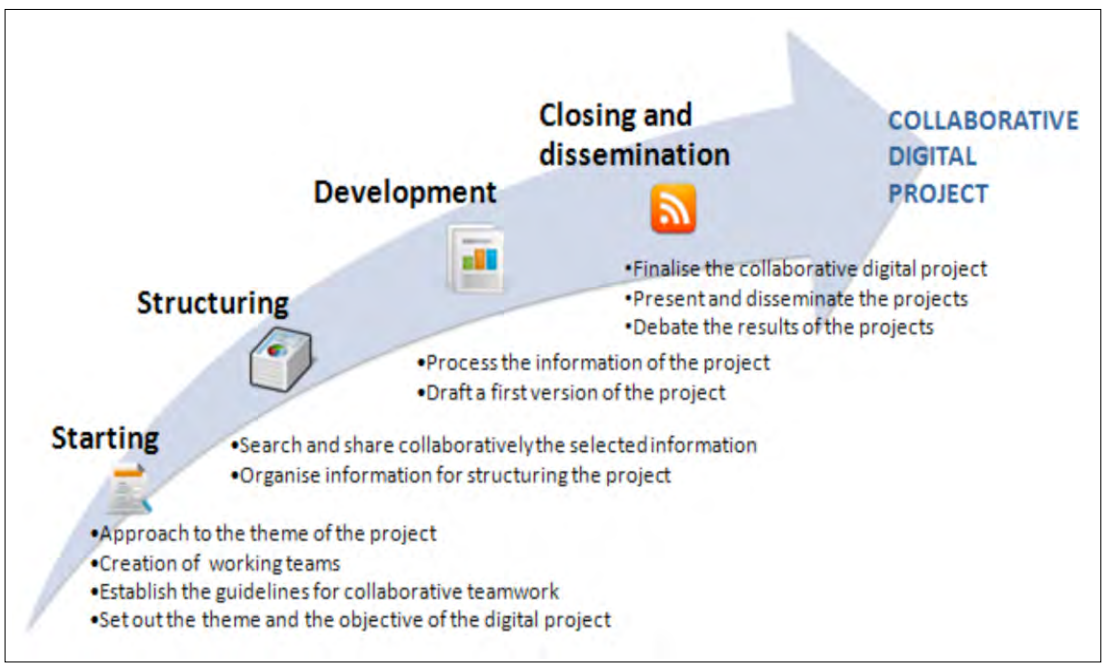

Figure 1: Phases and activities of the Collaborative Digital Project.

de guidelines to develop the project in a collaborative way.

2.2. Research design

Responding to this process of applied research, the design of the present study aims to analyse a collaborative digital project as a methodology for online collaboration. Given the transversal character of this subject, a large number of students have been involved: an average of 5,500 annual enrolment. In this study, a sample of 1,887 students participated from 12 different degrees of the UOC.

In the framework of this evaluative research the aim of which is to favour the improvement of educational practice in ICTC, the perception of students is gathered in a systematic way by means of a questionnaire. For this present research, two questionnaires were taken into account, which constitute the instruments for the gathering of the data and at the same time revealing the process of development and soundness of the proposed learning methodology. The first questionnaire sets forth a rethinking of the subject bearing in mind the changes in the proposed methodology (teamwork, incorporation of web 2.0 tools, changes in the platform for the development of the project, etc.) and the second questionnaire responds to a consolidated vision of the methodology. Both questionnaires combine data of a quantitative and qualitative nature.

The first questionnaire (2009-2010 cohort) was oriented towards analysing the perception of the students with respect to the degree of acquisition of the competences of the subject and also to procedural aspects for the development of the project (resources, tools, perception of each one of the activities, role of teacher, etc.). The questionnaire consisted of 20 questions: 16 of Likert-type rating scale and 4 open. It was sent to a population of 1,922 students (second term) and completed by 37.4%, so having a sample of 720 which can be considered significant (sampling error of 2.95%).

The second questionnaire (2011-2012 cohort) focused on the learning resources and the methodology for online project work based on a concrete resource «Collaborative Digital Project» and the analysis of the base tool; the wiki for the carrying out of the project. The questionnaire combined 3 questions of Likert-type rating scale and 2 open ones. It was sent to a population of 3,183 students (second term) and was responded by 36.6% so there was a sample of 1,167 which can be considered significant (sampling error 2.32%).

Both questionnaires were of voluntary character, anonymous and not assessable and were distributed digitally through the Netquest tool at the end of the course. The reliability of the quantitative questions was checked using the Cronbach's alpha coefficient of internal consistency obtaining a general value of 0.938 in the first questionnaire and 0.874 in the second; both are considered to be highly reliable following Cohen & al. (2011). Both the qualitative questions and the structure and items of both questionnaires were validated by experts in the area. The institutional evaluation surveys of the corresponding courses were also taken into account, which focus on the satisfaction with the subject, the teacher, the resources and its evaluation, and there was a response from 942 students. Academic performance data was also considered. The processing of the information gathered involved the analysis of quantitative and qualitative data. The statistical analysis was based on frequencies. The analysis of the qualitative data from the open questions was done from the identification of categories. All the data of a quantitative and qualitative nature was triangulated to have an in-depth understanding of the experience.

3. Analysis of results and discussion

The purpose of the methodology developed in ICTC is to provoke situations that will drive students to acquire digital competences. From the first edition of the subject in 1998, ICTC have adapted methodologically to professional and academic contexts. The result of this analysis and the scope for constant improvement has caused a greater adaptation and advance in the methodology for project work to respond to this objective: facilitate the gradual acquisition of digital competences. This trend is summarised in:

- Gradual incorporation of the methodology for online group work in all of the degrees at the UOC.
- Changes in the format of the project to be developed.
- Development of digital competences.

In the scope of the present investigation, students are requested to evaluate the degree of usefulness of the proposed methodology for the acquisition of digital competences. The objective is to determine if there are significant differences in the methodological approaches. This comparative analysis allows us to observe a marked difference and confirm that the development of the methodology has favoured a greater acquisition of the competences of the students (figure 2): the students perceive that the changes in the methodological approach of the subject adapts to a great extent to their needs, favouring the acquisition of digital competences in a much more effective way.

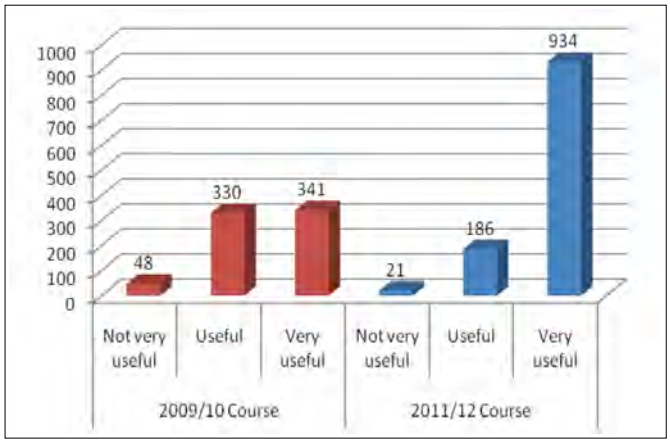

Figure 2: Comparative analysis of the perception of students regarding the usefulness of the methodology of the subject in the acquisition of digital competences (frequencies).

As we have already expressed, the evolution of the subject is shaped through the «Collaborative Digital Project» resource, which strengthens both the strategies and guidelines for developing the processes of online collaboration as well as the use of Web 2.0 tools in order to favour the acquisition of digital competences. The student evaluation regarding this resource is positive. In the words of the students:

• «Due to the lack of experience of working in a group online, many times throughout the term I consulted a set of resources which the subject provides; especially the resource which provides the methodology on how to carry out team work in a virtual way».

• «I particularly liked the body of the subject but especially the resource on how to accomplish a collaborative digital project and the advice and guidelines of the tutor».

From the interpretation of both questionnaires, a common element emerges and is therefore independent of the evolution of the methodology: the role which the teacher plays in guiding the learning process and help the students to acquire digital competences. While it is true that the questionnaires used did not make any reference to the teacher, this role appears repeatedly in the responses of the students, thus demonstrating the importance of being accompanied throughout the process. It is for this reason why we tackle the following sections in a transversal way.

3.1. From the individual project to collaborative project work

In accordance with the literature in the field, the preparation of the project in ICTC evolves from a model of individual work (Guitert, Romeu & Fuentes, 2005) towards a collaborative one based on teamwork.

It is worth highlighting that this fact has major repercussions in the approach to the methodology. Indeed, teamwork does not just become exclusively a change in terms of the willingness of the students to work in a team but also implies a set of actions and strategies oriented to help students to manage their work in a team both at the beginning of the process (through the establishment of an internal regulation and a group work plan) as well as during its development, fostering reflection and constructive criticism related to its dynamics. The students have found how the subject provides opportunities to learn to work collaboratively online. The following are some of the opinions of the students on this issue:

• «One of the strengths which would stand out is the experience acquired with teamwork in an asynchronous and virtual way; an experience that I had not known before».

• «I had no knowledge of group work using the Internet. It has been very useful for me. I think it will be a very useful tool in the future for professional needs»

• [The teamwork] «has been a key element that will facilitate taking up other subjects that require team working and quite a lot of knowledge of the tools and how interaction with our colleagues achieves the best learning results».

In a collaborative learning scenario, the teacher exerts a specific and differential role from other learning methodologies, considering it one of the key elements in the process of learning (Urhahne & al., 2009). Reinforcing these studies, the students reflect in the following way:

• «Have an external vision has been very useful to improve the project and group work».

• «Having made the effort to follow the guidelines and advice for the completion of the project. We think that these instructions were very appropriate and constructive».

• «The different evaluations have helped us in building the group, and these have been enriching to correct situations, improve...».

3.2. From the textual account to the wiki

The inclusion and the progressive use of different Web 2.0 tools for the making of the project is another key element in the approach of ICTC: it develops

from a textual project prepared in a local hard disk from file versioning to a project that is fully constructed using online tools in a hypermedia format.

Since 2007, the project has begun to develop collaboratively by means of a wiki. The wiki stands out among the Web 2.0 tools as the one that facilitates processes of collaboration. The research in this field states that the wikis have the potential to improve the collective construction of knowledge in academic contexts (Elgort, 2007; Raman, Ryan & Olfman, 2005) and in the results (Robles & al., 2009). The data demonstrates a favourable progression in the use of the wiki as a tool to develop a collaborative digital project. Figure 3 illustrates the students' perception with respect to the degree of perceived difficulty, and we can see that 85.3% of students from the cohort do not perceive difficulties in the use of the tool, in contrast to 81% from the 2009/10 cohort. This perception can be due to the fact that the wiki and its use have spread to a greater extent and its technological development is more intuitive and with less requirements of HTML language.

The students affirm its usefulness very explicitly when they state that «the use of the wiki has been really useful in carrying out collaborative work, and that it is a tool that could be used in other learning situations in the UOC and outside it». Another student comments: «we were all a little lost at the beginning but between us we learned how to use it although it required practice, especially if one has never worked with it before». The teacher plays an important role in guiding how to use the tool. As one student has affirmed: «it is interesting that the tutor encourages us to use the comments of the wiki as a means of communication and it encourages us to change format by default. The final result of our wiki was very personal».

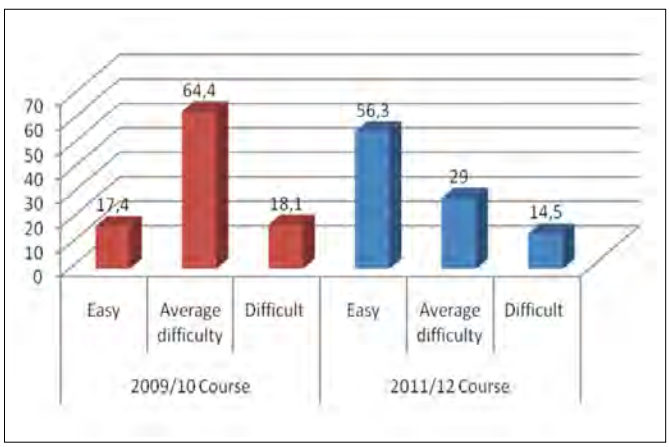

Figure 3. Perception of the students regarding the degree of difficulty of the wiki as a tool to develop a collaborative digital project.

3.3. Develop digital competences through a collaborative online project

From the beginning of the subject until now, the concept of ICT has evolved through progressively including emerging technologies. This is why the subject is currently evolving towards the concept of digital competence. The analysis of the student perception with respect to the degree of acquisition of digital competences points to a positive evaluation. The means of these items points to the evaluation of these (taking into account a scale of 1 to 3) stand above 2.6 with a standard deviation inferior to 0.4. Figure 4 shows in greater detail the student evaluation on the basis of digital competences worked in ICTC and linked to the process of learning.

As is evident from figure 4, students perceived that they have acquired a high level of digital competences, highlighting two as being key in relation to collaboration: civil attitude and teamwork as a collaborative strategy.

Acquiring a civil digital attitude

On the one hand, 98.75% of the students (a total of 711) perceived to have developed to a higher or medium degree of the competence related to the acquisition of a civil digital attitude. These results coincide with the studies performed in the field of online teamwork. Authors like Guitert and Romeu (2006) emphasise that for the preparation of any collaborative activity, the attitude adopted by the members is key for its success. In particular, among the set of values that stand out: commitment, transparency in the interchange of information and the expression of ideas, persistence and respect as basic attitudes in a virtual collaborative environment. The fact of working collaboratively online leads to the development of these attitudes in accordance with the perception of the students: «I have had the opportunity to share in a group project and interact and personally meet other classmates that I had not previously known. Our positive attitude, undoubtedly, has contributed to this» (Pérez-Mateo, 2010).

Acquire teamworking skills online

On the other hand, 97.2% of the students (a total of 700) value the fact that they have developed skills linked to team-

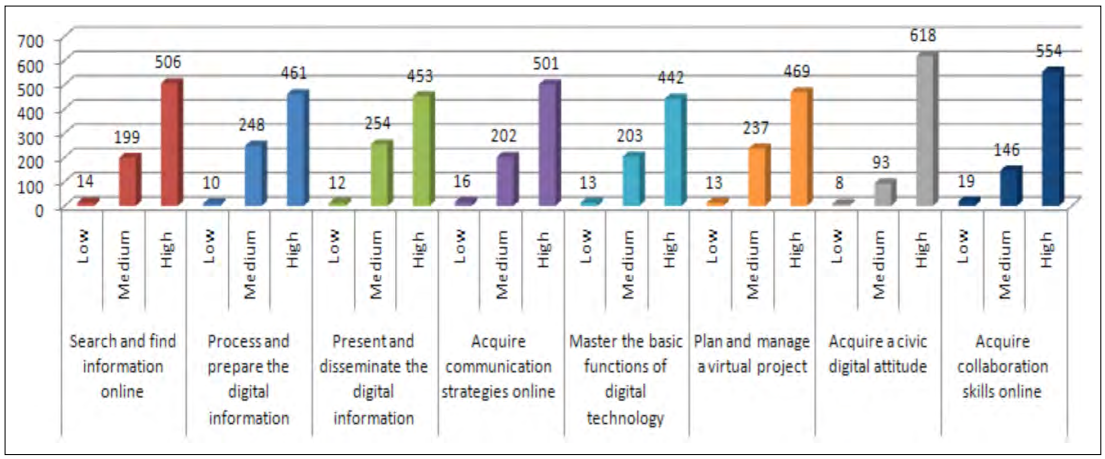

Figura 4. Evaluation of the grade of acquisition of digital competences in the subject (frequencies).

working online to a high or medium degree. A student made a point concerning this line: «Although I initially had some reticence since I did not know my companions, I value as one the strengths the virtual dynamic aspect of the subject that I obtained through teamworking». Another student states to be currently: «becoming more familiar and prepared for group work. I have learnt a lot from my team-mates, to respect the way things are done and communication».

We consider that the high valuation of the students with respect to the acquisition of these competences to be the due the relationship that exists between the two. Concerning this, Guitert and Romeu (2006) highlight the relevance of the attitudes adopted by the members in the configuration of collaborative dynamics. The high rating of the students with regard to the acquisition of digital competences coincides with the higher number who passed the subject which, according to institutional data, stands at 73% for the 2009/10 cohort and 77.2% for 2012/13 cohort, increasing the positive impact that the evolution of the subject has had on the students.

Likewise, the effectiveness of the proposed methodology for the acquisition of competences is reflected when making reference to the application or transfer of skills that are put into practice. 94.5% of the students value positively the degree of usefulness of such competences for the completion of other subjects at the UOC. In the words of a student: «I will now be able to apply this knowledge to other subjects in online team work». Another student affirms to have: «learnt to use the tool and work in a team. I am going to use all of this in the next term's subjects». In accordance with the rating of the students, generally speaking, the competences acquired in the subject have been found to be very useful for the carrying out of collaborative activities.

The changes in the methodological proposal which ICT have witnessed in recent years has led us to redefine digital competences, strengthening those related to collaborative work and the use of ICT; fundamentally oriented to managing group processes and the importance of the publication and dissemination of its contents by means of 2.0 tools. To analyze the perception of students regarding these competences, students were asked to what extent the methodology of the collaborative digital Project had helped them in acquiring them overall. Figure 5 illustrates how the majority (865) have shown to agree with this aspect.

The intervention of the teacher emerges once again as a key element in the perception of students in the acquisition of digital competences. In the words of the students:

- «The guidelines offered by the teacher have helped me to acquire the digital competences; his/her communication and immediate, clear and efficient dialogue with us has created an accessible and personalized contact».
- «I especially value the function of the guide and advisor that the teacher has demonstrated throughout all the process and indicating whenever possible which resources to work with in order to gradually acquire those competences».
- «I stress the importance of the tutor's attitude with us».

4. Conclusions and prospects

In a social context influenced by the emergence and availability of applications and functionalities that provide support to learning processes, pedagogical

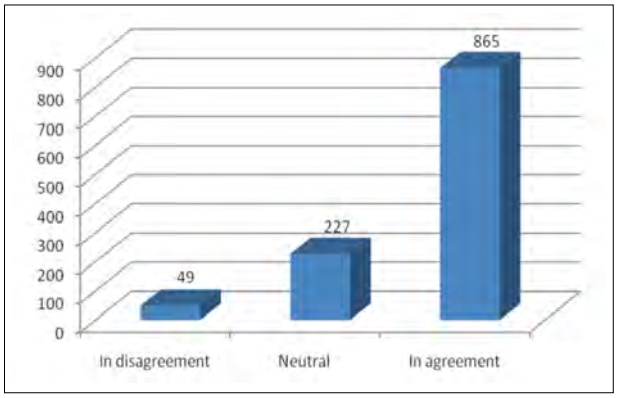

Figure 5: Perception of the students towards this finding: «The method of a collaborative digital Project has helped me to acquire digital competences» (frequencies).

processes are in a moment of change and development.

Being conscious of the importance for students to acquire digital competences for use in academic and professional fields, we have developed a methodological proposal which integrates collaborative learning and the use of ICT. The data gathered brings to light the positive perception of students with respect to the acquisition of digital competences by means of the drawing up of a collaborative digital Project using a wiki; among these competences which specifically stand out are those linked to the acquisition of a civic digital attitude and team working skills online (collaboration). This perception is reinforced by the high level of satisfaction of the students towards the subject, standing at an average of 82%.

The results described are evidence that the methodology for collaborative team work is valid, confirming at the same time the positive development of the subject methodology. It involves, therefore, a coherent and effective proposal, in which the attainment of the phases and associated actions leads students to acquire digital competences.

The intervention of the teacher has been identified as a key element to reinforce the process of the acquisition of competences through the follow-up of groups in an active, accessible and personalised way. The institutional data support this fact, given that it deals with that part of the subject that is best rated in all cases, with an average score of 91%. These results reinforce the necessity of having a teacher whose function is to guide and dynamise the learning process (Guitert & Romeu, 2011).

The following students' comments emphasise the three key aspects in the approach to ICTC: the importance of the processes of CSCL; the methodology in the acquisition of digital competences and the role of the teacher.

- «I feel that teamwork is really interesting. The subject has been really great in order to gain greater confidence in new technological tools. It has also been really interesting and appropriate to learn to work in an asynchronous way which is each time more valued».
- « I was delighted with the work methodology and the organisation of the subject».
- «I have had the impression throughout the subject I had the feeling that the working guidelines came at the right moment for me, something which has permitted me to feel guided at all times. I find that it has been a subject that has been really well drawn-up, planned and managed».

The results that have been obtained encourage us to continue in the direction of research initiated at the very beginning and at the same time to tackle those new questions raised in order to improve the methodological approach of the subject. Some lines of future work are: to validate the proposal of the current digital competences of the subject from the perception of students and teachers; to carry out a study of longitudinal cases with students that have passed the subject satisfactorily; to determine the level of the transfer of digital competences at the end of the degree; to systematise the process of research through posing comparable questions throughout the different stages of the research which is an aspect that constitutes the principal limitation of the present work; to analyse the possible differences and similarities according to the profiles of students (according to of the course they are doing); to boost the reuse of student projects in the direction of open education; etc. In short, the outlined research endeavours to provide students with the essential skills and techniques to perform better in a digital society.

Notes

[1] The resource outlines the key aspects of the methodology to be used: phases, objectives and expected products, resources to be used, etc.

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Planning Collaborative Learning in Virtual Environments

La planificación del aprendizaje colaborativo en entornos virtuales

ABSTRACT
Collaborative learning has a strong presence in technology-supported education and, as a result, practices being developed in the form of Computer Supported Collaborative Learning (CSCL) are more and more common. Planning seems to be one of the critical issues when elaborating CSCL proposals, which necessarily take into account technological resources, methodology and group configuration as a means to boost exchange and learning in the community. The purpose of this study is to analyze the relevance of the CSCL planning phase and weigh up the significance of its key design components as well as examining group agreement typology and its usefulness in team building and performance. To do so, research was carried out using a non-experimental quantitative methodology consisting of a questionnaire answered by 106 undergraduate students from 5 different CSCL-based subjects. Results prove the usefulness of the planning components and the drafting of group agreements and their influence on group building and interaction. In order to ensure the quality of learning, it is essential to plan CSCL initiatives properly and understand that organizational, pedagogical and technological decisions should converge around a single goal which is to sustain the cognitive and social aspects that configure individual and group learning.

RESUMEN
El trabajo colaborativo es una de las presencias dominantes en la formación apoyada en tecnologías, de ahí la importancia de las prácticas que se están desarrollando bajo las siglas CSCL (Computer Supported Collaborative Learning). Entre los aspectos que parecen ser determinantes para elaborar propuestas de CSCL se encuentra la planificación, que debe contemplar tanto los recursos tecnológicos como la metodología y la propia configuración de los grupos de trabajo con el fin de favorecer los intercambios y el aprendizaje en comunidad. El propósito de este estudio es analizar la importancia de la fase de planificación del CSCL, estimando el alcance de los componentes clave de su diseño, y examinando la tipología y utilidad de los acuerdos grupales en la creación y funcionamiento de los equipos. Para ello se llevó a cabo una investigación con una metodología cuantitativa de carácter no experimental de tipo encuesta en la que participaron 106 estudiantes de grado de cinco asignaturas que implementaron CSCL. Los resultados ponen de manifiesto la utilidad de los componentes de la planificación, así como la importancia de la redacción de acuerdos grupales y su incidencia en la creación y funcionamiento del grupo. Resulta esencial planificar adecuadamente el CSCL para garantizar el aprendizaje y entender que las decisiones organizativas, pedagógicas y tecnológicas deberían confluir en el objetivo de sustentar tanto los aspectos cognitivos como sociales que configuran el aprendizaje individual y grupal.

KEYWORDS / DESCRIPTORES
Collaborative learning, group agreements, virtual environment, university, e-learning, CSCL, formal education, planning.
Aprendizaje colaborativo, acuerdos grupales, entorno virtual, universidad, e-learning, CSCL, educación formal, planificación.

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1. Introduction

It is evident that human beings join communities in an attempt to reach certain goals or ideals. The relationships that make the group stay together are established to a large extent by the interaction required to pursue common goals; in the case of learning communities, it is to achieve the learning objectives.

In a review of the literature we find considerable evidence that social interaction contributes to effective learning (Hiltz & al., 2001). Rodríguez-Illera (2001) points to several psychological and anthropological approaches covering this non-individualistic conception of learning: situated, shared or distributed cognition, social constructivism, activity theory or the sociocultural approach (Vygotski, 2000). Even so, it is necessary to differentiate between the traditional conception of group work and the ongoing collaborative work perspective, where the emphasis is on the idea of «built knowledge» (Scardamalia & Bereiter, 1994), which refers to the interaction and reflection process that allows the group to configure meanings together (Guitert, 2011; Harasim & al., 2000; Johnson & Johnson, 1999).

The advantages of collaborative work for learning at different stages, such as academic, psychological and social benefits, are broadly covered in many studies (Johnson, Johnson & Holubec, 1993; Roberts, 2005; Slavin, 1985). Collaborative work also improves transversal competences in team work (Guitert, 2011; Hernández-Sellés & Muñoz-Carril, 2012), and authors note the twin effect of «collaborating to learn and learning to collaborate» (Rodríguez-Illera, 2001: 64).

Collaboration is perceived as one of the distinctive characteristics that are necessary for learning in virtual environments (Garrison, 2006; Harasim & al., 2000; Kirschner, 2002; Palloff & Pratt, 1999; Román, 2002). Dillenbourg (2003) even states that collaborative work is one of the dominant features in technology-supported education, hence the relevance of CSCL-based practical work.

However, initiatives for group work do not guarantee good collaborative work (Brush, 1998; Dillenbourg, 2002). Stahl, Koschmann and Suthers (2006) refer to the risk of assuming that students know how to work in groups and that they will collaborate spontaneously. Technology itself, no matter how sophisticated, is not enough since the tools themselves do not propose a model or promote a particular dynamic (Onrubia & Engel, 2012). Therefore, any proposal for online collaborative learning requires technological as well as pedagogical and social aspects to be taken into consideration.

That is why an efficient CSCL design needs careful planning as well as curricular and pedagogical implementation. Both aspects should take advantage of technologies and at the same time foster exchange and learning in the community (Guitert & al., 2003; Medina & Suthers, 2008; Oakley & al., 2004; Rubia, 2010). Exley and Dennick (2007) state that preparation is essential in education. Guitert (2011) remarks on the need to plan asynchronous collaborative work since otherwise there is a risk of considerable time wasting that could damage the academic activity. Indeed, students whose collaborative work is planned and monitored appear to be more satisfied with their learning process (Felder & Brent, 2001). The review of some of the major studies regarding effective CSCL design and planning has enabled us to identify the following relevant aspects:

a) It is necessary to begin with an initial reflection on competences and objectives before deciding on methodology (Rubia, 2010). Therefore, there is a need to identify the CSCL contribution regarding generic, transversal and subject competences and to establish the relationship between method and objectives. On the other hand, a good system aligns both teaching and assessment methods with the learning activities included in the objectives, and so each element in the system supports student learning.

b) Methodology and task type need to be coherent. As for task type, Escofet & Marimon (2012) relate procedural, analytical and problem-solving tasks to collaborative learning, pointing out that learning is significant when it entails the resolution of a complex task that requires various actions and decisions. Gros & Adrián (2004) also relate collaborative work to problem resolution, project deveopment or discussion interactions, emphasizing the need to assign group roles and the tutor's role as a guide who guarantees collaboration.

c) It is necessary to generate resources with information that will communicate the collaborative model to the students, together with its phases and pedagogical objectives. Recently, authors such as Dillenbourg and Hong (2008), Haake and Pfister (2010), Onrubia and Engel (2012) and Sobreira and Tchounikine (2012) have studied the idea of producing collaboration scripts that guide students to form groups, interact and collaborate in order to solve the task or problem. These scripts are also used as a means to establish a commitment between students and teacher, as well as to support task organization. On the other hand, Strijbos, Martens and Jochems (2004) suggest the need to systematize a model to communicate to stu-

dents the type of interaction that is expected of them, and clarify the relation between task result and group interaction.

d) It is necessary to decide group characteristics and define the group-building process, taking into consideration the drafting of the group agreement. It seems that the group-building process is decisive in fostering collaborative work and guaranteeing learning (Dillenbourg, 2002; Exley & Dennick, 2007; Guitert, 2011; Guitert & al., 2003; Isotani & al., 2009; Pujolàs, 2008). It is also necessary to estimate grouping endurance since stability in the group enhances the maturation process(Barberá & Badía, 2004; Guitert & al., 2003; Exley & Dennick, 2007) as well as the development of team work competences, particularly if there is effective guidance from the teacher (Hernández-Sellés, 2012).

In the case of teacher-formed groups, Muehlenbrock (2006) points out that the perspective of grouping by characteristics is broadened in virtual environments due to the ubiquity of remote work. This is why it is necessary to take aspects such as location, time and availability into account. Webber & Webber (2012) determine that grouping through automatic mechanisms does not have a negative effect on collaborative work. In higher education, spontaneous grouping seems to imply greater commitment in task performance (Guitert & al., 2003).

Several authors point out that heterogeneous grouping seems to lead to a deeper learning as a consequence of the contrast of different points of view and diverse leels of comprehension (Barberá & Badía, 2004; Felder & Brent, 2001; Guitert & al., 2003; Exley & Dennick, 2007; Pujolàs, 2008). Both students with a higher comprehension level as well as those less gifted benefit from collaboration. Different perspectives and points of view also support learning.

As far as group size, authors seem to agree on five members since more can limit some member's contributions and less than five students might diminish interaction variety.

Exley & Dennick (2007) refer to the relevance of manifesting the fundamental goals of collaborative work and emphasize establishing some basic rules and defining an attitudinal and rational framework for collaboration; they also refer to the need to explain and clarify task and schedule distribution. Indeed, these authors relate malfunctioning groups to inconsistent initial planning. Guitert (2011) and Guitert & al. (2003) refer to the importance of drafting group agreements in order to support the group consolidation phase. These agreements are useful for grounding an exchange system and for setting frequency of contact to guarantee that the intragroup contrasts relevant to the task are given a hearing. Regarding this matter, Pujolàs (2008) cites the team notebook which includes the group and members' names, their roles and functions, rules, group planning, session diary and regular team reviews. This author considers that each group member should have an assigned role and recommends role spinning. Gros & Adrián (2004) emphasize the need to assign group roles and highlight teacher guidance as a means to guarantee collaborative activity. As already stated the literature on collaborative scripts insists on the establishment of bases for internal organization, including group-building criteria, work planning and contact modality in order to stabilize efficient group interaction.

> Online learning processes occur on two decision levels. On the one hand, they are linked to the curricular frame in which the topic is involved, and therefore relate to established organizational conditions as well as to pedagogical guidelines or a selected pedagogical model, and to the technology available in the institution. On the other hand, at the micro level in the classroom they are linked to the role of teacher and students and the specific activities promoted. The interrelations of all these factors inevitably condition the potential to teach and learn.

2. Material and methods

This study analyzes university students' assessments on the elements that support the organization and management of collaborative learning within a vir-

tual environment. These are the specific objectives:

a) To assess the relevance of the planning phase within collaborative work in a virtual environment.

b) To estimate the scope of the key components of collaborative work design.

c) To analyze the relevance of some previous organizational aspects and their influence on collaborative work.

d) To identify the elements to be considered in the configuration of group agreements and assess their usefulness in group building and functioning.

And the following hypotheses have been formulated:

• Genre reveals significant differences regarding perception of collaborative work planning and the usefulness of group agreements.

• The degree course studied and the year in which students are enrolled reveal significant differences regarding perception of collaborative work planning and the usefulness of group agreements.

• Previous experience in face-to-face collaborative work reveals significant differences regarding perception of collaborative work planning and the usefulness of group agreements.

• Previous experience in virtual learning shows significant differences regarding perception of collaborative work planning and the usefulness of group agreements.

The research context entails a group of five subjects; two on the primary education Teaching degree course and three on the infant education Teaching degree course. They correspond to first-, second- and third-year courses and are taught in a blended modality at the CSEU La Salle (Madrid). The sample collected was of 106 questionnaires, representing 83.46% of the student population.

All of these subjects implemented the same collaborative work design in coordination. This design was grounded in planning which included: 1) a statement that communicated the task in a guide to collaboration that contained its description, a justification of the collaborative work, description of milestones, tools, a proposal for drafting a written group agreement and a description of the foundations for the collaborative work with a framework outlining attitudes and team work skills; 2) Spontaneous student group building; 3) group agreement writing; 4) teacher review and feedback on group agreements prior to group interaction.

In order to pursue the exploratory and descriptive intentionality of the study, the methodology selected was non-experimental and quantitative, in the form of a survey (Buendía, Colás & Hernández, 1997; Cohen & Manion, 1990; McMillan & Schumacher, 2005). A Likert scale questionnaire was designed for the purpose

Table 1. Descriptive statistics of the questionnaire variables analyzed

	No A		Very low		Low		Medium		High		Very High		Mean	SD
	N	%	n	%	N	%	n	%	n	%	N	%		
Usefulness of planning process														
Access to guidelines for group organization.	0	0	0	0	2	1.9	17	16	50	47.2	37	34.9	4.15	.753
Having clearly established work objectives.	0	0	1	0.9	1	0.9	18	17	36	34	50	47.2	4.25	.840
Accessibility to all the information about task and its progress collected in a document.	0	0	0	0	2	1.9	13	12.3	45	42.5	46	43.4	4.27	.750
Access to task assessment description.	1	0.9	0	0	4	3.8	9	8.5	50	47.2	42	39.6	4.20	.887
Usefulness of group agreements														
To develop more effective team work skills.	1	0.9	1	0.9	2	1.9	16	15.1	53	50	33	31.1	4.10	.791
To establish the bases for internal team cohesion.	1	0.9	1	0.9	1	0.9	20	18.9	52	49.1	31	29.2	4.06	.782
To reach academic outcomes.	1	0.9	0	0	4	3.8	20	18.9	46	43.4	35	33	4.07	.824
To support an effective work process.	1	0.9	0	0	2	1.9	16	15.1	44	41.5	43	40.6	4.22	.772
Group agreement writing														
Connection frequency between team members.	1	0.9	2	1.9	12	11.3	18	17	36	34	37	34.9	3.90	1.073
Planned strategies when a team member is not as involved as expected.	1	0.9	1	0.9	9	8.5	21	19.8	39	36.8	35	33	3.93	.983
Selecting communication channels.	1	0.9	0	0	6	5.7	10	9.4	35	33	54	50.9	4.30	.867
Role distribution and coordinator election.	1	0.9	1	0.9	5	4.7	15	14.2	38	35.8	46	43.4	4.17	.914
Definition of work calendar.	2	1.8	0	0	5	4.7	15	14.2	39	36.8	45	42.5	4.19	8.60
Task distribution between group members.	1	0.9	0	0	5	4.7	12	11.3	36	34	52	49.1	4.29	.852
Establishing time for intragroup debate and contrast.	1	0.9	0	0	7	6.6	18	17	43	40.6	37	34.9	4.05	.892

of data collection with a five-answer level scale. The results appear in Section II under the titlen «Organization and management of team work prior to task performance». This section includes three categories that appear in Table 1: «Usefulness regarding the planning process» (including 4 items); Usefulness of group agreements» (4 items) and «Group agreement writing» (7 items). The questionnaire was answered in a face-to-face class just before the end of the course.

A non-probabilistic, accidental or convenience sampling technique was used (Cohen & Manion, 1990; McMillan & Schumacher, 2005) to count the informants according to their availability or accessibility. Statistical analyses were undertaken with the SPSS 19 program.

In order to guarantee validity, the first version of the questionnaire went through a subject-matter expert content validation and was subjected to a pilot study. As for reliability, Cronbach's alpha intern reliability index was used in all the three categories within the section. The coefficients obtained were α=0.859 for «Usefulness regarding the planning process», α=0.894 for «Usefulness of group agreements» and α=0.867 for «Group agreement writing».

3. Results

In order to address the research objectives and hypotheses, several statistical analyses were undertaken. Table 1 collects the descriptive analyses of the different items, including frequencies and percentages, as well as measurements of central tendency (mean) and dispersion (standard deviation). Non-parametric statistical tests were carried out later in order to contrast the significant differences between the variables analyzed.

As far as the descriptive analyses are concerned, it appears that students consider every aspect of collaborative work planning and group agreement writing to be very useful. Indeed, the means are all above 4 (in a 5-point scale), except for «Connection frequency between team members» (3.90 mean) and «Planned strategies when a team member is not as involved as expected» (3.93 mean). The item that presents greatest variability is: «Connection frequency between

Table 2. Significant differences revealed in the Kruskall-Wallis test (grouping variable:«experience as a student in Virtual Environments»)

Variables contrasted	Experience as student in VE	N	Mean rank	Contrast statistics	
Usefulness of planning process					
Access to guidelines for group organization.	No experience	33	40.82	Chi-square	9.920
	1 year	33	55.36	df	2
	2 years or more	39	61.31	Asymptotic Sig.	.007
	Total	105			
Access to guidelines for group organization.	No experience	33	41.77	Chi-square	7.789
	1 year	33	58.45	df	2
	2 years or more	39	57.88	Asymptotic Sig.	.020
	Total	105			
Usefulness of group agreements					
To establish the bases for internal team cohesion.	No experience	33	48.59	Chi-square	6.070
	1 year	33	46.35	df	2
	2 years or more	38	61.24	Asymptotic Sig.	.048
	Total	104			
Usefulness of the following elements within group agreement writing					
Selecting communication channels.	No experience	33	48.95	Chi-square	6.371
	1 year	33	45.92	df	2
	2 years or more	38	61.29	Asymptotic Sig.	.041
	Total	104			
Role distribution and coordinator election.	No experience	33	52.89	Chi-square	11.611
	1 year	33	40.17	df	2
	2 years or more	38	62.87	Asymptotic Sig.	.003
	Total	104			
Establishing time for intragroup debate and contrast.	No experience	33	47.64	Chi-square	6.859
	1 year	33	46.36	df	2
	2 years or more	38	62.05	Asymptotic Sig.	.032
	Total	104			

team members», with a 1.073 standard deviation.

For the contrast tests, taking into account that the variables considered are not normally distributed, non-parametric statistics were used: Mann-Whitney for two independent samples and Kruskal-Wallis for k independent samples.

There are significant differences according to gender (at an asymptotic level) between male and female students. The former consider the following variables to be more useful in the planning process: «Access to guidelines for group organization» (p-value=.005); «Having clearly established work objectives» (p-value=.002); «Accessibility to all the information about task and its progress collected in a document» (p-value=.000).

On the other hand, there are significant differences regarding those elements considered to be particularly useful in writing the group agreement, since male students find some variables to be more useful than others, such as: «Planned strategies when a team member is not as involved as expected» (p-value=.024); «Selecting communication channels» (p-value=.001); «Role distribution and coordinator election» (p-value=.000); «Definition of work calendar» (p-value=.014) and «Task distribution between group members» (p-value=.047).

Focusing on the «degree» and «year» variables, there appear to be no significant differences except for the item: «Access to guidelines for group organization» (p-value=0.20). Students on the Infant Education degree course as well as those in the first year rated this item higher.

As for the experience as a student in virtual environments (online or blended), Table 2 shows how mean rankings are higher, in general, when students have experienced learning in virtual environments for two or more years. It is curious that these same students find the different elements related to planning collaborative work to be more useful.

It is also worth commenting that contrast statistics following the Mann-Whitney U reveal that those students with previous experiences in face-to-face collaborative work processes consider the planning process to be more useful than those who had never experienced collaborative work methodologies. As for «Usefulness of group agreements», the only variable where there have been significant differences is «To support an effective work process» (p<.005).

4. Discussion and conclusions

It is a very valuable exercise to collect the opinions of those students who have experienced a collaborative work methodology in a virtual environment, both to analyze the opportunities and challenges offered by CSCL as well as to see where future research can lead in terms of the weaknesses that emerge which have to be dealt with, and to identify those elements that need further exploration.

Considering the design of CSCL, the results show the usefulness of the diverse components of planning, and it is worth pointing out that those students who place more emphasis on the design phase were those who had previous experience in face-to-face collaborative work and a broader exprience of online learning. In this sense, the drafting of the group agreement is considered very useful. Another important aspect is that «Connection frequency between team members» and «Planned strategies when a team member is not as involved as expected» are considered less useful in the group agreement writing phase, maybe due to the fact that they refer to a personal commitment and imply a possible penalty. This may be awkward to include in the document that will form the basis of future group relationships. In any case, these are aspects worth exploring in detail in the future.

The answer of those students who had recently experienced collaborative learning confirm other author's reflections –already cited– which claim that collaboration can lead to learning. This means the appropriate planning of collaborative work in such a way to build common bases within groups (grounding) for understanding, and to overcome obstacles such as low rates of participation and involvement (Kirschner, 2002).

The collaboration-learning binomial cÇreates interesting opportunities –on a personal, group and social level–, but at the same time they have profound implications that entail a reconsideration of the pedagogical, organizational and technological elements configuring a virtual learning environment. These reflections should be made on an institutional level (Bates & Sangrà, 2011) as well as within subject design and curricular development. Online learning processes occur on two decision levels. On the one hand, they are linked to the curricular frame in which the topic is involved, and therefore relate to established organizational conditions as well as to pedagogical guidelines or a selected pedagogical model, and to the technology available in the institution. On the other hand, at the micro level in the classroom they are linked to the role of teacher and students and the specific activities promoted. The interrelations of all these factors inevitably condition the potential to teach and learn and, furthermore, that teaching and learning are

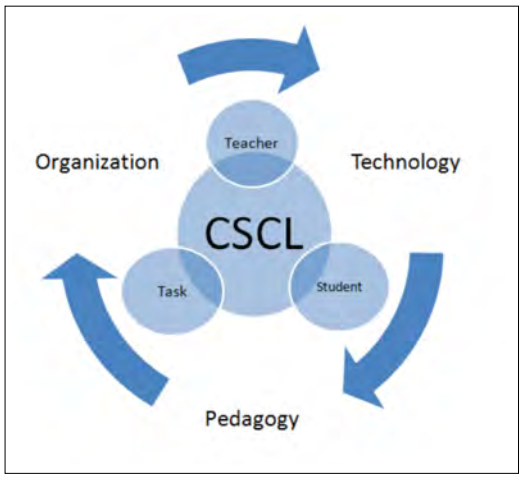

Figure 1. Pedagogical, organizational and technological elements interrelated in CSCL.

possible through cooperation. Figure 1 aims to highlight the complexity of these interrelations.

As Sangrà (2010) states, the big investment in technologies made by higher education institutions should support innovation and promote improvement in learning by overcoming traditional models. One of the means to encourage innovation processes in higher education, connecting technology, pedagogy and organization, is by making the diverse possibilities of collaborative work in online education come true.

At a micro level, in every classroom situation, CSCL involves a change in the role that teachers and students have traditionally adopted. Teachers need to broaden their role as expert to incorporate others such as: planner, technologist and facilitator (Muñoz-Carril, González-Sanmamed & Hernández-Sellés, 2013). Students need to abandon their passive and receptive role so common in teacher-centered models, and take on a type of work that requires them to take responsibility for collaborating in unstructured tasks with multiple possible responses (Escofet & Marimon, 2012; Gros & Adrián, 2004). It is essential to design these tasks and particularly to elaborate detailed scripts including responsibilities, written documents on process and group agreements to support the group's correct functioning and to guarantee the adequacy, effectiveness and sustainability of CSCL proposals. This will not only support academic learning but promote the social dimension and the sense of community. Therefore, pedagogy, organization and technology also need to support the generation of an appropriate learning environment where it is possible to cultivate feelings of connection, to facilitate the so-called social presence and boost relations that humanize the virtual environment (Chapman, Ramondt & Smiley, 2005; Garrison, 2006; Picciano, 2002). Caring for the social aspects in collaborative learning and analyzing how it is possible for the two decision levels mentioned to support them constitute a key element in CSCL configuration and a challenge for research in the field (Pérez-Mateo & Guitert, 2012).

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Construction of the Foundations of the PLE and PLN for Collaborative Learning

Entornos y redes personales de aprendizaje (PLE-PLN) para el aprendizaje colaborativo

ABSTRACT

In this article we approach the topic of collaborative learning by means of the creation and maintenance of personal learning environments and networks (PLE and PLN) and their integration within institutional virtual learning environments (VLE) as strategies to enhance and foster collaborative learning. We take an educational point of view: the student learns independently and carries out activities in groups to achieve common goals. Our aim is to experiment with didactical methodologies of integration between the institutional VLE and PLE, and to analyze the university students' construction of PLE. Due to its importance in facilitating and fostering collaborative learning, special emphasis is placed on the construction of the personal learning network. We performed a design-based research on an academic course for Primary teachers. The results show that the students construct their PLE and PLN using newly acquired knowledge and that an appropriate methodological integration takes place between these environments and the institutional VLE for integrated learning. As conclusion, we propose an integrative methodological model for collaborative learning as a good practice.

RESUMEN

El aprendizaje colaborativo se puede afrontar desde diferentes estrategias. En este artículo contemplamos la creación y mantenimiento de entornos y redes personales de aprendizaje (PLEs y PLNs) y su integración en entornos virtuales institucionales de aprendizaje (EVEA) como estrategias que facilitan y promueven el aprendizaje colaborativo, siempre desde una visión educativa en la que el alumno es autónomo en su propio aprendizaje y trabaja para el logro de metas comunes mediante la realización de actividades de forma conjunta en grupos, existiendo interdependencias positivas. Los objetivos de este trabajo son experimentar con metodologías didácticas de integración del EVEA y los PLEs, y analizar la construcción del PLE por parte de los alumnos universitarios, haciendo especial énfasis en la construcción de la red personal de aprendizaje. Para ello se empleó una metodología de diseño y desarrollo, en una asignatura universitaria de los estudios de maestro de Primaria. Los resultados de la experiencia apuntan a que los alumnos construyen sus PLEs y PLNs en base a sus nuevos conocimientos adquiridos y se produce una adecuada integración metodológica entre esos entornos y el EVEA para el aprendizaje integrado. Como conclusión proponemos un modelo de organización metodológica de integración para el aprendizaje colaborativo a modo de buena práctica.

KEYWORDS / DESCRIPTORES

Personal learning environments, personal learning, collaborative learning, higher education, blended learning, open learning, teaching innovation, Twitter.
Entornos personales de aprendizaje, redes personales, aprendizaje colaborativo, educación superior, aprendizaje mezclado, aprendizaje abierto, innovación educativa, Twitter.

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1. Introduction

The university of the future should be an institution that provides education to a greater part of the population throughout their lives and which generates knowledge that is of service to educational needs (Salinas, 2012). This has led to the setting-up of various learning scenarios that are currently being tried and researched.

These learning scenarios are being developed within the concept of Personal Learning Environments (PLE) and open learning environments (Brown, 2010; Hannafin, Land & Oliver, 1999; Sclater, 2008). The concept of PLE is defined, from a pedagogical point of view, as the set of tools, materials and human resources that a person is aware of and uses for life-long learning (Adell & Castañeda, 2010; Attwell, 2007; Hilzensauer & Schaffert, 2008). The functions of the PLE that we took into account in this work, as indicated by Wheeler (2009) are: information management (related to personal knowledge management), creation of content and connections with others (which is known as the personal learning or knowledge network).

PLE involve a change in education in favour of student-centred learning by overcoming the limitations of virtual learning/teaching environments (VLE) based on learning management systems (LMS). PLE, therefore, enable students to take control and manage their own learning, taking into account decisions on their personal learning goals, management of their own learning (content and process management), communication with others in the learning process and everything else that contributes to achieving their goals (Salinas, 2013).

We started on the basis of the theory known as LaaN, Learning as a Network, which includes various concepts and theories, such as connectivism (learning as a connection), the complexity theory (understanding the dynamics and uncertainty of knowledge in current society), the concept of double loop learning (learning about errors and research) and, in particular, knowledge environments (Chatti, Schroeder & Jarke, 2013; Chatti 2013), considering that «learning is the continuous creation of a personal knowledge network» (Adell & Castañeda, 2013:38).

This Personal Learning Network (PLN or PKN) consists of the sum of connections with other people's PLE (their tools and strategies for reading, reflection and relationships), that make up knowledge environments (Chatti et al., 2012) and whose interaction produces the development and enabling of strategies for the actual PLE and, therefore, are central to learning and professional development (Couros, 2010; Downes, 2010; Sloep & Berlanga, 2011). The idea of the PLN is that each person contributes their knowledge so that what is most important is not what each person has in their PLE, but the sharing of those resources. The LaaN theory is «an attempt to draw up a theoretical foundation for learning and teaching which will start up the construction and enrichment of the actual PLE» (Adell & Castañeda, 2013: 38).

In addition, PLE can also be used as bases for constructive learning (Adell & Castañeda, 2013), given that they are able to comply with the five features for activities leading to significant learning proposed by Jonassen et al. (2003), they are active, constructive, intentional, authentic and collaborative. A collaborative environment (CSCL, Computer Supported Collaborative Learning) is based on group work that begins with interaction and collaboration (Johnson & Johnson, 1996; Lipponen, 2002), provides communication tools and makes human resources from various fields available (teachers, experts, colleagues, etc.). Collaboration as a learning strategy is based on working in heterogeneous groups of people with similar knowledge levels to achieve communal goals and carry out tasks together, with there being a positive interdependence between them (Dillenbourg, 1999; Prendes, 2007). There is no single correct answer in collaborative tasks. Instead, there are several ways of arriving at the result and, to achieve this, students must share and reach agreements, an event that helps them to be socially and intellectually more self-sufficient and mature (Bruffee, 1995).

This study is framed within a wider research project that seeks to define and test various didactic strategies for the integration of PLE and VLE taking into account different learning environments (formal, informal and casual) on the basis of previous works (Marín, 2013; Marín & Salinas, in press; Marín, Salinas & de Benito, 2012, 2013; Salinas, Marín & Escandell, in press).

In this article, on the basis of these ideas, we present an experiment in which methodologies that seek to encourage collaboration and integration of these environments within the university (PLE and PLN on the one hand, and VLE on the other) are put into practice, as well as some of the results observed during the process.

2. Methodology for the study

The study was carried out on a group of teachers and students on the course «Technological media and resources for primary education» in the third year of

studies for the Primary Teacher's Degree at the University of the Balearic Islands. The material is worth 6 ECTS points and the intention is to develop skills in the use of technology that will enable teaching and learning processes at school.

The course group was made up of three teachers and 192 students organised into three large groups of approximately 70 and ten practical groups of approximately 25.

All the students had prior knowledge of technological tools given that they had studied a course relating to education technology during the first year (Information and Communication Technologies applied to Primary Education).

According to an initial questionnaire, answered by 179 students, it can be seen that the majority are women (71%), are under 24 years old (70%) and are frequent users of social networks (mainly Facebook), generic search engines (Google) and video web sites (Youtube). This creates an internet user profile that is basically that of a consumer – they consume information and communicate with their friends but hardly ever produce content.

The development of the course was based on learning principles centred on student and methodologies focusing on collaboration and social construction of knowledge (Salinas, Pérez & de Benito, 2008). It was structured around the following activities, relating to the development of the student's PLE, according to the basic functions indicated by Wheeler (2009): a) development of a design and development-based work group project; b) creation of personal learning networks; and c) use of appropriate internet technology to locate and manage information, create content and share knowledge. In addition, a methodological strategy was organised that would allow integration of the use of the PLE into the VLE, in which the VLE offers access to basic documentation on the course and large group or private communication spaces and the development of the PLE enables development of information management processes and participation in external learning networks.

The elements of the strategy shown in figure 1, based on course tasks and some features of collaborative learning are set out below.

• Access course study guides. Content is presented structured into concept maps that represent and interconnect basic concepts and provide supplementary resources (reading, videos, examples, etc). Hints are given for development of the work project and practical activities. These materials are provided by the teachers and are available on the Moodle-based VLE.

• Locate, access and organise supplementary materials using generic search engines (eg, Google), social bookmarking (eg, delicious), specific search engines (eg, Google Scholar), content recovery (eg, materials published/shared on Twitter by one person or another). Students are encouraged to find useful information to carry out course activities and organise information organisation systems.

• Personally organise and manage information (using personal organisation tools, RSS subscription to blogs/web sites, following in Twitter, use of SymbalooEDU to organise new information). Furthermore, within the framework of the course, the student is offered shared resources and links (paper.li).

Activities related to creating content:

• Organise the PLE itself using SymbalooEDU, in which each student organises the tools and resources

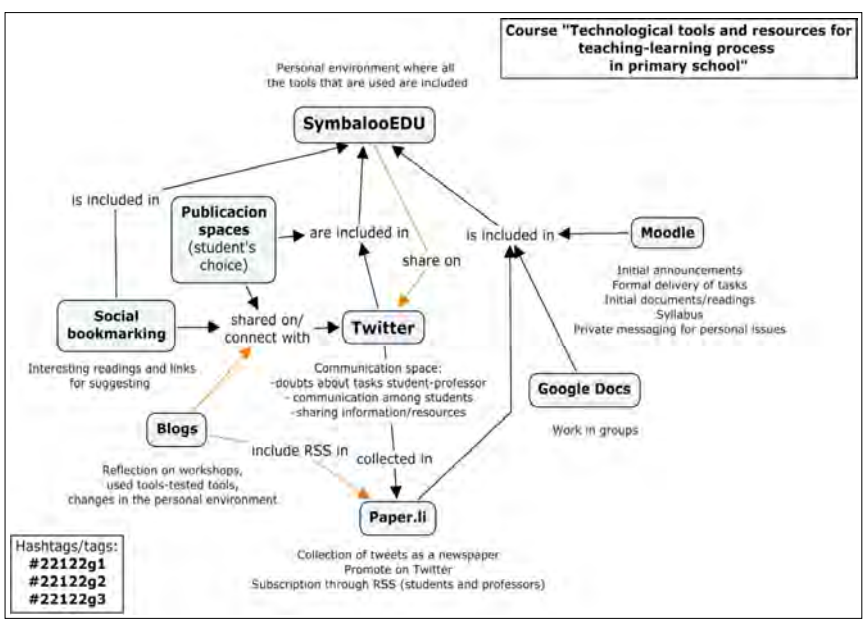

Figure 1. Methodological strategy for integration of the VLE and PLE into the course.

that they use to carry out the course tasks and other environments.

• Create a personal blog that gives an account of the learning activities carried out during the course. Entries include materials developed by students in different formats (text, audio, video, texting, interactive multimedia, etc) and reflections on teaching practice.

• Develop and publish a collaborative group project that requires the creation of didactic materials for primary education (interactive multimedia, video and WebQuest). This project follows the features of collaborative learning according to Johnson, Johnson & Holubec (1999) – existence of positive interdependence, individual and group responsibility, stimulating interaction, availability of the necessary personal and group attitudes and abilities, and group assessment. The project is delivered through the VLE.

Finally, in relation to connection with others, the following activities are included:

• Interaction and collaboration with others through the VLE in relation to the activities proposed in forums (debates) or via private messaging to the teacher or other students. These activities are in line with the features indicated by Onrubia (1997) for collaborative learning – they are group tasks, require contribution by everyone and have sufficient resources to be completed.

• Share and circulate the results of activities using the personal blog and sending messages on Twitter, using the hashtags set up for the course (chat on Twitter), to other people and/or colleagues to circulate their work on the blog and share interesting resources, encouraging interaction, participation and communication (Ingram & Hathorn, 2004).

• Communicate and collaborate on educational virtual communities and social networks or others of interest (outside the course hashtag on Twitter).

• Widen their personal learning network (PLN) by following people of interest, on Twitter as well as other social networks or virtual communities or via RSS subscriptions, with teachers, experts and people related to field of interest, etc.

2.1. Tools for information collection

The tools for information collection are qualitative as well as quantitative with the aim of enabling interpretation and relevance of the information.

The tools are as follows:

• Analysis of documents relating to integration of the PLE elements. These documents are amongst those produced by the students during the course. On the one hand, group projects and personal blog entries, and on the other, the evolution of the PLE's construction, represented graphically by screen shots of their SymbalooEDU.

• Observation of the student's reaction in relation to implementation of didactic integration with respect to the personal learning network. This is done by carrying out a non-exhaustive descriptive and quantitative analysis of interactions on Twitter. The number of log-ons, comments between students, following people inside and outside the course, interactions aimed at sharing resources and activities, etc, are taken into account. A descriptive observation of the dynamic of the PLN in the blogs is also reviewed.

2.2. Study stages

The experience is carried out in four stages, following the methodology of design and development (Reeves, 2000; 2006; Van-den-Akker, 1999):

• Stage 1. Analysis of the situation and definition of the problem. Precedent research on techno-educational integration of PLE and VLE is reviewed. This is defined as the need to improve and optimise teaching/-learning processes with the aim of integrating all fields of learning and centre on strategies that focus on the student's learning.

• Stage 2. Development of solutions. Together with the teacher in charge of the course, a methodological strategy for didactic integration of the PLE and VLE is designed, which has previously been described. The elements of the strategy that are the least known are worked on with the teachers.

• Stage 3. Implementation and assessment. This stage puts into practice the strategy designed for the course, while at the same time the process is followed up and changes for iterative improvement are made to the strategy (eg, technical difficulties in the use of paper.li and Twitter meant proposing the use of other tools). At the start of the course a PLE workshop is held with students and they are asked to put the SymbalooEDU screen shots representing their PLE on their blogs at the start and end of the course. Periodically, entries on personal blogs are collected and SymbalooEDU screen shots on the blogs are saved after following RSS. A content analysis is made of the screen shots by counting the number of blocks included and according to type in accordance with the three PLE functions. A descriptive analysis is made on the selection and inclusion of tools from the group projects, included in the VLE, and blog entries.

Furthermore, tweets made with the course's hashtag are also collected using an automatic tweet collector system (Rowfeeder). Afterwards, a content analysis

Table 1. Statistics of SymbalooEDY screen shots				
	Screen shots number	% students	Total of blocks (resources) included	Invalid screen shots
Start of the course	162	84.38%	1407	5
End of the course	137	71.35%	2629	0

is carried out using the tweet count and they are coded according to type. Later interaction on the blog of the people identified as most active on Twitter is examined, reviewing the comments on their blogs.

• Stage 4. Document production and design principles. Assessment of the strategy using the data collected leads to the proposal for a didactic integration model for the student's PLE and the VLE.

3. Results

3.1. PLE construction

With respect to students' evolution in the PLE, the following table shows the main statistics to be taken into account for SymbalooEDU screen shots and the level of participation at the start and end of the course.

Table 2. Percentage of the number of blocks by type of tool at start and end of the course			
	Information management	Content generation	Connection with others
Start of the course	41%	20%	39%
End of the course	38%	28%	34%

The image given by this count gives us an idea about the type of tools used by the students at the beginning and end of the course on their PLE, whether they used them, or considered them interesting for use now or in the not too distant future.

The evolution of the percentage number of blocks per resource type is shown below.

In spite of the fact that the evolution of the number of blocks per type of tool does not undergo serious changes (the most significant is the increase from 20% to 28% in blocks referring to content generation tools), a significant increase in the number of resources included at the start (101) and end (144) taking into account the various types can be seen.

Looking at each type, as more specific statistics, notable differences can be seen between the tools and links used at the start and finish of the course, in spite of the fact that some remain the same.

With respect to information management resources, a highlight is the use of tools relating to locating relevant information for developing the course project, such as news links (many of which were related to the application of technology in education), learning banks (eg, educational activities) and search engines. We can see an increase in the first two. Some students included SymbalooEDU on their home pages as tools for personal organisation. This is interesting because information organisation and management is one of the PLE's aims.

The greatest increase is seen in content generation tools. Given that the course mainly worked on educational content generation for primary education, many students included applications in their PLE that they considered useful for that purpose. Among the blocks included, highlights were collaborative creation and interactive exercise creation tools, blogs, web site creation, audio, image creation, walls, comics and videos. A wide variety of tools can be seen within each category, although the most frequently used are small in number.

At the start of the course, the most frequently used content generation tools were blogs (Blogger) and collaborative work tools (Google Drive). At the end of the course, these tools were still commonly used as they continue to be used during the course and were found to be useful, but there is also evidence of an increase in other content generation tools, as indicated above.

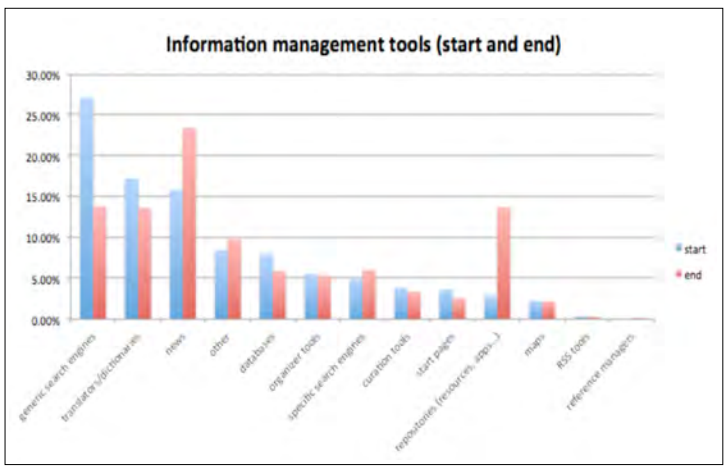

Figure 2. Percentage amount of information management resource blocks at the start and end of the course.

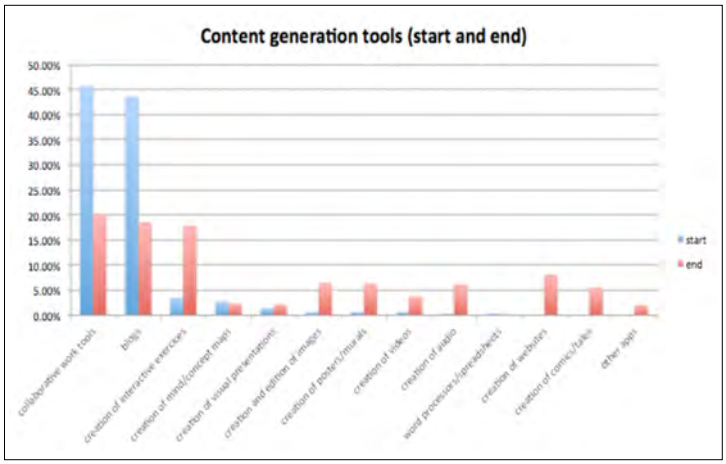

Figure 3. Percentage amount of blocks content generation tools at the start and end of the course.

Finally, social networks and asynchronous communication tools stand out in relation to communicating with others. An increase in the tools needed to share course activities on the blog can be seen (eg, tools for sharing files, videos, visual presentations, text documents, etc.). It can also be seen that in the category of generic social networks, compared to the start, there was a majority inclusion of the students' PLE on Twitter.

3.2. Development of the PLN

Regarding the development of the personal learning network, the use of Twitter by students was mainly taken into account. A total of 1986 tweets using the hashtags set up were counted, without taking into account repeats. In total, 189 of the students in the three groups took part, 47 of whom already had an account on that social network.

The average number of tweets per person was 10.51 (the minimum was 1 and the maximum 112), the trend was 10 and the density was low (0.11), as the greater number of interactions came from just a few authors. These were those configured as «group leaders». These people were significant as they acted as the catalyst for the group on the social network and encouraged participation by other colleagues. The 1986 tweets were divided up according to their use. The results can be seen below:

• 1451 tweets (73%) shared the results of course activities with other the other students, as was indicated in the initial instructions for the course.

• 190 tweets (10%) shared resources of interest to the rest of the course group. This content was related to that being worked on in class. 37 of these 190 tweets produced interaction with people outside the course (teachers, educational organisations, etc) by retweets or citations.

• 182 tweets (9%) were informal communications, with these considered to be messages to the whole group (greetings) and comments or dialogue with other students about the course (asking for help, questions, etc.).

• 163 tweets (8%) were recorded relating to interaction between students: retweets to colleagues or comments on jointly written blog entries, the group project, etc.

In addition, the number of followers and followed was reviewed. It turned out that the average number of followers for each student was 38.38 and followed, 61.39. Regarding those followed, out of the 189 students who took part on Twitter with their group's hashtag for the course, 82 started to follow people/-organisations outside the course. Therefore, in many cases, students enriched their use of the social network by going further than the formal environment, and particularly into the informal.

Based on the percentage of non-obligatory partici-

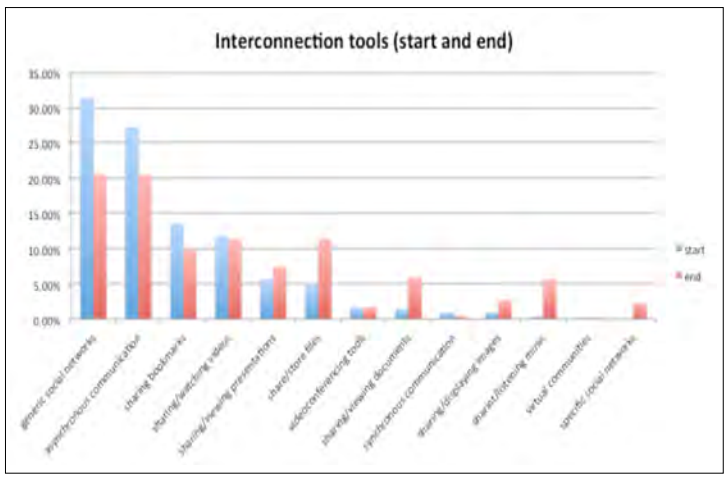

Figure 4. Percentage amount of blocks of interconnection tools at the start and end of the course.

pation (interactions not directed at sharing the blog) (average: 2.83), those taking part with more than 5 tweets were taken into account. Those who went over this number were discounted if their interactions were the type citing joint work in blog entries (tweets not aimed at boosting the social space). In this way, a total of 13 people were counted, 9 students from the first group, 2 from the second group and 1 from the third group.

In addition, the dynamic of each group on Twitter was different. The active students in the first group, and to a lesser extent in the third group, aimed to share resources and comment on them, while the second group was more of an informal help space. In this case, it was seen that the students' PLN was created around the blogs, as one of them acted as mentor and the others followed and were supported by the mentor's explanations. On the other hand, no significant interaction was noticed between the groups.

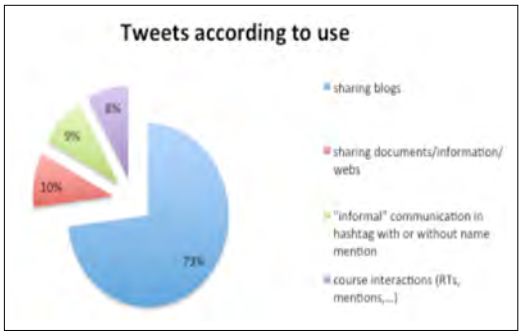

Figure 5. Percentage of tweets according to use.

4. Discussion and conclusions

Throughout the course the VLE was the bridge between the student's PLE and the educational institution. It was used, above all, as an initial portal although almost all the learning process was developed using external elements that made up or became part of the student's PLE (blogs, Twitter, etc). In addition, the VLE was didactically integrated into the student's PLE naturally.

Furthermore, the evolution in the student's construction of the PLE and PLN was confirmed. They developed procedures based on locating and managing information that would be useful for solving problems, creating content and communicating with the others. During this process well-known tools were used and new ones were continuously selected. Tools used in other environments were integrated and the spaces created within the framework of the course were extrapolated to other contexts.

During this evolution in management of the actual learning process, the students experienced the passage from being passive consumers of information and resources to being creators of content and materials in a variety of formats (Hilzensauer & Schaffert, 2008). This variety responds to the methodological strategy for the course that promotes content creation while at the same time giving independence so that it is the student –or group– who chooses the tools that are the most appropriate for the needs of the activity and its features.

Furthermore, foundations have been laid for the creation of personal learning networks in as much as the students have learned to take part in social networks, organise a social learning network, and participate in a sharing culture. Nevertheless, it is still necessary to overcome some challenges such as the level of participation and the degree of involvement in order to develop a truly collaborative process based on interaction and communication (Kirschner, 2002). What has been seen were various types of networks but confined to the group for the course with occasional external, support-based interaction, distribution of filtered resources and redistribution of contributions, whether their own or from others.

The impact of the experience on students' learning arising from implementing the strategy was assessed as positive, as it promotes the student's independence while learning, as well as collaborative knowledge construction based on the development of the group project and networks constructed around the course. These learning networks have huge potential that should be valued as a strategy for methodological change towards meaningful ways of learning based on problem solving or project development.

This experience enabled the development and evaluation of social knowledge construction processes, encouraging the student: a) to search for information, identify problems, acquire filtering criteria, interconnect and locate relevant data and distribute useful information; b) acknowledge and express their personal viewpoint (ideas and progress); and c) share this with the group and be able to change their point of view, adopt new perspectives, clarify points of disagreement, debate, negotiate agreements (Bruffee, 1995) and, finally, formulate and present knowledge (Stahl, 2000). Therefore, we propose a methodological organisation model as good practice for collaborative learning, with a suggested tool for each element in brackets.

The PLE, as the central element, includes the spaces and processes marked out for its uses (Wheeler,

2009): content creation, whether individual (e-portfolio, tool selection) or group (using collaborative work and communication tools), information management (individual and collaborative selection and recommendation of resources) and connection with others (using an open space for social communication and collaboration to create learning communities for collaborative knowledge construction).

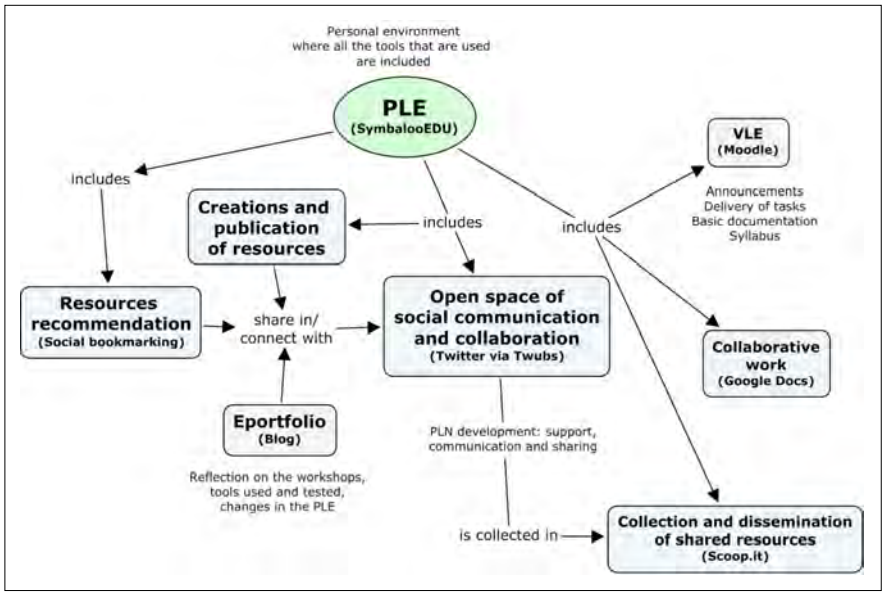

Figure 6. Proposed model for methodological organisation of integration for collaborative learning.

Compared to the initial model, the proposed changes to tools with respect to the technical difficulties with Twitter and paper.li are included: introduction of content aggregation systems (Scoop.it, Twubs) for better information and PLN management and the tools that are the subject of this course (generation of educational materials for primary education).

Acknowledgments

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Audioblogs and Tvblogs, Tools for Collaborative Learning in Journalism

Audioblogs y Tvblogs, herramientas para el aprendizaje colaborativo en Periodismo

ABSTRACT
The aim of the present submission is to show the results of the study carried out with 199 students of journalism degree from the University of Valladolid. This experience evaluates to what extend blogs promote individual and group competences and skills, with the goal to determine the advantages and disadvantages of collaborative learning in the virtual environment of the blogosphere. New hybrid weblogs, audioblogs and tvblogs, have been used for practical on the subjects of News on Radio and News on Television for two consecutive courses. The experience has shown great usefulness not only in building the horizontal knowledge about the journalistic work from the classroom, the labs, and in their individual work outside the university environment, but it has also contributed positively to their community integration, enhancing negotiated decision-making and respect for the work of the others. These multimedia logs have enabled students to participate in the creation of content, in the production process, corporate design, bringing out and social media distribution, while learning to organize every element in harmonious and consistent way in order to create an independent audiovisual product related to other webs that can be used as documentary, specialized or critical complement. This collaborative experience has joined creativity, initiative, self-assessment and knowledge of online news production.

RESUMEN
El propósito de la aportación es mostrar la experiencia llevada a cabo con 199 alumnos del Grado de Periodismo de la Universidad de Valladolid para analizar hasta qué punto los blogs potencian habilidades y competencias individuales y grupales, con el objetivo de determinar las ventajas y los retos del aprendizaje colaborativo en el entorno virtual de la blogosfera. Para ello se han utilizado nuevos formatos híbridos, «audioblogs» y «tvblogs», con los que se han construido las prácticas para las asignaturas de «Radio Informativa» y «Televisión Informativa durante dos cursos consecutivos. La experiencia ha demostrado una notable eficacia no sólo en la construcción horizontal de su conocimiento sobre la profesión periodística desde el aula, los laboratorios y su trabajo individual fuera del entorno universitario, sino que ha contribuido positivamente a su integración comunitaria, potenciando la toma de decisiones negociadas y el respeto al trabajo de los demás. Estas formas multimedia han permitido a los alumnos participar en la creación de los contenidos, en el proceso de producción, diseño corporativo, edición y distribución social, mientras aprendían a organizar cada elemento de forma armónica, coherente, para construir un producto audiovisual independiente que se relaciona a su vez con otras web que sirven de complemento documental, especializado o crítico. Esta experiencia colaborativa ha unido en su elaboración creatividad, iniciativa, actividad continua, autoevaluación y conocimiento de la producción periodística en Internet.

KEYWORDS / DESCRIPTORES
Skills, blogs, communication, collaborative learning, journalism, Web 2.0, audiovisual creation.
Competencias, blogs, comunicación, aprendizaje colaborativo, periodismo, Web 2.0, creación audiovisual.

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1. Introduction and state of the question

The Internet has provided 21st century citizens with new communication tools to allow them to construct information and take part in the very process of message delivery. In the media ecology, following the emergence of the Web at the start of the 90s, blogs are now considered to be the most significant landmark in Internet history (Islas-Carmona, 2008). These binnacles of the Net enable the personal expression of individual experiences without the need for computer skills, journalistic editing or content production which, as a result, enhances the socializing power of the World Wide Web among citizens around the world.

The blog perhaps represents the first breakdown of the public-private citizen space in the face of the communicative fact, with this opening-up of the virtual space in which participation with other individuals is continuous. Through the publication of one's own or others' content, and the power to share this content rapidly via the social networks, the use of blogs has spread in recent years to reach across all social environments.

One of the settings where blogs have demonstrated great potential has been in education. As Lara (2005) points out, «weblogs, as well as education, are by their very nature, processes of communication, socialization and knowledge construction». Here knowledge is constructed from the bottom up because the student participates in the project which is global, open and collaborative. Although the mere use of blogs does not guarantee efficacy in education, their transparency can make a significant contribution. «The digital literacy that the new generations need demands that they learn to read and write via links, so weblogs are a more transparent tool to achieve this» (Orihuela, 2006: 172-173).

In collaborative pedagogy, the student is the center, just like the Web 2.0 user. If the user is the king in this setting, the student should be likewise in Education 2.0. The teacher as learning facilitator organizes the activities and supervises the project that the students carry out in an independent and more flexible way. So this is a constructivist model of knowledge in which the student constructs his own knowledge.

The student's sense of autonomy and the confidence placed in him as the actor in his own learning process that is interdependent with the group means that collaborative learning projects can also help to enhance motivation and self-esteem. As Vélez (1998) states, «trust is placed in the educating and in his capacity to explore his world, which in turn motivates and awakens the desire to develop competences and skills in the search to bring out the best in himself».

Among the technologies and tools that can be applied to the practice of so-called «Computer Supported Collaborative Learning» (CSCL) wikis and blogs are the most widely used, especially on university courses in education (Santos & al., 2009; Rubia, 2010). And podcasts are a recent addition. For Gómez, Palomares & Pino (2010) «the collaborative tools in the current development of Web 2.0, such as wikis and blogs or virtual environments for learning/work (Moodle, Google Docs) are a tremendous aid for collaborative work in teams, groups and for people who come together to share, work and learn in a common virtual space to achieve their goals».

The positive results of CSCL have come about through fruitful group interaction (Solano & Amat, 2008), based on techniques that provoke disagreements, such as providing conflicting information and role distribution, as Dillenbourg (2012) points out.

One of the weaknesses of collaborative learning is that «most studies on the subject center on the tools rather than the educational or social processes that occur as a consequence of their use» (Pérez-Mateo & Guitert, 2009: 221). The recent creation of the Thematic Network on Collaborative Learning in Virtual Environments is aimed at precisely that, to focus on «the learning processes beyond the context in which they are developed or the technological tools used» (Guitert & Pérez-Mateo, 2013:14). The «Guide to Collaborative Learning in Virtual Environments» provides examples of good practice through guidelines for the design of this type of projects.

1.1. Background to the question: collaborative practices in current education

The fundamental characteristics of blogs make them an attractive tool for educating citizens in the process of digital literacy in the society of knowledge. In the educational environment, blogs represent a support to «E-learning», they create virtual external settings, establish an informal communication channel and direct interaction between student and teacher; they promote social interaction and give the student a personal medium for experimentation. But they also provide a personal space which is open to the public that gives the student a sense of responsibility when posting online, helps him to focus on improving output and stimulates him to read other blogs and participate in other content through his responses to comments or weblog «trackbacks», and he is obliged to broaden the personal information he presents to keep his page updated. The student in the weblog constructs his

new knowledge knowing that he is being observed and corrected by colleagues, teachers and others who are online but outside the educational environment.

In Spain, the GSIC-EMIC group (Cooperative Intelligent Systems Group; Education, Media, Computing and Culture) and the TACEV group (Working and Learning in Cooperation in Virtual Environments) of the UOC are both well-known for their research and pedagogical proposals, with technology at the heart of collaborative learning experiences in virtual settings (Giménez, Guitert & Lloret, 2004).

The most important precedent in terms of the impulse towards best collaborative practices is a tool created in 2006 called «Bersatide: Best Practices Collaborative Design Editor». Jorrín, Rubia & García Pérez (2006) presented it as «a web tool to help design collaborative learning scenarios based on CSCL principles».

Apart from Education courses, the first «weblogs» experiences in Journalism and Communication were those promoted by Orihuela & Santos (2004), in Audiovisual Design at the University of Navarra, and by Lara (2005, with Journalism students at the Carlos III University of Madrid in 2004/05.

In Málaga, Blanco (2005) set up a learning project with blogs as tools. Blanco (2005: 159) emphasized «the increase in interrelationships among students who did not relate before, as a result of the exchange of comments on articles published by their colleagues, both on their pages and in the classroom, which made the debate much more enriching». Also in Málaga, Gómez, Palomares & Pino (2010) engaged students of Publicity and Public Relations in an experience in publicity material using collaborative 2.0 tools. At the American University of Acapulco (Mexico) Noguera (2007) got students to produce a thematic blog on the coverage of an aspect of local news.

1.2. The hybridization of weblogs: new opportunities

The hypertext format of blogs has evolved into new multimedia formats that integrate audiovisual content that can be posted via the net to mobile supports such as tablets and smart phones. The various forms of content publication on the web each have their own name: audioblogs, radioblog, vblogs (videoblogs), tvblogs, moblogs, edublogs, etc.

Blogs have become more complex with the introduction of multimedia messaging; they allow users to share the link on social networks. Syndication makes content distribution to the weblog public even easier. It incorporates metadata that enable the user –man or machine– to interact with the web objects via collaborative tagging or the tag cloud (Foulonneau & Francis, 2008).

> The use of these «weblogs» enables students to learn how to develop an idea for an audiovisual program in a virtual environment and comprehend the need to work as a team in order to see a media project through to the end. They also get to practice using the typical media techniques of production, correction, editing and framing of messages and news, and to value the opinion of other group members and the rest of the class.

An audioblog can be a blog consisting mainly of clips either recorded by the creator, shared by syndication or an aggregator, using podcast technology. These contributions include listeners' text and comments as well as those from the blogger, which all serve to complement the audio broadcast. Prior to this format, and the emergence of personal websites, we had bitcasters, Mp3 and various other audio distribution formats such as streaming and «peer-to-peer» networks: Napster, Audiogalaxy, Soulseek, Emule, etc. WebTV blogs, videoblogs and tvblogs are blog formats based on presenting information as image, specifically video clips tvblogs which, according to placement and organization on the page, take the form of a blog of videos similar to a video channel like YouTube of Vimeo, or which are similar to a television program selection.

Students studying Publicity and Public Relations at the University of Alicante carried out a podcasting experiment on the Print Media and Communication course in which they produced podcasts for the

«Comunic@ndo» university cybermedia. Iglesias and González-Díaz (2013) compiled other podcasting initiatives at universities abroad –the IMPALA project at the universities of Leicester and Kingston– and in Spain, the University of Salamanca, applied by Notario to Philosophy studies. Professor Fernando Rosell-Aguilar (2013) of The Open University has worked with podcasts as a tool for learning foreign languages, as have Ramos and Caurcel (2011) at the University of Granada, whose goal was to help students improve their level of spoken foreign languages at the Faculty of Educational Sciences. Yet experiments with tvblogs or videoblogs are far fewer at university. In fact, we have not found a single collective project that uses a hybrid tvblog format in higher education.

Mobile phones and tablets were reported to be the most significant technology to be used for learning this year, according to the «NMC Horizon Report 2012», with gaming to come to the fore in learning in the next two to three years. The report indicates one particular challenge that affects teachers: «the changes in university teaching mean that the majority of universities now regard teacher competence as a strategic element in the quality of education» (Durall & al., 2012: 2).

2. Material and methods

Information and Communication Technologies (ICT) are inseparable from the new reality, and institutional support for these tools in the classroom is now seen as essential for the new generations to become digitally literate. And it is even more vital in the case of communication courses to give students the appropriate knowledge to enable them to understand the digital revolution that has taken place in the media environment and also to comprehend the impact this is having on culture and a society in transformation.

This study presents an innovative teaching experience involving 199 students studying a Journalism degree course at the University of Valladolid in order to analyse how far blogs («audioblogs» and «tvblogs») can boost individual and group skills and competences in a relevant collaborative environment within the European Higher Education Area (EHEA), and to discover the advantages and challenges of learning within the virtual environment of the blogosphere.

The main hypothesis is that students, by means of the collaborative construction of an audiovisual project –which employs all kinds of audiovisual, text and metadata elements for possible posting and sharing on the Internet through the social networks– would show a proactive attitude in terms of team work, and rate their own and the work of their colleagues more positively, enhance their ability to express ideas and defend them and increase their sense of responsibility when publishing their own personal creations, by contributing to a coherent form of learning that reflects on the knowledge acquired in the classroom and in their own individual study spaces.

The main aim of the project was to determine to what extent the new digital tools based on the creation of «weblogs» proved useful for team work on the compulsory «Radio reporting» and «Television reporting» compulsory courses (6 ECTS) that were part of the Journalism degree1 (2009-10 study plan).

The verification statement on the Journalism degree course[2] states that the aim of the two subjects, «Radio reporting» and «Television reporting», as taught at the University of Valladolid, is to provide students with the following specific skills and competences (in simplified form): to know the fundamentals of social communication and the national and international media system, to be able to create ideas, plan and execute news projects and tasks, to be able to communicate in language suitable for each type of news medium and to be aware of the importance of Journalism as a vital tool for acquiring knowledge and a balanced judgement of the reality of today's society, as well as behaving with the responsibility that this entails.

All these points are covered in the group practice carried out on the two courses, and the use of the two weblog formats proposed, «audioblogs» and «tvblogs», is aimed at achieving specific fundamental objectives:

- To encourage debate and participation on the net.
- To enhance discourse organization.
- To increase student awareness of and responsibility for what is published in their name.
- To construct a personal identity and be responsible for that identity.
- To encourage personal criteria (choices and comments); to accept criticism and take others' opinions into account.
- To acquire knowledge and know how to handle new ICT and the Internet
- To become familiar with the production process of journalism (as well as its digital settings).
- To work as part of a team, to collaborate; to organize and distribute tasks among all group members and take responsibility for keeping the group together in order to reach a common goal.
- To carry out individual tasks (which can be done anywhere, and enables the student to continue constructing)

• To help students to manage their time and energy, and learn how to plan work.

These objectives are designed to understand the construction of knowledge as something global, not compartmentalized, so that to think in a critical way, to get information, to edit, compress and upload to a server, to syndicate and share content based on team decisions become a complete, didactic and entertaining form of practical work that draws students closer to the real professional world where journalism is multimedia and increasingly collaborative in its functioning.

The experience consists of constructing a project-idea for a 30-minute news program on radio and / or television, including digital recording and editing, to be broadcast in its entirety on a weblog (audioblog/videoblog or tvblog) as it is assembled over the final 10 weeks of the teaching period. All content was to be produced separately as independent units which, when put together in a specific order, would form a coherent program for broadcast on Internet. Despite its broadcast on the Net, the program was to be recorded on a television set or at a radio station depending on the content. The continuity elements also had to be original.

The collaborative project for the organization of the practice was structured in these phases:

• «Briefing» on the project and explanation of the goals to be achieved (teachers and students).

• «Brainstorming» among students of each group to reach unanimous decisions on the title, form and content of the project.

• Team Meeting 1: tasks shared out and time schedule drawn up for each stage to be completed.

• Team Meeting 2: dates set for production in the radio studio or on the television set, for editing suites, recording, exteriors, etc.

• Creation of a blog on which to post project content and transform it into an audioblog or tvblog, for syndication and social networks.

• Team work and field work supervision: meetings, decision-taking, planning of tasks for the week, recording live, provision for unexpected events, digital editing and staging, and publication on the weblog.

• Completing the project and presentation of program to the general public.

• Discussion on the final report and assessment.

The aim of this structure is based on the need to familiarize students with the professional routines and habits of journalism such that they gradually assimilate the production process of content from as broad a perspective as possible. The students received specific tutorial sessions in which professors provided guidance and advice on production and presentation. This project accounted for 50% of the student's overall mark in both subjects.

The applied qualitative methodology was based fundamentally on direct observation of how the students handled this experience. So, a timetable was drawn up for each individual student to cover the entire practice period, taking one real time week of practical work in the lab as a single unit of data collection. The students were divided into teams of 10-12 and each assigned a task or professional routine in radio or television, depending on the medium chosen, for which they were responsible until the practice was concluded.

To evaluate whether these objectives had been reached, a screen was designed to contain all the relevant data on each group: members' names, task for which they were individually responsible in the final project, contact address, interests, photo of the student, project title, general structure, objectives, content synopsis and a rough schedule for each of stage of the works to be carried out.

At the end of the project, the students were to hand in a report explaining their experience based on four central themes which they had to grade from 1 to 5, 1 denoting the lowest level of intensity and 5 the highest, according to the category: technical difficulties in production, advantages and disadvantages of working in a team (problems of coordination and responsibility), the knowledge applied to the job based on theory taught, and an overall assessment of the learning experience.

3. Analysis and results

A total of 31 projects were carried out and assessed to the first four months of 2013. There were 11 groups in 2011-12 and 10 in 2012-13, and each group produced two projects, one every four months for either radio or TV. Each group consisted of between 10 and 13 members. It should also be noted that the bigger groups were assigned the television projects to facilitate task distribution since fewer people are required for content production in radio.

The students did their practical work with free or open access tools: screens for the design and creation of the start-up blog (Blogger and Wordpress were the most widely used), cloud storage for audio and video content –podcasts, videos and images– via Podomatic and Soundcloud hosting sites and personal accounts that each student had to enable them to work from home or anywhere outside the university.

All the students learn in class about the multimedia they need to create a blog and later they elect one of the members to represent the group. They also choose a webmaster to be responsible for updating the blog each week. With this distribution of the learning exercises, from the individual to the collective, the group's virtual pages were configured by all participants, hence the debate and discussion were permanent and ongoing. This exercise in negotiation among equals with different tastes was extremely important in terms of the structuring and defence of the student's individual identity; also very positive was the evolution of the students' attitude within the group, the increased self-confidence in the personal work done, and the greater respect shown towards other colleagues as the project progressed. One piece of data that confirms this is the number of recommendations of the respective blogs by colleagues in the different groups on each course, which was considerable. This usually occurred via the two social networks most widely used by the students, Facebook and Twitter, to recommend an audioblog or tvblog put together by other groups. Three out of five students included a link to other groups' work in their pages, and two out of five linked them all.

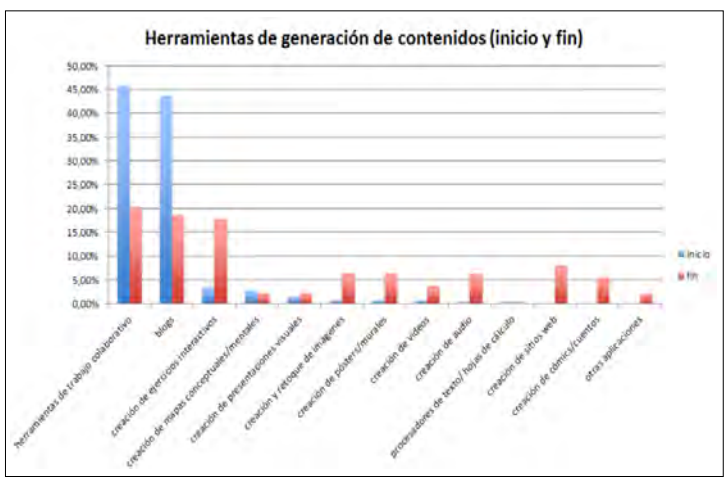
As the virtual environment was being created, the students constructed a physical collaborative environment to simulate a real journalistic work space or a digital editing room. All groups planned listings of radio or television programs, whichever was applicable to them, and these were distributed as they were to appear in the listings in the order in which it was thought they would appeal to the type of viewing or listening public that the programs were aimed at. This listing format was to act as a nexus between all the programs and obliged the students to think about a specific «target», possible competition in the market and the justification for and real interest in their proposal, and the possible success or failure of the project, etc. The programs chosen were (by year and subject): a news service, one or two magazine-type programs, one or two «infoshows», a sports program and a fiction format.

When the practice period finished, the leaders or directors of each group presented the report on the work they had carried out as well as their virtual environment they had created to their colleagues and the teacher, each defending the validity of the project and giving their overall assessment. This presentation was followed by an open debate and questions were taken so that the opinions of the rest of the group could be heard regarding the presentation, the things they could have done better, and the strong and weak points of the project. The overall evaluation of the practice was positive as the following table, which shows the final ratings of the students, demonstrates:

The item rated lowest in the practice referred to coordination and technical difficulties. The former relates to the continuous effort students needed to reach agreement on questions such as who would be a member of the group, sharing the tasks, supervision of the work done by their own colleagues, the choice of program content or the need for all members to finish their own particular task on time. Drawing up the initial deadline schedule was not difficult but sticking to it week-by-week was (absence of a group member during the practice, low productivity in certain members or failure to complete the job assigned to them as part of a group task).

The technical problems related to the lack of technical and digital infrastructure at the UVA campus in Valladolid which only has a fledgling radio station and a television set with limited resources. The technicians at the radio station are the same students and teachers on the course. This was a constant challenge for students and teacher, which acted as a spur to imagination and the ability to overcome problems, and obliged them to make decisions quickly. Sometimes this brought the group closer together and even made it easier for the teacher to integrate as one of the group.

The academic results showed that 70% of the students got a B grade in both subjects.



Students' opinions in the reports and final evaluation of the education practice.

The main feature of the collaborative environment created by teacher and students was its open space, in which «feedback» between both was continuous as the teacher was actively present in the virtual setting established for the group members to work as a team; the teacher was also on hand to offer permanent assistance in the tasks being carried out (correction of scripts, texts, videos, audio material, theme presentation, production tips, suggestions on how to improve or change something, etc.) accompanying and interacting with the students, forming part of the group not as a leader but as a «users' manual». The work of the teacher here was to provide support, constant tutoring (via the day-to-day practice work that took place and on the university's virtual platform –Moodle) showing students that they can be more independent by active involvement in the construction of their own knowledge, taking their own decisions and negotiating with the other group members who occupy the same shared learning space.

There is not enough space to show all the data or images from the projects, but here are some of the weblogs that demonstrate the work done during the practice phase.

For the students, the experience was positive, as quotes from their «weblogs» testify: «We have learnt a lot», «Now we know how to work in today's media», «It has been hard work but worth it», «We have been on edge and we have argued a lot but we had a great time», «I will miss this feeling when I am on other courses», «Now I know I am capable of working in the profession I love»…

4. Discussion and conclusions

The project was designed as a collaborative work model: it is a process coordinated by the teacher, a shared and interdependent process for the students with the result that the group constructs knowledge via the creation of an audioblog or tvblog, in effect a common project. The use of these «weblogs» enables students to learn how to develop an idea for an audiovisual program in a virtual environment and comprehend the need to work as a team in order to see a media project through to the end. They also get to practice using the typical media techniques of production, correction, editing and framing of messages and news, and to value the opinion of other group members and the rest of the class. They realize the importance of individual work in the construction of a collaborative project, getting increasingly more involved and taking responsibility for undertaking tasks, and submitting to self-criticism where necessary in the development of a real journalistic project.

The social and educational processes that derive from the project were what really enriched the project. And as Johnson & Johnson (1987) point out, the main features of collaborative learning are the autonomy of the groups to define the role of the teacher as supervisor only, with shared decision-making and student responsibility as an individual and as a group member, since the final result and the grade achieved by the group is based on the sum of all the parts, which entails a sense of co-responsibility. Yet there is no guarantee that collaborative learning alone will be effective just because it is used, as Dillenbourg (2012) says, and our experience confirms this. The positive results achieved were based on a fruitful group interaction that deployed techniques such as role distribution.

The practice also had its limitations and some problems arose which we have already alluded to. Future challenges will be:

- The difficulty in making students aware that what they are going to post on the weblog on the Internet will be seen by everybody, and this means taking on an important ethical and social responsibility;

although incorrect or inappropriate content can be changed at any moment, somebody might have already seen it.

• Updating content came to a halt in practically all cases once work on the two subjects had finished, so these tools provided insufficient motivation for the students to use them as channel for communication or instruction after the conclusion of the practice.

• The journalistic work posted in the virtual environments or on the platforms was also insufficiently interesting for the students to revisit once the subjects had finished. These tools were used only occasionally while activities in real spaces prospered.

• The content is shared on the social networks, which are also used by students to communicate among themselves, especially by mobile phone apps rather than by e-mail, «weblog» comments or even telephone.

As an idea for adapting higher education to the technological evolution, we emphasize the common ground between this experience and the conclusions of the «2012 Horizon Report» which underlined the value of collaborative work, «collective intelligence» (Johnson, Adams & Cummins, 2012: 4), as a valuable competence for the job market.

The new multimedia forms, the new blog formats such as «audioblogs» and «tvblogs» have enabled students not only to participate in content creation but also in the processes of production, corporate design, and the editing and distribution of entire content on the weblog, including possible financing, while at the same time learning to organize each element in a harmonious, coherent form to construct an independent audiovisual product that relates to other blogs and websites that can serve as a specialist or critical documentary complement. In conclusion this collaborative experience, through its creative production, has developed in the students a sense of initiative and continuous activity, critical reflection, the correct use of digital tools, self-assessment and a knowledge of professional journalistic production on the Internet.

Notes

[1] Study plan for 2011-12 and 2012-13.

[2] Degree course in Journalism (University of Valladolid). Verifica\ANECA program, 2010. Royal Decree 1393/2007, 29 October, which established official planning for university education. (www.fyl.uva.es/archivos/planes/Planes_GraPeriodismo.pdf) (02-04-2013).

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Collaboration and Social Networking in Higher Education

Colaboración y redes sociales en la enseñanza universitaria

ABSTRACT
This paper presents an exploratory analysis of the experience of educational innovation in the configuration of a social learning network in a subject for the Education degree course at the University of Santiago de Compostela (Spain). This innovation is based on the premise of student-centered teaching (independent learning, self-regulated, authentic and breaking boundaries between formal and informal areas) enriched with collaborative activities. The study aims to analyze the intensity and relevance of the student´s contributions in this collaborative framework. We used learning analytics tools with two types of techniques: social network analysis (SNA) and information extraction, to measure the intensity, centrality and relevance of collaboration among students. The results obtained allow us to confirm: 1) The consistency and coherence between the pedagogical approach and the option of using a social network in university education; 2) A dense network with a high level of interaction, a moderate degree of centrality and a low centralization index (structure moves away from star), with a group with the capacity to influence the rest (degree of betweenness); 3) High level of relevance to the content analyzed; 4) The usefulness of learning analytics techniques to guide teacher decision-making.

RESUMEN
El presente trabajo analiza, de forma exploratoria, la experiencia de innovación docente en la configuración de una red social de aprendizaje en una asignatura del Grado de Pedagogía de la Universidad de Santiago de Compostela. La innovación se justifica en las premisas de la enseñanza centrada en el alumno (aprendizaje autónomo, autorregulado y auténtico, ruptura de fronteras entre ámbitos formales e informales), enriquecida con actividades colaborativas. El estudio pretende analizar la intensidad y pertinencia de las aportaciones del alumnado en este marco colaborativo. Para ello se han utilizado herramientas informáticas de la analítica del aprendizaje (learning analytics) con dos tipos de técnicas: análisis de redes sociales y extracción de información, que dan cuenta de la intensidad, centralidad y relevancia de la colaboración entre los estudiantes. Los resultados obtenidos posibilitan concluir: 1) la consistencia y coherencia entre la propuesta pedagógica y la opción de utilizar una red social en la enseñanza universitaria; 2) la existencia de una red densa con alto nivel de interacción, grado de centralidad medio e índice de centralización bajo (estructura que se aleja de la forma estrella), con un grupo con capacidad de influencia en el resto (grado de intermediación); 3) alto nivel de pertinencia de los contenidos analizados; 4) la utilidad de las técnicas de analítica de aprendizaje para orientar la toma de decisiones del docente.

KEYWORDS / DESCRIPTORES
University teaching, learning, innovation, collaboration, social networking, e-portfolio, personal learning environments, learning analytics.
Enseñanza universitaria, aprendizaje, innovación, colaboración, redes sociales, portafolio electrónico, entornos personales de aprendizaje, analítica del aprendizaje.

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1. Introduction

Teaching at university is a complex social activity that takes place within institutions that are loaded with social, cultural and political meaning; there is not only one university, but rather a polyhedron of faculties, departments, institutes, and people. Nor is teaching as uniform as the predominant transmissive teaching approach would suggest. Changes in the ways of addressing teaching and learning processes at university are not a novelty of the European Higher Education Area (EHEA), however, in this context innovation becomes «mandatory». Nevertheless, internal innovations produced on the job, often the result of academic independence, have demonstrated the wisdom and good work of so many university professors who have made a place for research in their teaching space, in line with calls from the English-speaking world in favour of «scholarship for teaching» (Lueddeke, 2008; Shulman, 2004) and for a greater appreciation of teaching with respect to research (Aguaded & Fonseca, 2009). It is in this context that we frame the content of this article which aims precisely to facilitate critical analysis of an extended experience of professional collaboration in higher education virtual learning environments. Collaboration in several ways: among teachers, among students and students together with teachers.

We have long been working with student e-portfolios (Gewerc, 2009; Gonçalves, Montero & Lamas, 2012; Montero Alvarez & Seoane, 2010) as artifacts spanning the length and breadth of teaching, learning and assessment processes (Agra, Gewerc & Montero, 2003). Ours is a continuing process of inquiry regarding practice, in which we try to be true to the premises of teaching centered on students who learn in collaboration with others. This teaching approach aims to address student diversity, foster their independence, and enhance each person's strengths. Thus, students are encouraged to explore their interests while transcending the limits of formal learning to appreciate the value of informal learning spaces. This proposal requires students to self-regulate their learning (Pintrich, 2004; Vermunt & Vermetten, 2004; Zimmerman, 2001; Salmerón & Gutierrez-Braojos, 2012) and teachers to be committed to a perspective of situated (Lave & Wenger, 1991) and authentic learning (Herrington, Oliver & Reeves, 2003). Within this framework, students are conceived as partners in the work of teaching and learning who have initiative and the ability to reflect on their own processes. Furthermore, metacognition is given priority as a pedagogical strategy along the lines of cultural and socio-constructivist learning (Saz, Coll, Busts & Engel, 2011).

This combination of axes around which our understanding of university teaching gravitates has led us to explore the following: the collaboration generated by the use of social networking in education, the characteristics taken on by our students' Personal Learning Environments (PLE) (Castañeda & Adell, 2013), how personal learning networks are set up (Casquero, 2013), and, finally, how all this can facilitate the construction of e-portfolios that demonstrate what and how students are learning.

In the process, we help students become aware of their own PLE, encourage collaboration in the class social network, support individual learning and provide feedback (Rubia, Jorri & Anguita, 2009). A number of issues come into play here: the use of an academic social network as a collaborative environment for consultation in knowledge construction; the confluence of diverse learning resources that reveal the blurred boundaries between formal and informal settings; and the use of individual spaces for posting opinions, reading material, and text analyses (blogs, micro blogs, personal files, bookmarks, pages, etc.). All of which lead to the formation of a personal e-portfolio in which to view the knowledge built and demonstrated by students.

Now then, what processes come into play in this complex map involving a variety of learning tools? The diverse information sources and the vast potential available on Internet have enriched teaching and learning processes, while also making their analysis and evaluation more complex.

The analysis of our experience responds to the need for increasingly accurate ways of understanding how learning occurs when it is mediated by these technologies. Specifically, we need network analysis to understand the complex learning ecology faced by students in collaborative environments (Gros, 2012; Saz, Coll, Busts & Engel, 2011; Uden, Wangsa, & Damiani, 2007). This openness to the use of social networks in teaching represents a management problem with respect to the amount of student information that must be monitored and evaluated. Hence, we consider the potential of learning analytics as a tool for «peering inside» records of student activity stored on the platform.

In short, our goal is to describe and understand what happens when students use a social network as a context for carrying out their learning. By analyzing this experience, we aim to identify the type of mediation produced by the social network in this teaching

proposal. To do so, we review other studies on the use of social networking in higher education and apply learning analytics tools to the social network content in the subject selected for this study. Finally, we will discuss our results in light of previous research and present our main conclusions.

2. Social networks in higher education

The penetration of social networks in Europe is a confirmed fact (ONTSI, 2011). In some circles, this has produced pedagogical enthusiasm under the assumption that using social networks in education will enable some long-standing educational goals such as greater democratization, fostered by the apparent flatness of social media (Buckingham & Martínez, 2013), and a much closer relationship between educational institutions and the social environment, to be achieved. The possible educational virtues of social networks are based on their enormous communication potential, and there is already evidence that students may respond positively to their use (Gómez-Aguilar, Roses & Farías, 2012). Some teachers argue that students are already present in social networks with their relationships and interests, and this offers an opportunity to make learning more attractive by joining informal and formal channels together (Bugeja, 2006).

In contrast to the pedagogical optimism extolling the value of these environments to encourage collaboration, content generation and meaningful learning, there are detractors who suggest that these networks produce alienation and a superficial analysis of reality. These critics also allude to privacy issues and the advertising that goes along with free usage (Zaidieh, 2012). In sum, the use of social networks continues to be controversial in the field of education (Selwyn, 2009). Most studies have shown only tangential academic achievement, which comes out in the communication that goes on among groups (Selwyn, 2009; Gomez-Aguilar & al., 2012). The study by Gómez-Aguilar and colleagues (2012) attributes this to the low value given by university faculty to interpersonal relationships. In contrast, almost 40% of the students surveyed would prefer a social network over the current university content management platform. Students use social networks to resolve their doubts, stay informed about classes, do group work and share information (Espuny, González, Lleixá & Gisbert, 2011).

Many suggest that if they want to continue to be an option for framing e-learning proposals, the next generation of learning management systems (LMS) should incorporate different forms of participation (Mott, 2010).

> The network centralization index shows that participation was not only focused on one dominant node, but that «power» was distributed. We saw that at the beginning the teacher was the system «connector», but afterwards a core group was empowered and gained autonomy to produce exchanges and interrelations. This knowledge can spur the generation of activities that get a greater number of students to join in, which is consistent with the subject's pedagogical aims.

We have observed that most of the experiences involving social networks undertaken in formal settings have used commercial networks, which raises questions about the conditions of use. Teachers are «forced» to resort to these external «agents» in order to use a variety of Web 2.0 resources (Canole, 2010), because the LMS that continue to prevail do not respond to the emerging needs of teaching and learning. The specific environment that is selected comes along with a conception of knowledge, a particular way of defining what is private or public, the inclusion of advertising in academic spaces, and other concerns that affect the very meaning of university teaching.

Facebook is the most widely used social network by academics aiming to improve teaching methodology, create an attractive learning environment and develop communities of practice (Ractham & Firpo, 2011; Piscitelli, Adaime & Binder, 2010). However, studies have shown that using social networks in formal settings requires teacher supervision and support so that students do not feel lost in the Web (Garrison, 2005).

Due to the commercial nature of free Web 2.0 environments and their privacy problems, we opted for adapting an open source software (ELGG) (http://elgg.org) with social networking features where students can create content, build friend networks, as well as import and syndicate information with content sharing formats. Research involving this software tailored to specific situations of university teaching and learning (Valetsianos & Navarrete, 2012; Valetsianos, Kimmos, & French, 2013; Koulocheri & Xenos, 2013) has revealed that tension and a degree of complexity are inherent to this topic. An interdependence exists between the pedagogical framework used in the context of the social network and the results obtained. Thus, it is not simply a question of the tool that is used, but a question of conceiving a whole ecological scheme for carrying out the processes we are studying.

3. Material and methods

The experience that we report is a «case study» of the subject of Educational Technology. It is a core subject in the third year of the degree in Education at the University of Santiago de Compostela with 58 students in the 2012-13 academic year.

To analyse this experience we used digital tools based on learning analytics, a scientific discipline whose main aim is to measure, store and analyze student activity data collected by virtual environments in order to understand and optimize teaching and learning processes (Siemens & Gasevic, 2012). With these tools, it is possible to explore what is happening in the «black box» of student processes carried out in the virtual environment of social networks through friend relationships and student blog posts. Table 1 shows the number of records generated by students in the subject of «Educational Technology».

With these data and friend relationships, two types of analysis were conducted to discover, on the one hand, the intensity of collaboration occurring among the students and, on the other, its degree of relevance. To do so, the following learning analytics techniques were used.

• Social network analysis (SNA) (Long & Siemens, 2011), that examines the relationships established during the course and creates a graph to illustrate the interactions. This analysis was done with Unicet and NetDraw tools that make it possible to display interactions, i.e. friend requests, and obtain the following parameters:

— Network density: the proportion of actual links between the nodes in the graph with respect to total possible links. This parameter indicates the intensity of collaboration.

— Node Centrality: indicates the importance of a particular node in the social network as a result of its relationships with other nodes. A centralized network has a set of relevant nodes with which the remaining nodes establish a large number of relationships. We have considered the degree of centrality and the degree of intermediation to be indicated by the frequency with which a node connects to two others over the shortest distance.

• Information extraction: analyzes the content of blog posts generated by students and automatically extracts the terms that characterize each of them. This makes it possible to determine the relevance of each blog post. For this, ADEGA (Lama & al., 2012) was used. This is a tool that identifies the terms that characterize a text document (blog posts in this case) and puts them in order of relevance. The relevance of a term for a given post was obtained by means of TF-IDF, a technique used for information retrieval which measures the frequency of a term in the blog post (TF) and in the other blog posts (IDF): if a term appears often in all blogs, then it is too common and is not relevant, in terms of the subject's concepts.

Records	Number
Blog Posts	474
Blog comments	2,434
E-mails	1,014
Files uploaded	361

3.1. The Stellae Group social network

Since 2006, subjects from different degree programs in the Faculty of Education at the University of Santiago have been using the ELGG open source platform, hosted on an institutional server (htpp://stellae.usc.es/red). This is a social network that includes discussion forums, blogs, micro-blogging in a central space, user profile information, friend lists, an activity screen, personal walls, calendars, bookmarks, and pages. When a user adds content to the platform (i.e., texts, images, sounds), the user can select who to share it with by choosing one of the following options: private, friends, all platform users or public. Under the last option, the content is fully open to the network and can be shared. When uploading content to Internet, it is vitally important that students consider authorship and privacy issues.

The subject is taught in blended learning mode with weekly classroom sessions where students discuss syllabus topics or practice with a particular

resource. Projects are also done in small groups that cooperate to achieve a shared aim. Then, each student makes a personal quest to show how they have resignified the concepts addressed in class and adds a new blog post or file to their personal social network with reflections on class work and outside reading. Although this is invisible and reflects the individual process of each student's knowledge construction, once uploaded to the platform the issues are shared with other classmates so that everyone can read, comment, and discuss them. The set of elements that make up one's personal environment is evaluated by the teacher using a rubric at two points in the process. In short, although e-portfolios are individual, they are carried out under social network conditions which gives the whole process a collaborative approach.

4. Analysis and results

Figure 1 shows the evolution of the student group at different times during the course. Each member is represented by a node and connecting lines showing the friend relationships between them. The arrows indicate the direction of these relationships. The outgoing arrows show the direct connections initiated by each participant, the incoming arrows show the number of relations that contact each. The red node is the teacher of the course.

The network is a living environment that moves constantly, and relationships take shape from the first week of class (figure 1, graph A). At first, the teacher is in the middle (in red on the graph), then she gets repositioned to one side, though still within the central core. The average density is 46%.

In the tenth week of the course (figure 1, graph C) we can see a core consisting of green nodes that account for the greatest number of interactions. Surrounding this core there is a set of yellow nodes with less interactions. A third group, the blue colored nodes, is further away and has little interaction with the rest. If we remove some of the green nodes, the structure remains, but is less dense.

The out-degree of centralization is 37.93% and the in-degree is 48.63%. This presents a picture showing a group of key actors with cross connections who do not depend on the work of one person. In figure 2, the teacher has been removed to see what happens. The resulting graph is similar to figure 1 (graph C), indicating there is no dependency on the teacher to maintain participation.

The graph shown in Figure 2 is based on degree of centrality. The average of all friend relationships is 46.11. The maximum and minimum levels are 48 and

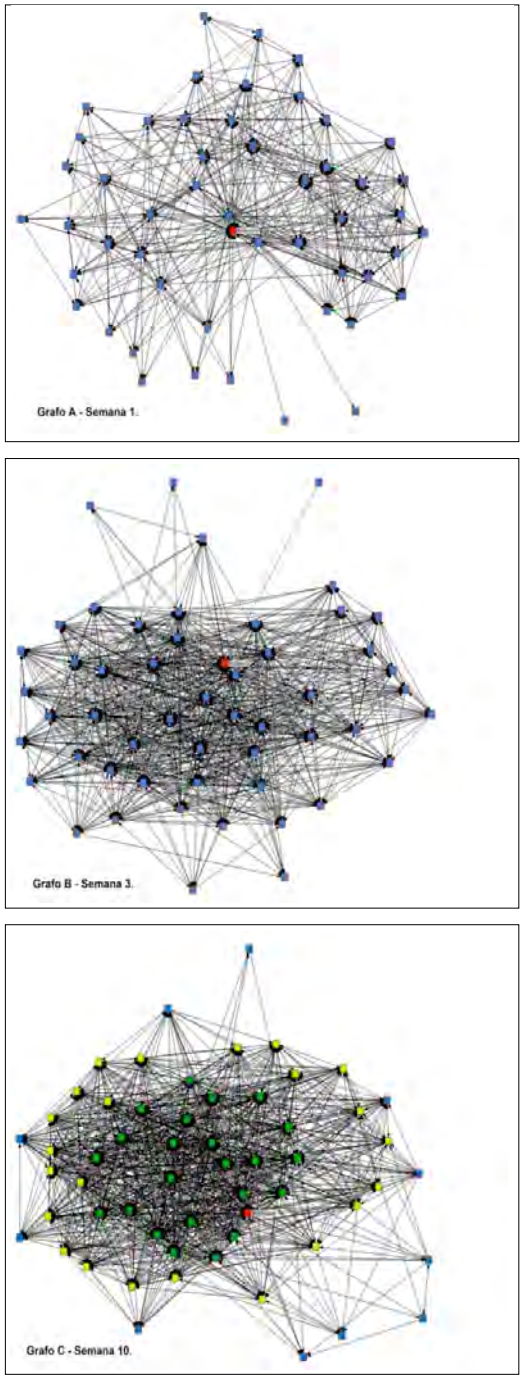

Figure 1: Evolution of the social network in the subject of «Educational Technology» in (A) the first week, (B) the third week, and (C) the tenth week of the course.

2, respectively. The core group (green nodes) represents students with a degree of centrality ranging from 48 to 29. The yellow nodes range from 28 to 9. The remaining group has the lowest degree of centrality, ranging from 9 to 2.

Figure 3 shows the nodes in terms of their level of intermediation. The green nodes in the center are the ones with the highest levels of intermediation (from 4085 to 1180). The yellow nodes represent students with a level of intermediation from 1045 to 0.217 and, finally, the blue nodes range from 0.200 to 0.000. In this case, the green nodes have the most links; thus, they are more independent and have more alternatives and resources. An individual with many links in the social network is said to be prominent or prestigious.

Thus, we can see that this network has a medium density, and a significant core group with potential to influence the rest of the members. This description provides valuable information regarding network composition and features, because it makes it possible to discover which students are less involved and which are doing work that helps network density. It also helps to carry out teaching support activities such as scaffolding to help students that need it.

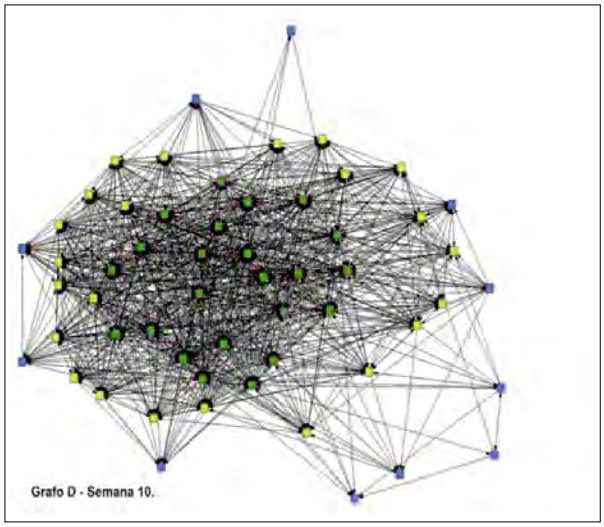

Figure 2. Social network in the subject of «Educational Technology» without taking the teacher into account.

To obtain a more complete and thorough view of the process, a qualitative analysis of blog posts or pages would be necessary. Given the amount of information which this represents, it is very helpful to pre-select relevant entries. To do so, we applied information extraction techniques which automatically provide the terms characterizing student blog posts. If those terms correspond to the keywords that should be addressed in the blog as defined by the teacher, then student are considered to have constructed relevant content. Otherwise, these contributions are considered to be inadequate.

With this in mind, a preliminary study was carried out analyzing 474 blog entries, of which 89.87 % turned out to be relevant reflections on various topics related to educational technology. A post was considered to be relevant if it contains at least 10 keywords defined by the teacher and the relevance of those keywords is greater than 5. A low relevance threshold was chosen in order not to exclude blog posts with many keywords that are not repeated in the post itself (low frequency). It can be concluded, therefore, that this social network is not only strongly interconnected, but that it also generates valuable information.

5. Discussion and conclusions

The analysis of findings allows us to draw some conclusions regarding the study questions. First, we would like to point out the consistency and coherence of our pedagogical proposal and the use of a social network in higher education. An interdependence was found between student-centered teaching –characterized by independent, collaborative, authentic and self-regulated learning– and the resulting learning analytics indicators. It should be noted that the level of participation in the social network was not evaluated, nevertheless, the social network has become a substantial aid for promoting individual growth through group support (Dillenbourg, 1999). A number of other studies using this software adapted to their own pedagogical situations report similar findings (Valetsianos & Navarrete, 2012; Valetsianos, Kimmos, & French, 2013; Koulocheri & Xenos, 2013). We would like to highlight that it is not only a question of the tool that is used, but rather the interdependence of the tool and the pedagogical proposal, underlining the ecological framework within which university teaching and learning processes take place. Collaborative environments are not generated magically by the existence of a specific software. They require approaches and proposals that mobilize, sustain and enrich collaboration.

Our group presented a manifestly high degree of interaction. The density findings demonstrate that the network offered ample opportunities for collaboration and visibility. Therefore, we can trust that the content contributions and subsequent reflections are complementary and provide feedback, meaning greater and richer learning opportunities, as well as an awareness of the process. Along these lines is the research by Casquero (2013) and Wenger (1998). These interactions provide a consistent foundation that enables quality exchange and the joint construction of knowledge. Above all, they provides the social support for work, as

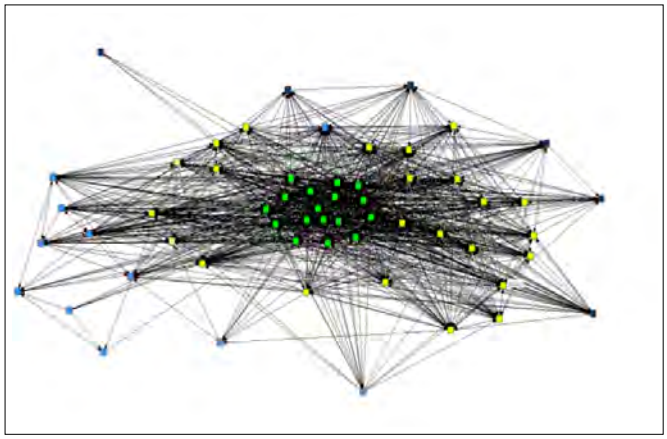

Figure 3. Social network in the subject of «Educational Technology» grouped according to intermediation.

reported by Ballera, Lukandun and Radwan (2013).

The network centralization index shows that participation was not only focused on one dominant node, but that «power» was distributed. We saw that at the beginning the teacher was the system «connector», but afterwards a core group was empowered and gained autonomy to produce exchanges and interrelations. This knowledge can spur the generation of activities that get a greater number of students to join in, which is consistent with the subject's pedagogical aims.

The density and centrality indicators are related to «teacher presence» (Garrison, 2005), which is essential for giving specific attention to those students who need more scaffolding to achieve the desired results in terms of knowledge construction.

Finally, the information extraction technique has served to filter out those posts that are not relevant to the content of the course. This filter helps the teacher to make an initial classification and facilitates the qualitative analysis of posts. The results of the exploratory study conducted using this technique demonstrate its usefulness and reveal that the content elaborated by students has a high level of relevance. This is extremely interesting given the freedom to delve into the theoretical and practical topics studied in class, which is an indicator of self-regulated learning skills. Students have set goals, done searches and carried out self-reflection processes.

The findings obtained in this exploratory study reveal the value of using learning analytics techniques to delve deeper into university teaching. These techniques can serve as lights to guide us in the analysis of the huge amount of data confronting teachers who work with e-portfolios under the current institutional conditions at Spanish universities. They enable better-informed decisions to improve teaching and contribute to change along the line proposed by Long & Siemens (2011). Further research is necessary in this direction by means of methodological triangulation involving qualitative analysis of the teacher-elaborated records (field notes, diaries, practical assessments) and student comments and self-assessments. These records would allow us to investigate issues regarding rigor as well as autonomous, situated and authentic learning in collaborative experiences mediated by digital environments.

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ICT in Collaborative Learning in the Classrooms of Primary and Secondary Education

Las TIC en el aprendizaje colaborativo en el aula de Primaria y Secundaria

ABSTRACT
Digital technologies offer new opportunities for learning in an increasingly connected society, in which learning to work with others and collaborate has become an extremely important skill. This article presents the results of a research study into the conceptions and practices of working teachers regarding collaborative learning methodologies mediated by information and communication technologies (ICT) in Elementary and Secondary Education schools. We analyze data concerning ICT contributions to collaborative work processes in the classroom, from the point of view of teachers at schools accredited with a high level of ICT by the Regional Government of Castile and Leon. We furthermore take into account the limitations of these tools, as well as teachers' conceptions of collaborative learning strategies. The methodology is based on the content analysis of interviews of teachers from a representative sample of schools. The results indicate that teachers think that ICT have great potential for enhancing collaborative activities among students and for developing highly relevant generic skills, although they are also aware of the difficulties that both students and teachers face in educational practice.

RESUMEN
Las tecnologías digitales ofrecen nuevas oportunidades para el aprendizaje en una sociedad cada vez más conectada, en la cual aprender a trabajar con otros y colaborar se convierte en una competencia trascendental. El texto presenta resultados de una investigación sobre concepciones y prácticas del profesorado en ejercicio acerca de las metodologías de aprendizaje colaborativo mediadas por las tecnologías de la comunicación (TIC), en centros de enseñanza de Educación Primaria y Secundaria. En el artículo se analizan los datos referidos a las aportaciones de las TIC para llevar a cabo procesos de trabajo colaborativo en el aula, desde el punto de vista de los docentes de los centros acreditados con alto nivel TIC por la Junta de Castilla y León. También se expondrán las limitaciones que imponen estas herramientas, así como las concepciones docentes sobre las estrategias de aprendizaje colaborativo. La metodología se basa en el análisis de contenido de entrevistas realizadas a equipos docentes de una muestra representativa de centros educativos. Los resultados apuntan que en estos centros los docentes atribuyen a las TIC una alta potencialidad para enriquecer las actividades de trabajo colaborativo entre los estudiantes y conseguir el desarrollo de competencias transversales de gran relevancia, aunque son conscientes de las dificultades a las que tanto alumnos como profesores se enfrentan en la práctica educativa.

KEYWORDS / DESCRIPTORES
Teaching methodology, curriculum integration, collaborative learning, virtual learning, teacher training, teaching practice.
Metodología didáctica, integración curricular, aprendizaje colaborativo, aprendizaje virtual, formación de profesorado, práctica docente.

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1. Introduction

Digital technology arrived in Spanish educational centres through various programmes for introducing ICT in the classroom, with one of the newest and most relevant programmes being the national Escuela (School) 2.0 developed in Castilla and León under the name Red XXI. Funding for technology has brought computers and smartboards to a large number of classrooms in elementary and secondary schools. Now is a good time to determine the changes this new technology has brought about in teaching methods, and the results in terms of student learning. To this end, the GITE-USAL research group at the University of Salamanca is carrying out research on collaborative learning strategies based on ICT use at those schools that boast a high level of technology in the region of Castilla and León (research financed by the Ministry of Education «Aprendizaje colaborativo a través de las TIC en el contexto de la Escuela 2.0»; EDU2011-28071).

Several decades ago, Piaget stated that «the principle goal of education is to create men who are capable of doing new things, not simply of repeating what other generations have done - men who are creative, inventive and discoverers» (1981). Developing metacognitive, creative, and communicative skills is still an educational goal today, and one that should view learning as a process of acquiring and building knowledge with a strong social and experiential component. Current pedagogy must allow students greater freedom to expand their thinking beyond conventional models, and collaborative learning methods are likely to generate learning environments that meet this objective. Building and sharing become transversal objectives for which the use of ICT proves to be quite advantageous for developing curricula and for teaching students. Education through the exchange of ideas is a far cry from bureaucratic education that values quantity over quality, and reaches out to inner transformation and mobilization. «Through such techniques as open discussion, people in small groups may change collective thinking, learn to mobilize energy and actions toward common goals, and rely on an intelligence that is superior to the sum of the individual talents of the members of the group» (Carneiro, 2009: 20).

Collaborative learning methods involve teamwork among students. Various strategies may be used to help students work together to achieve specific common objectives which are the responsibility of all members of the group. Collaborative learning is based on the «construction» theory that assigns an important role to students as main protagonists in the learning process. The academic, social and psychological benefits of this type of learning have been demonstrated by many authors, among them Kolloffel, Eysink & Jong (2011), Kozma & Anderson (2002) or Panitz (2004), who highlighted a long list of advantages, such as boosting mega-cognition and permitting students to feel a sense of control over what they are learning (academic benefits). Collaborative learning encourages students to see situations from different perspectives, creates an environment where they can practice social and leadership skills (social benefits), and provides a satisfactory learning experience that significantly reduces anxiety (psychological benefits).

Constructive-collaborative learning works very well with the Internet, placing us in the realm of «collaborative learning using computers» (CSCL: Computer Supported Collaborative Learning), as a new model that unites learning theories with technological tools, based on a socio-cultural view of cognition that proposes an essentially social nature for the learning process, and looks to technology for its potential to create, support and enrich interpersonal contexts for learning (Kolloffel, Eysink & Jong, 2011; García, Gros & Noguera, 2010; Gómez, Puigvert & Flecha, 2011; Salmerón, Rodríguez & Gutiérrez, 2010).

According to this model, it is the role of information and communication technologies (ICT) to offer new possibilities for social intervention, to create collaborative learning environments (communities) that allow students to carry out group activities, activities that are integrated into the real world and planned with real objectives. Research in this area consistently points out the necessity of preparing technology to be used as a tool rather than as an end in and of itself, a tool the main purpose of which is to help students learn in a more efficient manner. Helping others to learn has to do with offering better channels for communication as well as better tools for exploring the domain that holds the primary materials for learning (Coll, Maurí & Onrubia, 2008; García-Valcárcel & Hernández, 2013).

Teachers at innovative European secondary schools who make significant use of ICT to support learning based on problem-solving report improvements in concepts and skills, motivation, responsibility and self-reliance (OCDE, 2003). For their part, the teachers and students who participate in collaborative learning projects with other schools express a high degree of satisfaction, especially concerning communication with students from other countries, as can be seen in the evaluation reports from the eTwinning project (Baca, 2010).

Data from a study published by Sáez (2011) reveal that almost half of teachers maximize self-reliance and individual work using ICT, and 40% of teachers make use of ICT for collaborative and group activities using technology.

In studies carried out in Latin America (Murillo & Martínez-Garrido, 2013; Puentes & al., 2013; Román & Murillo, 2012), the conclusion is that teachers are aware of the potential that ICT possess as motivators for the teaching-learning process, and that they also recognize that they promote collaborative learning.

In Spain, and specifically in the region of Castilla and León, the use of collaborative learning methods using ICT is both new and complex, even though technological tools are positively valued in the sense pointed out by Suárez & Gros (2013: 56): «The use of tools that allow for communication, collaboration and the acquisition of knowledge is fundamental for improving learning processes.» (p. 56). The main advantages that they point out have to do with easing communication (Plomp & Voogt, 2009). The official website for the Escuela (School) 2.0 initiative lists seven advantages of using ICT as part of collaborative learning and work procedures: efficiency, moral values, the exchange of information, innovation, limitation of duplicities, viability and unity.

ICT use has also been correlated with increased learning as it promotes better interaction between teachers and students. For Carrió (2007), collaborative learning is simply a very useful way of teaching in that students and teachers work together, whatever the subject matter. In his opinion, if we were to add technological advances to this model as they occurred, we would, at the same time, increase learning.

As far as drawbacks or disadvantages to collaborative learning using ICT, Suárez & Gros (2013: 59) use the following words to refer to planning for activities, «collaborative learning requires much greater preparation in order for students to be able to work independently in groups»; «The difficulties encountered in carrying out collaborative processes are usually the result of poorly designed activities and problems with communication and organization of those activities rather than with technical aspects of the programs or platforms used.» They also note that ICT «actually aggravate conflict when teachers misinterpret messages or when multiple messages that need to be answered immediately are received» (57-58). On the other hand, we find a lack of experience on the part of students with this type of method and with the tools they must use in virtual environments, which are frequently poorly thought out in terms of promoting work that is both continuous and easy to evaluate.

The other great disadvantage has to do with the time factor, an aspect that has also been mentioned in several research papers on the subject. Ferrero, Martinez & Otero (2009: 8) state that the use of ICT requires much more teacher time than do conventional methods. «Internet communication requires enough time to read and answer messages, and to surf the web, which may cause teachers to feel overwhelmed. Clearly, far from saving time, the use of ICT may actually use up time that could otherwise be spent performing other tasks that are also a part of a teacher´s responsibility.»

Finally, we should point out the importance of relating these methods based on collaboration and the use of ICTs to build knowledge with the variables that affect student performance- skills acquisition, motivation, satisfaction, etc. Studies of interest in this respect include those by Camilli, López & Barceló, 2012; Cox & Marshall, 2007; García-Valcárcel & Tejedor (2010); Martín & Tyner (2012); Monereo & Badía (2012); Rué (1998); Tejedor (2010); Zaho & Kenneth (2002).

We must insist once again on the transformation that needs to take place in school practices, so that practices will promote the development of collaborative projects with ICT, and so that ICT will become the channel for communication and information that is essential for guaranteeing learning environments that are open, interactive, replete with incentives and sources of information, motivating for students, and focused on developing skills.

2. Research methods

The objective of this study was to determine the conceptions held by teachers who work in schools that are well-equipped with information and communication technology (ICT) as to the advantages and disadvantages of collaborative learning methods based on their own teaching experience.

At the same time, our study sought to discover to what extent teachers value and use ICT to support collaborative work projects for students as well as for their own professional development.

We chose a method that was qualitative in nature so that we could straightforwardly explore teacher conceptions regarding the potential value of collaborative learning processes, their actual classroom experiences with collaborative work activities, and the role that ICT play in these activities.

Our technique for gathering information comprised interviews with key persons at the schools; specifically, we spoke with groups of teachers in primary (third cycle) and secondary (first cycle) levels of education who teach at schools that have well-developed technological infrastructures. The population of interest was defined as schools that have received ICT accreditation (level 4 and 5) from the Junta of Castilla and León for 2010 and 2011, and again, specifically, teachers who work at the educational levels mentioned above, since they are the ones directly involved in the Red XXI Program for the region of Castilla and León.

Twenty schools from the following provinces agreed to participate in the study and form the sample group: 2 schools in León, 2 in Palencia, 4 in Burgos, 1 in Soria, 3 in Valladolid, 2 in Zamora, 2 in Salamanca, and 4 in Segovia. Of these schools, 11 are city schools while the other 9 should be considered rural schools; there are 14 schools with pre-school and primary classes (CEIP), 2 secondary schools (IES), 2 compulsory education schools (CEO), and 3 clustered rural schools (CRA). The latter are schools that are part of a group of small schools in several nearby villages.

Field work was carried out during the school year 2011-12. In all cases, the administrators of each school had given their approval for the interviews, and an ordinary semi-structured protocol was applied. Each interview was led by a researcher with participation by a group of primary (third cycle) and/or secondary (first cycle) teachers at the school, teachers who taught different subjects, and an ICT coordinator whenever possible.

In analysing the interviews we focused on the advantages and disadvantages that teachers perceived in collaborative learning strategies oriented both towards students and towards their own professional development, since these are the considerations that determine to a great extent the practices that teachers carry out. Thus, using the information from the interviews on our topic, we inductively created a set of categories which, in turn, was validated by experts and subjected to control through double categorization of 5 interviews by two different researchers, obtaining a high index of reliability as revealed by the high degree of correlation between the two. We used the NVivo10 program to analyse the contents of the interviews and that provided us with frequencies for the categories and allowed us to compare the opinions from each school using cluster analysis and the Jaccard index.

3. Results

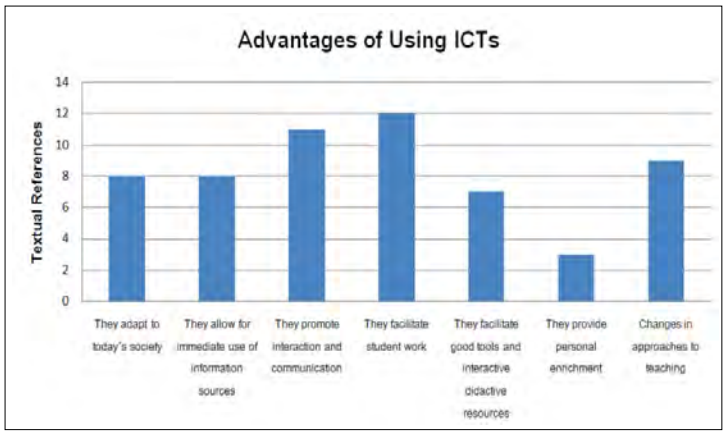
At first glance, a general calculation of the textual units referring to the advantages and disadvantages of collaborative learning and the use of ICT indicates that the teachers interviewed identified many more advantages than disadvantages. Specifically, there are 101 textual references to advantages as opposed to 76 mentions of disadvantages, i.e. 57% as opposed to 43% of interventions in this sense.

3.1. Advantages of Collaborative Learning and the Use of ICT

The main advantages that teachers attribute to collaborative learning are related to «developing transversal skills, », «interaction among students» and «curriculum development». They also make frequent reference to increased student learning, motivation, and the repercussions of collaborative learning on students with learning disabilities. Table 1 shows the frequency

Table 1. Adventages of Collaborative Learning

Categories	Frequencies
Development of transversal learning skills	8
Interaction among students	7
Curriculum development	6
Increase in student attention and participation	4
Improvements in teacher professional development	4
Increased student learning	4
Increased motivation	3
Improvements in performance among students with learning disabilities	3
Evaluation of student learning	2
Promoting personal satisfaction for students	1
Promoting family participation	1



Graph 1. Advantages of Using ICT with Collaborative Learning.

of mention for the various categories related to the advantages of collaborative learning.

The transversal learning skills mentioned refer to social skills (such as respect), problem solving, and work habits (self-reliance, responsibility, organization…), plus the capacity for reflection, critical thinking, and initiative. Below are a few notable references to these skills:

•«They are more critical when it comes to carrying out tasks. Since they have access to more material, they discuss things more among themselves, in such ways as, what do we all think?, what do we want to do?, I think this bit would be better farther up or farther down in our writing.» interview 14).

•«To learn to learn, so that in the future they will know how to do things for themselves, how to cooperate with others, to work as a team, to speak in public, and all these kinds of things. That is what is really going to be of value to them in the future» (interview 2).

•«Yes, and especially camaraderie, getting along with others, being able to work with others, knowing how to fit in with the world, in society, to respect differences and opinions» (interview 6).

Regarding curriculum development, teachers expressed the following:

•«Less and less time is spent transmitting information. The student gets bored less and the teacher has more time to truly evaluate, and can be there with the student groups, lending support, observing…. At the same time you can be evaluating; you are able to follow the learning process much better» (interview 2).

•«Working collaboratively, students create digital walls on which each student, depending on the subject he has been given, places an image and a commentary. They also use Webquest. For history class, one teacher uses a timeline with slides where students look for images and add data» (interview 14).

Graph 1 shows the different points that teachers identified as the advantages of collaborative learning using ICT. The notion they mention most often is that «they facilitate student work», which includes the following subcategories: they economize student work, they motivate students, they grab students´ attention, they promote student responsibility and self-reliance as they carry out their tasks, they help students with learning disabilities, ICT can be adapted to each student´s level, and student learning increases.

Rated second as an important advantage are «promoting interaction and communication» and «changes in approaches to teaching».

Teachers point out the high level of motivation for collaborative learning that digital tools inspire in students, as can be seen in the following opinions:

•«ICT provide the motivational component for collaborative projects» (interview 17).

•«Students help each other and it´s easier for them to work collaboratively with the computer than with traditional materials (paper and pencil); the process becomes more practical» (interview 5).

The following teacher opinions regarding including students with learning disabilities are especially interesting:

•«Somehow, the ones that truly grasp or understand the project pull the others along; the ones doing the work bring the others up to the group little by little, and in the end we have a homogenous bunch» (interview 18).

•«The use of ICT with collaborative projects has an added value, which is that it promotes the integration of students with learning disabilities» (interview 6).

Table 2. Disadvantages of Collaborative Learning

Categories	Frequencies
Curriculum Development	12
Pressure from the Educational System and the Official Curricula	5
Aspects Related to School Organization	5
Learning Outcomes	4
Expectations of Families in Favour of Traditional Methods	1
Teacher Practices	1

3.2. Disadvantages of Collaborative Learning and the Use of ICT

Even though the various schools all consider collaborating work as fundamental, they also describe a few disadvantages, in many cases related to curriculum development (table 2).

Some aspects related to curriculum development, such as time wasted in the classroom, loss of control over students, differences in level of involvement among students in the group (the more self-reliant direct the work, the least reliant just go along), inherent limitations because of students being so young (too young to be left on their own), student evaluation more difficult and incoherent (students evaluated individually even though they are working collaboratively), and difficulty in applying collaborative learning to all subjects are the major obstacles that teachers perceive when using collaborative learning-teaching strategies. Below are a few examples along these lines:

•«Collaborative activities with ICT are usually used with subjects that carry less academic weight» (interview 10).

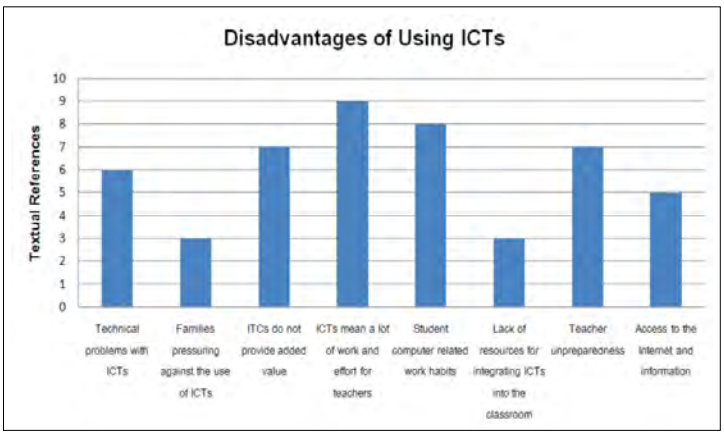
•«They are very needy; sometimes I have to… not deny them help, but certainly delay giving it because otherwise they have a tendency to take the easy road, which is the way they think solves all their problems» (interview 8).

•«There is a contradiction in that what is proposed is that the work will be done collaboratively, as a group, but then the exams will be taken individually» (interview 16)

Teachers also feel that collaborative learning with ICT means a lot of work and effort, that is to say, that it requires very good planning and, above all, time to prepare the sessions (see graph 2). Some teachers do not see the added value of ICT for collaborative learning. They also feel that students already have certain work habits regarding computers that make collaboration difficult, such as computer game expectations, individualized work, and difficulties with reading (they copy and paste text without reading it first). They express themselves in the following manner with respect to planning efforts:

•«It requires much more preparation beforehand. You have to have everything very well prepared in advance; before you start, you have to figure out more or less what will be confusing for the children so you can guide them as they work» (interview 12).

•«The drawback with collaborative work with ICT is the time needed to prepare for it. It's different because you have to gather together a lot of information; you have to choose the information that suits what you're trying to accomplish; well, it's more work but the results are perhaps better» (interview 18).



Graph 2. Disadvantages of Using ICT for Collaborative Learning.

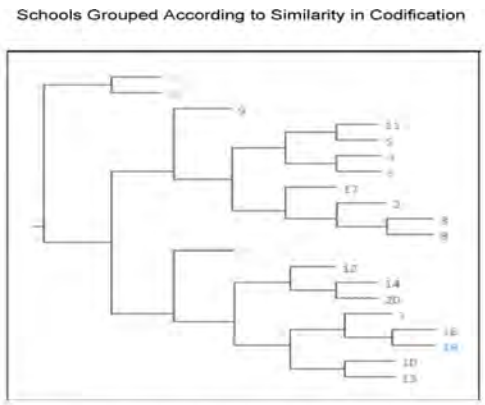
3.3. Comparative Analysis of Teachers from Different Schools

Cluster analysis was used as a multivariable technique to classify our set of interviews into homogeneous groups. This markedly exploratory type of analysis was used to measure similarity (or difference) in content in function of the codification that we set up. Similarity was calculated by comparing all the interviews in pairs using the Jaccard index, a coefficient that makes comparisons based on presence-absence data.

Graphs 3 and 4 show the similarity codifications between schools. A high degree of similarity is observed in some cases such as 5 and 11, or 14 and 20, which would indicate that the teachers in these schools, in general, share the same opinions. In any case, no interview was observed to be significantly different from the rest, a fact that allows us to confirm the cohesion of opinions expressed by the different sets of teachers.

As we can see in graphs 3 and 4, the interviews or sets of teachers that are most distant one from the other in their conceptions about the subject at hand, according to the codification we carried out, are interviews 4 and 15 which correspond to two urban schools located in the province of Burgos. At one of the schools the teachers pointed out more advantages than disadvantages when speaking

Graph 3. Graphic representation of Similarity Between Schools.



Graph 4. Tree Graph of Similarity Between Schools.

about collaborative learning and the use of ICT. We note, as an example: «Collaborative work produces improvements at both the individual and collective level, students are more motivated, ICT favour inclusion, and teachers learn a lot when they collaborate among themselves» (interview 4). At the same time, at the other school, teachers pointed out more disadvantages, stating: «ICT do not provide any added value for collaborative work; maybe when society becomes better prepared, because it is too individualistic. There is extra effort in creating materials and an increase in time spent on preparing students to handle the technology» (interviews 15). We feel that such different opinions between these schools may be linked, among other things, to the existence or not of an ICT coordinator. At the first of the two schools, there is a person who carries out these functions and who develops training plans for the school, while also conferring with staff virtually. On the other hand, at the second school, the headmaster must also play the role of ICT coordinator, which means that this person has less time to devote to ICT.

3.4. Analysis of the Context of the Concept «Collaborative»

We chose the key word «collaborative» to analyse in its context, creating the word and sentence tree shown in figure 1. This tree shows the sentences from the different interviews in which the selected term appears and the number in parenthesis tells which interview they came from.

There are some especially interesting ideas on the tree for analysing the subject at hand and that summarize in one way or the other the ideas expressed by this set of teachers as far as the potential of ICT and collaborative learning, but also its weak points or the demands it makes on teachers: «ICT provide many benefits for collaborative learning»; «Collaborative learning is easier with technology»; «Students like collaborative learning»; «ICT make it easier to carry out collaborative projects»; «It kindles student interest»; «It increases student motivation»; «It is a very good way to meet the needs of diverse students»; «There are teachers who do not get sufficiently involved»; «Collaborative learning is difficult to carry out»; «Collaborative learning has the drawback of having to be thoroughly prepared beforehand»; «Collaborative work but then individual exams»; «There is a lack of tools for evaluation»; «It would take time away from other topics to be covered in the class».

4. Discussion and conclusions

The data we analysed clearly shows that the conceptions held by teachers who work in schools that are well-equipped with ICT regarding the potential for collaborative learning and the use of ICT for its implementation are complex and reflect both the positive aspects and the limitations of this type of educational practices.

The principal advantages of collaborative learning are those related to developing transversal skills that stimulate social skills, problem solving, self-reliance, responsibility, and the capacity for reflection and initiative, all of which are considered of great relevance by teachers for achieving a well-rounded education for students. As for ICT, they are valued for the way they facilitate student work, giving them more independence, motivating them, grabbing their attention, and adapting to varying student levels, which especially supports students with learning disabilities, while

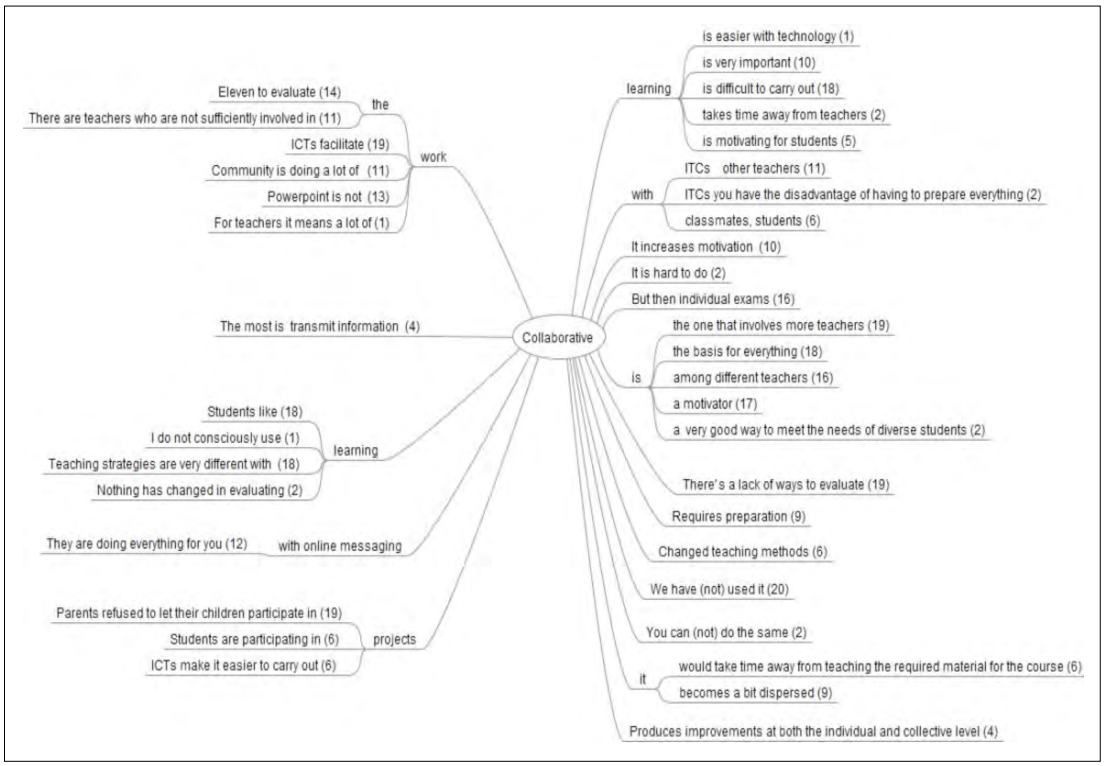


Figure 1.Word and Sentence Tree for the Key Word «Collaborative».

increasing learning for all students.

These results coincide with those of other researchers (Alfageme, 2003; Cabero, 1994; García-Valcárcel & Tejedor, 2010; Lee & Tsai, 2013), who note that collaborative learning is a strategy for improving the acquisition and retention of knowledge, one that enhances specific strategies that students may use when acquiring knowledge (problem solving, expressing ideas and thoughts, and expanding vocabulary). These authors also point to the high motivating power of ICT for students, the development of responsibility towards others and for their own learning, and the possibilities for integrating students with learning disabilities.

Regarding the principal obstacles when implementing collaborative learning methods in the classroom, several questions have been raised that will impact curriculum development: These include more time spent on preparation, a certain loss of control, the unequal participation of students in the process, or the difficulties found in evaluating the learning process and the results obtained for each student. These conclusions also fall in line with those expressed by other authors. Nogueiras, Membiela & Suárez (1993: 23) concluded that teachers noted the following disadvantages: «poor performance by some groups, problems with classroom organization, unequal participation by members of the groups, the work progressed more slowly, a decrease in the amount of material that can be covered…». For his part, Lobato (1998: 31) says that in this mode of work we may run into such difficulties as differences in academic levels and work pace, strikingly individualistic attitudes and learning patterns in students, a lack of teacher preparedness, difficulties establishing parameters and modes for evaluation, lack of support by groups of teachers, and the mind-set of families.

These examples lead us to suppose that the same problems that teachers pointed out years ago regarding the implementation of this type of teaching method are still plaguing us today, in spite of the many changes in infrastructure that schools and other educational centres have experienced in recent years. This is another indication of the difficult and slow methodological reconversion in schools, which, in spite of being well-equipped with technology, have not seen a change in conceptions or practices in consonance with the new perspectives for learning which demand more personal and independent learning environments, while at the same time being interactive, mobile, universal, etc. and all of this certainly requires new teaching strategies.

Both the document associated with the OEI´s (Organization of Ibero-American States) Educational Goals for 2021 and the report written by Puentes & others (2013) reflect upon the necessity of training teachers better. We must insist once again on the transformation that needs to take place in school practices, so that practices will promote the development of collaborative projects with ICT, and so that ICT will become the channel for communication and information that is essential for guaranteeing learning environments that are open, interactive, replete with incentives and sources of information, motivating for students, and focused on developing skills. In this sense, we must continue to maximize teacher training and the communities of practice that have been and are still working in this area (Pino & Soto, 2010; Watson, 1997; Windchiti & Sahl, 2002).

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Meaning Processes mediated through a Protagonists' Collaborative Learning Platform

Procesos de significación mediados por una plataforma de aprendizaje colaborativo desde los protagonistas

ABSTRACT
The use of Information and Communication Technologies (ICT) in the classroom requires the creation of contextualized proposals which foster in students collaboration and the use of resources to hand. This paper shows the results obtained in the analysis of the signification process which teachers and students have built through their participation in a project implementing collaborative didactic designs using ICT, in particular social networking. Focus groups were formed with 102 students and interviews with 21 teachers took place in two stages (pre- and post-), and they participated in 21 learning experiences developed at 12 schools in southern Chile. Main results reveal a positive assessment of the experience related to the motivational effects of the use of ICT and social networking among students; a considerable change in the didactic interaction inside the classroom; an interest in the possibility of collaborating with students from different contexts and from different regions; a lack of knowledge of the Web 2.0 resources available on the part of teachers, and some negative considerations on the inappropriate use of the Internet. In conclusion, the meaning-creation process of the protagonists enabled this study to gain relevant qualitative information related to didactic, technological and logistic factors in the development of learning experiences through a virtual learning platform.

RESUMEN
El uso de tecnologías de la comunicación (TIC) en el aula escolar requiere la creación de propuestas contextualizadas que fomenten la colaboración y el uso de recursos cercanos a los estudiantes. El presente artículo muestra los resultados asociados a los procesos de significación, que profesores y estudiantes construyeron desde su participación en un proyecto en el que se implementaron diseños didácticos colaborativos con uso de TIC, en particular de redes sociales. Se efectuaron grupos focales con 102 estudiantes y entrevistas en profundidad a 21 profesores, en dos momentos (pre y post), quienes participaron de 21 experiencias didácticas ejecutadas en 12 colegios en el sur austral de Chile. Los principales resultados revelan que existe una alta valoración de la experiencia vinculada principalmente a los efectos motivadores que provocan las tecnologías y redes sociales en los estudiantes, el cambio en la interacción didáctica al interior de las aulas, el interés ante la posibilidad de colaborar con estudiantes de otros contextos escolares geográficamente distantes, el desconocimiento, por parte de profesores, de los recursos de la Web 2.0 y aprensiones ante el uso indebido de los recursos que provee Internet. En conclusión, la investigación permitió levantar desde los procesos de significación de sus protagonistas, información cualitativa relevante en torno a las implicancias didácticas, tecnológicas y logísticas de la ejecución de experiencias de aprendizaje colaborativo mediadas por una plataforma virtual de aprendizaje.

KEYWORDS / DESCRIPTORES
Web 2.0, social networking, ICT, collaborative learning, digital competences, learning, virtual platform.
Web 2.0, redes sociales, TIC, aprendizaje colaborativo, competencias digitales, aprendizaje, plataforma virtual.

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1. Introduction

In many countries educational innovation processes have mainly focused on the successful introduction of ICT in schools. Although technological needs are partially covered in school learning, there are still problems with the adoption of digital competences on the part of teachers and students (Gutierrez & Tyner, 2012). Nevertheless in Chile, «several studies showed a very low degree of transformation in school and classroom practices, and the same actors of the system perceived the poor impact of the policies implemented» (Enlaces, 2010: 81). This shows how complex it is to introduce ICT in a school system where anachronistic structures continue to resist innovative processes.

Diverse authors (Arancibia & al., 2010; Sigalés & al., 2009) coincide that the process of adaptation and adoption of ICT in the school context has been difficult due to their multidimensional characteristics. On the other hand, to implement an educational proposal for ICT use requires taking into consideration the Social Web, because its character has transformed all the didactic strategies planned before its emergence, forcing a rethink of pedagogical practices. Contreras et al. (2009) show that this change essentially transforms interaction as the students transit from a Web dedicated to reading to one that is a mixture of reading and writing, creation and publication; from readers they become authors, thus transforming the mediations between users and content.

Even though several papers exist on the use of tools on the Social Web for learning, little has been said about the experiences of applying them to learning platforms in schools oriented to the assessment of the observations of students and their experiences of learning mediated by ICT (Tay & al., 2013).

In that sense this paper emphasizes the voice of teachers and students, the actors that are mainly ignored by public policy makers but who will be expected to meet their demands.

2. Signification processes in the use of ICT in students and teachers

In general the relationship between ICT and teachers is analyzed as an isolated action, as if this relationship with these technologies was merely as technicians disconnected from global society and the social and cultural environment. Yet this link is complex; it includes actors, rules and emotions that constantly influence this process. In this sense it is very difficult to clarify the influences of actors and the school community when identifying the factors involved in ICT use (Valverde & Fernández, 2013). Following these ideas, the issues that influence the relationship between ICT and teachers have to do with cultural factors, training, identity, interest and management. Mominó and others (2008) organized those factors into two categories: the first connected to situations of access, connections, software, time and technical and administrative support, tasks that do not depend directly on the school staff but which influence the willingness and interest they show; the second category refers to the influence of the beliefs of the school staff regarding instruction and learning with ICT. In this sense, modifying practices is a difficult task because of the difficulty entailed in the conceptual change and the deeply held theories that lie behind the didactic action (Schnotz & al., 2006).

According to the previous classification by adding other perspectives we can interpret that the behavior underpinning the relationship between teachers and ICT is extremely varied and influenced by different factors in school culture. At the same time authors like Cebrián (2005) demand an ideal profile of the teacher who must take ICT into consideration in the exercise of his profession.

The existing relation between students and ICT also corresponds to a complex scenario because many of the characteristics originate outside the school. At present, the process of ICT adoption in adolescents is automatic (Erstad & al., 2013). Children and youngsters are surrounded by information that comes from the television and Internet.

Even though the school represents a very important place for connection to the Internet and use of resources for both wealthy and more vulnerable children, the research carried out by PNUD (2006) shows a social divide in terms of usage that amounts to a step backwards in students' acquisition of knowledge in school, transforming the most vulnerable users who were previously active into potential functional digital illiterates (Arancibia, 2004).

Colás and collaborators (2013) state that there are cultural and social conditions that influence interest and characteristics in the use of the Web, which opens up an interesting space when identifying how to include educational activities according to expected outcomes and the way to present them, that is to say, according to the role of the school as an important place for diminishing social divides.

3. Collaborative learning mediated by ICT

Recent studies on collaborative learning mediated by ICT are centered more on interactions than on

effects. The idea of collaborative learning is «to develop ways to increase the probability that those types of interaction might occur between students with greater potential from the point of view of the process of the joint construction of significance» (Onrubia & al., 2008: 234). Therefore, it is vital to know what makes teacher and students decide on the practical uses of ICT in the classroom, and to ascertain their ex-post assessment of that usage.

In the last five years, the influence of Web 2.0 has given us the clue to understanding collaboration in the learning processes mediated by ICT because it enables a two-way relationship by means of the utilization of collective intelligence in which the user provides the content. The Social Web offers new opportunities to participate in collaborative learning activities (Crook & al., 2008), which reinforces a demand for a new pedagogy (Grenfell, 2013) that not only facilitates the creation of individual content but also encourages sharing and co-building, which in turn will increase the possibility of peer evaluation based on the evidence of the joint construction of learning. We cite what Crook (2012:64) said in relation to learning patterns that facilitate the use of the Social Web in the classroom: 1) Investigate (research): it creates new structures for data organization, it searches for new sources and tools to enable access to information that is varied and plural; 2) Literate: digital media offer new ways to represent and offer tools that encourage the development of new ways of expression; 3) Collaborate: the concept of joint activity expands and remains flexible as it is based on the coordination that exists within the structures of participation in the network, it also offers new tools that facilitate intimate and intense collaborative activities. 4) Publish: The Web 2.0 platform encourages users to create material for use on the social networks.

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4. The Kelluwen Experience

Kelluwen proposes implementing Collaborative Didactic Design (CDD) with the use of Web 2.0 resources. This didactic-methodological proposal encourages classroom work with tools from the Social Web and a virtual platform (www.kelluwen.cl/app). It this virtual space, teachers can consult and use 16 CDDs that work with regular curriculum units. Although the topics presented are in accordance with those proposed by the Ministry of Education, the didactic aim goes further by incorporating a creative and dialog-like use of Internet resources. The CDD selects an app from the Social Web and converts this tool into an active part of the school scenario.

Kelluwen proposes a B-learning modality (Bartolomé, 2004) because it is an initiative that seeks to revitalise the classroom by means of the pedagogical conditions and infrastructures that this presents. Thus, the proposal combines classes in the computer lab, in a regular classroom and, potentially, at home, so that the technology becomes a support to learning that takes place in different locations.

Collaboration and a deeper horizontal relationship between professor-student is a central purpose of this model. The collaboration is played out in two spaces: the development of group activities where 3 to 5 students participate, the twin classroom relationship in which work using the same CDD is carried out in different geographical points. The twin classroom set-up enables students to evaluate and express their opinions of other students' work based on the evidence of learning. This work is guided by a rubric provided by the platform, coordinated by automatic devices that allow them to follow the progress of the groups and the grading of their peers at the same stage of progress in the CDD.

All this is evidence that the learning process is an act of dialog-like collaboration (Aubert & al., 2011) that happens inside and outside the classroom. When a student carries out a task in the classroom he interacts

directly with his teacher and peers, and the product of this task will also be evidence of learning shared and evaluated among peers.

The CDD used makes for a located didactic experience that provides the modelling for the collaborative activities among peers and with twin classrooms, where the student must self-regulate his learning process in relation to the tasks he carries out with others (Álvarez, 2009), this being an interaction that happens in the virtual thread of the Kelluwen platform.

In this way the proposal aims to stimulate the development of disciplined content, starting from the creation of evidence of learning through the procedures of search, selection, construction and publication (Crook, 2012). Learning, as seen this way, is an exercise associated to the capacity of the students to collaborate in the elaboration of the product that can be seen on Web 2.0. For example, a video produced by students in Valdivia City, the capital of the region of rivers in Chile, can be seen and commented on by students in a rural location like Hualaihué, 300 kilometers away.

To meet the central objectives of Kelluwen, this research presents and analyzes some interesting qualitative information oriented to observation that charts the feelings and contributions of students and teachers from different units associated with the project.

A series of interviews and focus groups implemented in 2010-2011 were analyzed in relation to the didactic, technological and logistical implications of the process of carrying out the CDD.

5. Method

The study should be understood as an observation of the second order, based on the observers' observations and their remarks. Following Arnold (2004), the nucleus of interest was to observe what those observed state and describe, «what they observe», also taking into account how they classify such remarks and differentiations, «how they observe». In this sense, the macro-orientations centered on the beginning of synergy, based on the identification of related sets of distinctions and not only on the analytical and causal reduction of components and outlying processes. That is to say, remarks that support a few in relation to others in the context of the qualitative implications associated with the implementation of DDC supported by the Web 2.0 in school classrooms.

Table 1. Relation schools, teachers and participants

	Participants in the communicative events		
Period of project execution (pre- and post-) instances	Schools	Teachers interviewed	Students' focus groups
1st Interaction	1	2	6
2nd Interaction	4	5	24
3rd Interaction	7	14	72
Total	12	21	102

5.1. Resources for the generation of information

The strategies for the generation of information contemplated in-depth interviews with teachers and focus groups with students from the schools in the project (Table 1).

The development of in-depth interviews and focus groups was defined within the framework of communicative control but not by managing events, rather by stimulating the processes of observation on each communicative level of the study. The interview processes were, therefore, flexible and dynamic, involving a conversation opened by talking about risks (Taylor & Bogdan, 1987). The focus groups, considering students' enthusiasm for multi-criteria construction and for their potential for participation and self-knowledge, made it possible to turn these discussion groups into dynamic devices for self-reflection (Thorn, 2007).

5.2. Criteria for the selection of the key informants

Considering the predominantly qualitative nature of the study, a structural selection of informants was carried out, to include teachers and students from 7th to 10th grade at educational establishments involved in the Kelluwen project in 2010-2011.

5.3. Communicative levels of the phase

The communicative levels were defined as the pertinent spaces of communication for the study, in this case, all those topics that generated meaning for the key informant in the context of his participation in the project. This implies that the processes of distinction that were to the base for the remarks of the informants were those that were fixed by them; they thought about the aspects of 2.0 that would generate meaning for students and teachers in the communicative context opened up by the qualitative implications associated with the implementation of didactic strategies supported by the Web in every context.

5.4. Analysis and interpretation of the information

The interviews and focus groups were transcribed in their entirety, respecting the informed consent of the reporters and protecting the identity and remarks made

by these subjects. First, a codification process was initiated that complemented strategies of an inductive and deductive nature. To do so, a counterfoil of codes was generated deductively, which was projected from the principal theoretical bases of the project (with emphasis on the dimensions associated with the technological mediations and their implications in the dynamics of learning), and inductively, from the preliminary analysis of qualitative regularities and the appearance of emergent categories from the diverse expressions and representative remarks at each stage of the project and from the relative structural position of the informants (students and teachers).

From the convergence of these instances, we developed a coding process that enabled the final two levels of analysis. First we analyzed and compared the frequency distribution with the aim of characterizing diachronically the observational field which moved the distinctions generated by key informants as a way of contrasting pre- and post- project.

Secondly we analyzed the effects of association of the codes from a systemic perspective. The criteria used as an indicator for the association was the co-occurrence of codes within the same semantic field, the latter defined as each unit of intervention from an informant in the context of a specific question. The Jaccard coefficient (0.00001 tolerance) was the specific indicator or occurrence of adjacent overlapping segments, which was the basis for the construction of dendrograms and global interaction network codes.

The complementary methodological and interaction frequency analysis of observed codes assumes communicative events not only of relevant frequency diversity and coding, but also the effects of the interaction of these elements on the meaning of complex networks of observation.

6. Results

Figure 1 presents a diachronic analysis frequency coding of the interviews comparing the pre- and post-project instances and then the co-occurrence.

6.1. Diachronic analysis of frequency coding: teachers

According to Figure 1, based on the coding of interviews prior to the project, in relation to the expectations of teachers regarding their participation in the project we observed a high frequency of codes associated with innovation processes in teaching and the updating of new learning tools. Another predominant factor in teacher observations of design-based digital platforms relates to the expectations of participants regarding the influence of this methodology in stimulating students, in which they specifically highlighted the positive effects on motivation attributed to work with ICT.

We can point to the expectations related to skills that students display in the management of ICT tools, in which there is a perceived expectation of the advanced knowledge of these tools in the youth population in contrast to the skills of the adult population. Another category reiterated by teachers in this first interview was the grouped observations related to the induction and training needs of teachers for the implementation of the project. In this dimension, some teachers mentioned the importance of carrying out higher-level pre-practice activities with students.

In the post-implementation phase there were similarities to pre-implementation but also some differences; new categories of analysis emerge that reflect gradual differences compared to the initial observations. First, teachers reinforce expectations about students' motivation for using ICT. This is complemented by observations related to «active student participation» which translates into behavior observed by teachers that link the motivation of their students to the «adjustments» or to CDD flexibility.

Also, with the expectation of the ease with which students work with ICT, there emerge differences that involve a broad and diverse range of these abilities, suggesting that these would not be consistent across the study population. At the same time, there are new differences that shape the analysis categories related to the needs and difficulties faced by teachers in implementing the project and the need for continued support to solve those problems, mainly «technical», in managing the platforms or software.

Teachers make observations related to the proposed Kelluwen communicational space, which include occasional difficulties with the informal language used by students. Together with this, teachers perceived that the use of social networks, given their potentially distracting characteristics, sometimes make classroom work difficult.

6.2. Diachronic analysis of frequency coding: Students

Figure 2 identifies those categories that occurred most frequently in the case of students. In the instance of pre-project monitoring it was possible to encode marginal discursive elements with little regularity, signaling a weak substrate of significance about the project objectives and didactic nature. However, there emerges a high valuation of the «use of ICT as a moti-

vational factor» alluding to the students demonstrating a preference for this type of interactive tools. This identifies the expectation of ease of use for learning mediated by ICT tools.

In the post-instance phase significant differences emerge after the previous instance that have various qualitative implications post-implementation. The use of ICT as a motivational factor and ease of use of ICT regularly appear in the second assessment with students. This is complemented with observations com-

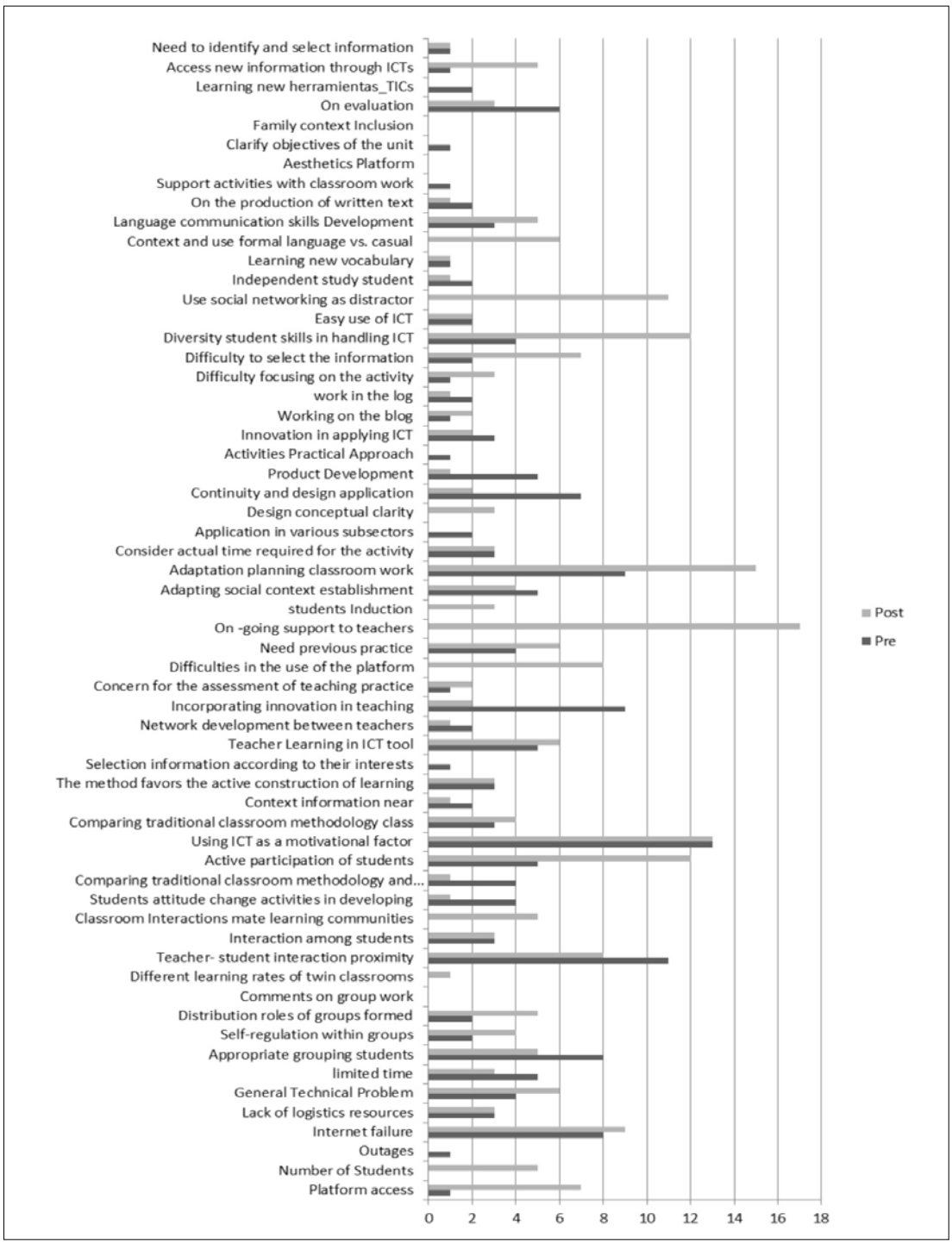

Figure 1. Diachronic distribution of frequency coding in teachers.

paring this collaborative methodology to the expository dynamic of a traditional classroom.

Another prominent category is related to the sense of student self-employment that enabled this methodology, which is an aspect assessed according to the diversity of skills that students have in the use of these tools and the ability to regulate their own learning. In addition, students also noted as a strength the access to information by using interactive tools.

One important issue is related to the effects on the interaction between students and the relationship with their teacher; this students emphasize that this methodology produces a more favorable climate in the classroom. In terms of the students working in groups, it is possible to observe meanings related to the formation of groups and organizational forms within the groups, and there were cases where the work experienced was deemed to be unbalanced as a result of the functions distributed within the group.

Finally, comments emerge on the use of social networks in project activities, which some claim impeded the progress of the group given their distracting nature.

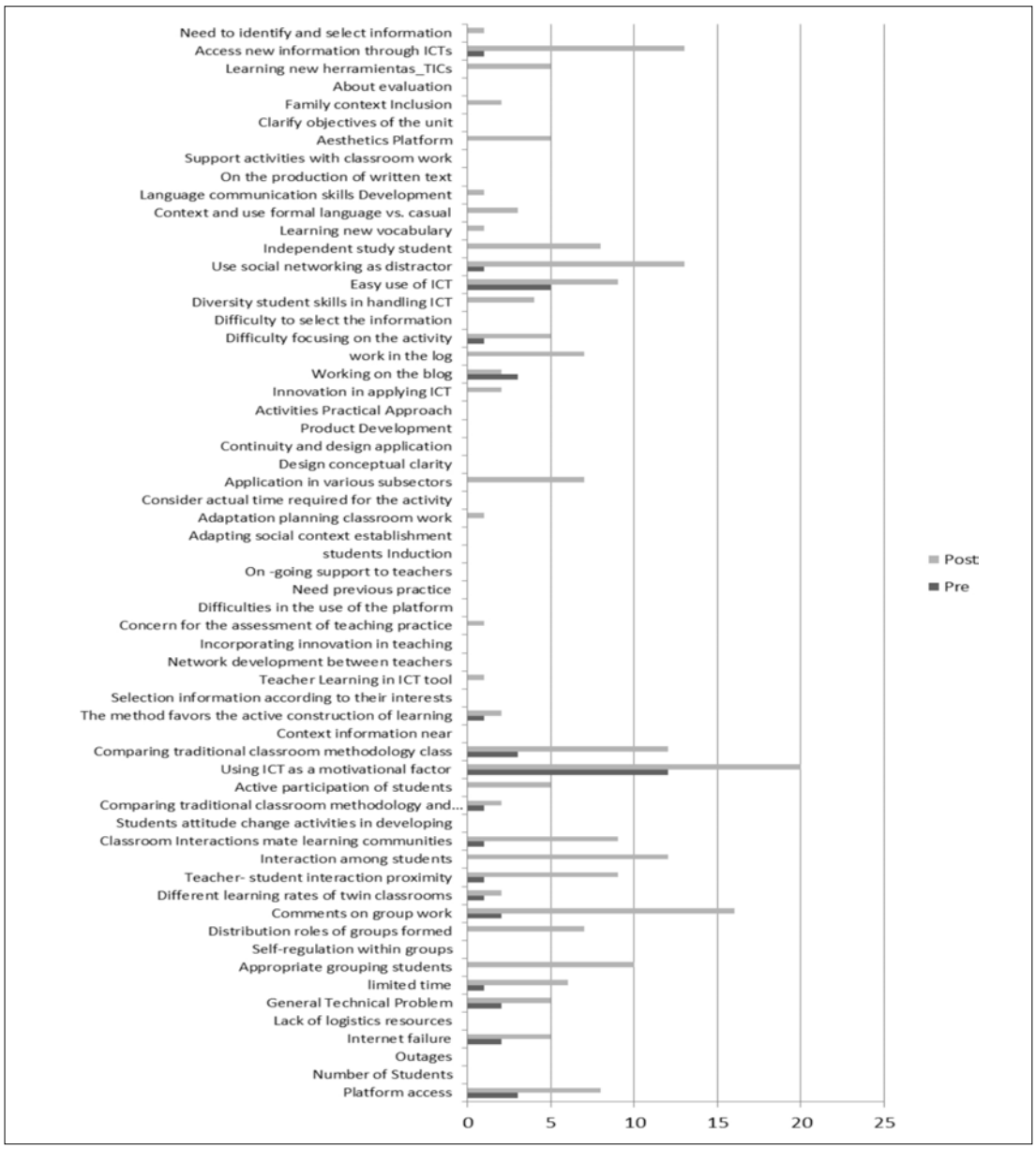

Figure 2. Diachronic distribution of frequency coding in students.

6.3. Interaction analysis (co-occurrence) coding

Expanding and complementing the coding frequency analysis, we ran an analysis of patterns of association between codes using as an indicator the coding of co-occurrence events. When analyzing the categories presented, it is possible to observe recurrent interactions between the various codes, while maintaining regularities throughout the investigation or by generating mainstreaming in the groups of teachers and students.

From the teaching perspective (figure 3), it is important to note the close interaction of the co-occurrence of the codes «Access to new information through ICT» and «Need to delimit and select information». This involves a significant tension between the dimensions of access and organization of information in pedagogical terms. At the same time, teachers and students also highlight the fact that the platform allows greater access to information, but, according to the teachers, this is also in correlation to the difficulty entailed in analyzing and organizing information appropriately.

There also emerges a significant relationship between the codes associated with the «active construction of learning» and «student self-employment». In this sense, we could identify a trend that is a focus of interaction based on learning for which the approaches of teachers are consistent with an overview of the methodology that favors the collaborative building of knowledge.

At the same time, both teachers and students (figure 4) make observations on the ease of use of ICT for young people which were significantly associated with the notion of ICT use as a positive factor in the motivational dimension. Students in particular make comparisons between the project methodology of the expository practices, emphasizing their participatory and autonomous characteristics.

Another analysis domain was associated to the idea of «Student ease of use of ICT» in relation to «twin classroom interaction and learning community». This suggests the importance of the skills of young people in the management of technology as an enabler of learning interaction phenomena and of coping with increasing degrees of complexity and interest in ICT-mediated peer contact.

Also, ICT management skills are far from homogeneous in the study population, and teachers express the need to consider the timing required to complete the activities, referring to the different learning rates of participating students. Finally, there is an association shared by teachers and students in their observations on group work by students and the use of social networks as a development distracter for focusing activity sessions.

7. Discussion and conclusions

Both points of the analysis revealed high expectations of the positive effects of the use of digital plat-

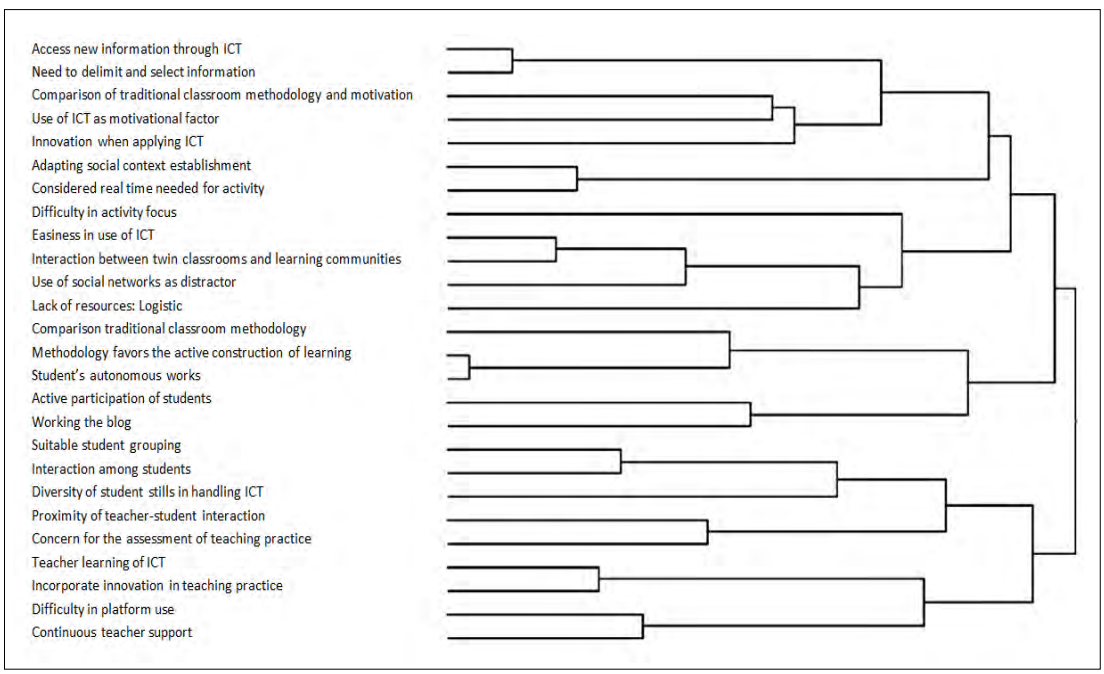

Figure 3. Dendrogram based on co-occurrence: teachers.

forms in motivating students: «I feel a sense of renewal in my profession, I have always been permanently in training and I think I have not done so for the past two years, (...) I am eager to continue in training, knowing new ways of working with this virtual learning, which I find complicated right now».

Teachers observe this motivation through the active participation of students. This is consistent with the observations of students through comparisons between these methods and the traditional expository methodology. They highlight active participation in the project, revealing glimpses of a new emerging learning-oriented pedagogy (Grenfell, 2013). Likewise, they identify some strengths of the DDC that promote an active and collaborative construction of knowledge (Onrubia & al., 2008). In this sense, the ability to select information according to their own interests plays an important role: «It's just so good for students, it is attractive; it's boring for them to be in a class where the teacher is explaining a Power Point presentation or something like that. So this makes it a much more participatory experience, which raises questions and stimulates them to get together as a group to respond».

So students associate this feature of the participatory methodology with a higher degree of self-regulation and autonomy in their work. In this sense, they value the autonomous work that Kelluwen enables, as they may advance at their own pace and regulate their own learning (Álvarez, 2009). However they recognize, together with teachers, that sometimes the simultaneous use of social networking disrupts the sequence CDD development.

Another expectation shared by teachers and students relates to the skills that students have today to handle ICT tools in the second assessment; both teachers and students observe that these skills are different and that these characteristics are not homogeneous in the study population, which affects the possibilities for interaction in the joint-construction processes of learning, so the tasks required in school are not comparable to the intuitive learning young people acquired on the social web (Erstad & al., 2013). This emphasizes, for example, aspects related to social status in relation to the resolution of technology jobs (Colàs & al., 2013), which potentially contributes to the configuring of functional informational illiterates (Arancibia, 2004).

From a collaborative perspective, teachers and students agree that CDD favors varying degrees of interaction among them. Students in particular observe positive effects in the interaction with their peers. In this dimension, for example, teachers and some students found that group formation for the development of group work was adequate, referring to the process of diagnosis made in the first session. Students note the positive effects of the interaction between students participating in the project. However, there were some negative experiences in which they observed that the formation of groups did not help in the internal

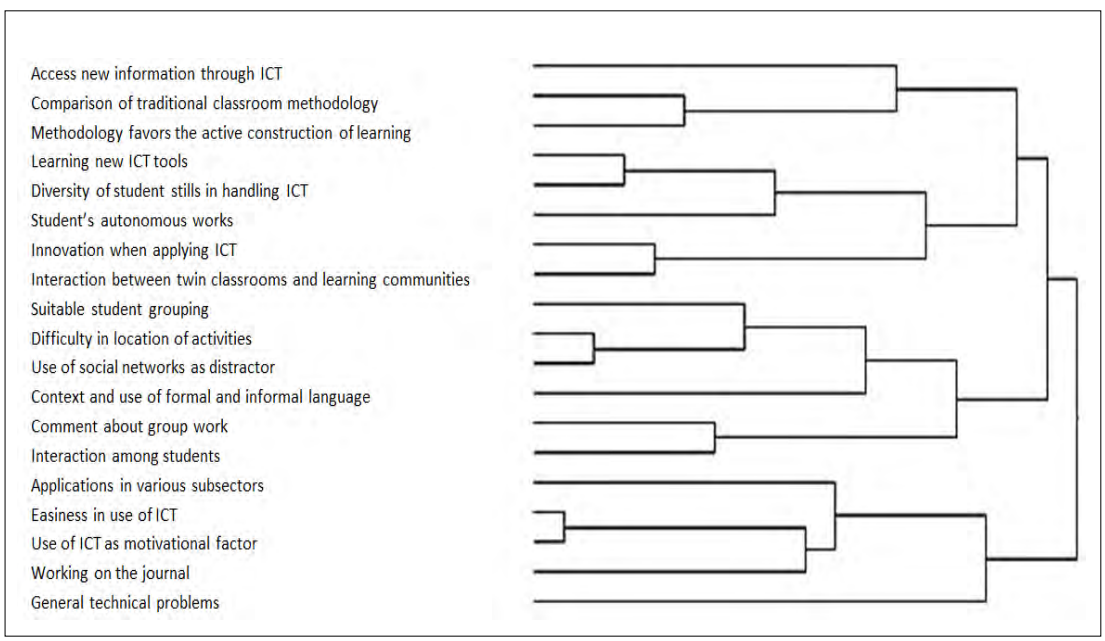

Figure 4. Dendrogram based on co-occurrence: students.

distribution of tasks. However, collaboration is not a substantive element and it was not highlighted explicitly, but rather through the transformation of modes there emerged closer interaction between students and teachers with the formation of working groups.

Informants also noted that the platform offers students greater access to information, but as teachers noted, it entailed difficulties in the ability to select, organize and analyze data pertinently: «The selection of information was a little slow, perhaps because they are unaccustomed to this kind of work », «Maybe what they find most difficult is the ability to analyze information, to summarize it in their own words; at this point, they have not yet developed that skill».

It also emerges from teachers' observations is the epistemological tension between access to information and knowledge organization and ICT-mediated learning spaces, as to the «need to limit and select information beforehand» thus observing traditional teaching beliefs that still underlie innovation (Schnotz & al., 2006).

According to the purpose of the research -oriented to survey and analyze qualitative information relating to the schemes of observation, meanings and contributions of students and teachers- we can conclude that the significance processes of the actors tended to gravitate to the teaching implications, technology and logistics for implementing collaborative learning experiences mediated by ICT. In convergence with the theoretical framework of the research, beyond the face value of the results presented, it was possible to characterize the observational matrices that shape school culture in terms of innovation which meant the use of social web content and methodology (Crook & al., 2008), as well as the emerging collaborative dynamics and critical position in relation to the technological imperative representing contemporary digital hypermediacy (Contreras & al., 2009).

As a limitation of the research it is necessary to clarify that Kelluwen is an experience that is part of an overall approach to ICT-mediated collaborative learning. However, it has specific theoretical, operational and contextual specifications that preclude a generalization or replication of the results beyond the record qualitative research paradigm in which it was enrolled. In terms of projections, it is necessary to continue to nurture a research program aimed at clearly recognizing the correlation between macro social processes and observational dynamics in school, while noting the importance of instances of interaction and joint meaning (Onrubia & al., 2008) on the technological mediations of school learning.

Notes

[1] Kelluwen: this word comes from Mapudungún (the Mapuche language of the indigenous peoples of Chile) and means «work among all». Kelluwen started at the beginning of 2010, and was funded by FONDEF-CONICYT with the sponsorship of Research Management at the Universidad Austral de Chile (www.uach.cl), which involved a gradual and collaborative process for the formation of an educational community to work with schools in southern Chile (www.kelluwen.cl).

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Exploring Student and Teacher Perception of E-textbooks in a Primary School

Explorando la percepción de estudiantes y profesor sobre el libro de texto electrónico en Educación Primaria

ABSTRACT
The potential of technology in digital society offers multiple possibilities for learning. E-books constitute one of the technologies to which great attention has to be paid. This article presents a case study on the perceptions held by a teacher and his students on the use of e-textbooks in a Primary education classroom. It examines students' meaning-making practices and the perceptions that teachers and students have towards their engagement in learning activities in this context. In the analysis of the data generated, the classroom is considered a multimodal learning space, where virtual, physical and cognitive environments overlap, allowing students to negotiate meaning across multiple contexts and reflect upon it. Results show that e-textbook users' perceptions greatly depend on the institutional culture in which they are embedded. While the adoption of e-textbooks does not necessarily mean a transition from traditional textbooks to e-textbooks, students and teachers may develop a more demanding range of criteria which must be met by e-textbook providers. By doing this, e-books become a real alternative to free internet resources. Although e-textbooks favor a communicatively active style of learning, there are still real challenges to be overcome by publishers so that e-textbooks do not become the next forgotten fad.

RESUMEN
El potencial que posee la tecnología en el marco de una sociedad digitalizada supone también múltiples oportunidades para el aprendizaje. Los libros electrónicos constituyen una de esas tecnologías a las que hay que prestar especial atención. En este artículo se presenta un estudio de caso sobre la percepción de un profesor y sus estudiantes sobre el uso de un libro de texto electrónico en un aula de Educación Primaria. Se examinan prácticas de construcción de significado y actitudes mientras se realizan actividades con un libro de texto electrónico. El aula se considera como un espacio de aprendizaje multimodal en el que se solapan entornos como el virtual, el físico y el cognitivo. Los estudiantes negocian significados en múltiples contextos, reflexionando durante el proceso. Los resultados demuestran que la percepción de los usuarios de los libros de texto electrónicos depende de la cultura institucional en la que están inmersos. Cuando su adopción no significa una transición de los libros de texto tradicionales a los libros de texto electrónicos, existe una gama más exigente de criterios a fin de que puedan convertirse en una alternativa real a los recursos disponibles en Internet. Pese a que los libros de texto electrónicos favorecen un estilo activo y comunicativo de aprendizaje, aún existen desafíos reales que las editoriales deben superar para que el libro de texto electrónico no se convierta en una moda pasajera.

KEYWORDS / DESCRIPTORES
E-book, textbook, multiple literacy, semiotic, Interaction, teaching resources, ICT, collaborative learning.
Libro electrónico, libro de texto, alfabetización múltiple, semiótica, interacción, recursos didácticos, TIC, aprendizaje colaborativo.

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1. Introduction

Today's pedagogical practices are largely permeated by the tools and semiotic resources of the digital age, a period which has lately undergone changes metaphorically described as coming from the solid culture of the 19th and 20th centuries to the liquid information culture of the 21st century (Area & Pessoa, 2012). E-books and e-textbooks may be described as examples of such tools, which offer new opportunities as well as challenges for teachers and learners in a continuously evolving educational landscape. In general, good information on book sales is hard to come by since industry interests influence most figures. However, in order to capture the size and scope of the subject, the US market can be taken as an example, where the consistent growth of e-books demonstrates that publishers have successfully evolved the technology environment for their content. According to the 2013 report presented by BookStats, e-books are now fully embedded in the format infrastructure of trade book publishing (BookStats, 2013). In fact, e-books sales have grown 45% since 2011, comprising 20% of the current trade market and playing an integral role in 2012 trade revenue.

This present research paper examines the perceptions that one teacher and his students have towards e-textbooks in an elementary school. Most research conducted on e-textbooks to date has been on undergraduates (Sun, Flores & Tanguma, 2012; Quan-Haase & Martin, 2011; Rose, 2011; Nicholas, Rowlands & Jamali, 2010), who can be expected to have far more sophisticated study techniques and work practices than students who are in elementary school. An increasing number of primary, middle and high schools are in the process of testing out the switch from printed textbooks to e-textbooks. The Educat 1x1 project, launched by the Education Department of Catalonia, Spain, in 2010, is one such initiative (Veguin, 2010). It aims at the progressive introduction of one computer per student, digital books, and other computerized curriculum materials in the classrooms. In a pool aimed at identifying the perception of teachers participating in the project, Padrós-Rodríguez (2011) found that the majority of them do not see the 1x1 project as necessarily related to the adoption of e-textbooks.

In this paper it is discussed how e-textbook adoption raises questions that greatly depend on institutional culture. Attention focuses on the meaning-making practices of a classroom while performing learning activities. Specifically, classroom interaction and participants' feedback and comments made on the experience are analyzed in depth. The objective is to gather data on teacher and students' perception on e-textbook use in the context of an elementary school. Some of the guiding study questions of this present research have been: Do kids have favorable, negative or mixed perceptions on e-textbook use? Do kids and their teacher hold a shared perception on the use of e-textbooks? How does school culture regarding selection of course materials for students influence e-textbook adoption? In writing this paper, we hope to contribute to the understanding of how school culture and classroom idiosyncrasies may pose further considerations regarding whether e-textbooks should be adopted in the classroom.

2. Theoretical basis

The observed classroom is approached as a multimodal learning space, where virtual, physical and cognitive environments overlap. In the first part of the theoretical principals, modality is explored as a useful framework to develop our approach. It leads us to considering e-textbooks as semiotic resources, as will be discussed in the second part of our theoretical basis. In the third part, the relevance of studying student and teacher perceptions on the use of e-textbooks is presented and examined. This way the complexity of pedagogic practices in relation to traditional and new literacy technologies is taken into consideration.

2.1. A multimodal lens on digital technology, literacy and learning

Multimodal literacy emphasizes the fact that schools today do not respond to the multiplicity of texts with which students interact in real life (Kress, 2003; Jewitt, 2006; 2008). Researchers such as Unsworth, Thomas and Bush (2004), Unsworth (2006), Jewitt and Gunther (2003) state that the school continues to focus on the genres of written communication, whereas reality offers multiple modes of communication such as the visual, auditory and gestural.

Significant literature accounts for the technologization of school literacies and pedagogy (Cope & Kalantis 2000; Lankshear & Knobel, 2003; Marsh, 2005; Leander, 2007). Emerging literacies change the educational landscape (Lankshear & Knobel, 2003; Sefton-Green & Sinker, 2000). Teachers can integrate students' knowledge of narrative characterization into the planning and creation of narratives, either in print (Millard, 2005; Newfield & al., 2003) or multimedia narratives (Burn & Parker, 2003; Marsh, 2006). Multimodal research reflects on the pedagogical use of semiotic resources. This constitutes the point of departure for our study as we understand the transition to e-

textbooks is intended to respond to the communicative and technological requirements of a digitalized society. In the following section, we briefly present the definition of the e-textbook used in the present study, taking it as a semiotic resource.

2.2. Pedagogical affordances of digital textbooks

New technologies offer a varied potential for learning. We might expect people's use of representational and communicative modes of new technologies to re-shape the social interaction experience of the classroom in complex ways. Although both publishers and libraries are unsure about the future and the impact of e-books, there is an increasing awareness that e-books demand further attention. As practitioners and researchers embark on a more extensive engagement with e-books, it has progressively become clear that there is major ongoing confusion on the definition of e-books (Lynch, 2001; Tedd, 2005; Edwards & Lonsdale, 2002). We will adhere to Vassiliou and Rowley (2008)'s e-book definition, which will allow us to move further into its pedagogical articulation. Vassiliou and Rowley (2008) define e-books as digital objects with textual and/or other content –semiotic resources, in a multimodal approach–, which arise as a result of integrating the familiar concept of a book with features that can be provided in an electronic environment. The authors claim e-books typically have in-use features such as search and cross reference functions, hypertext links, bookmarks, annotations, highlights, multimedia objects and interactive tools.

2.3. Teacher and students' perceptions on e-textbook use

Dillon (2001a, 2001b) mentioned that school administrators might be interested in e-textbooks because they are relatively cheap, easy to handle, and capable of obtaining usage statistics. Even researchers skeptical of the replacement of analogue to digital reading technologies in schools acknowledge that 'printed textbooks are heavy, quickly outdated, expensive to produce and purchase, and less exciting than the sexy digital content available via devices such as the iPad' (Thayer, 2011: 2). In fact, at least part of the interest on e-textbooks is justified in terms of the need to identify ways to decrease the cost of college textbooks and supplemental resources, while still supporting academic freedom of faculty members to select high quality course materials for students (Reeves & Sampson, 2013).

Most research conducted on e-textbooks to date was aimed at undergraduates (Brint & Hier, 2005; Sun, Flores & Tanguma, 2012; Quan-Haase & Martin, 2011; Ditmyer & al., 201; Rose, 2011; Nicholas, Rowlands & Jamali, 2010) who naturally have far more sophisticated study techniques and work practices than elementary school students. E-texts receive mixed reviews from undergraduate students (Doering, Pereira & Kuechler, 2012; Jung-Yu & Khire, 2012; Lai & Ulhas, 2012; Rockinson- Szapkiw & al. 2013). Do students in elementary schools present as a varied perception on e-textbooks? Comparatively speaking, few studies have turned to schools for the time being and little is yet known about kids' preferences in this subject area. Shiratuddin and Landoni (2002, 2003) found that kindergarten children are very much at ease with e-book technology, being able to use devices, e-books, and e-book builder without much effort. Obviously enough, their school level

> The use of e-textbooks in the case classroom favored a sort of distributed learning. The teacher was definitely not the protagonist. Students' work was something intermediate between being individual and collaborative. Additionally, the classroom was both a rich and supportive environment. Not being the centre of attention of the classroom gave the teacher enough freedom of movement to assist those students who requested his presence. There was also plenty of peer to peer support. Combined, those two results seem to indicate positive aspects of e-textbook use, even if they are not specific of this semiotic resource.

allows no inference on whether they would rather use traditional or e-texbooks. More recently, Shamir and Lifshitz (2013) examined the effect of activity with an educational electronic book (e-book), with/without metacognitive guidance, on the emergent literacy (rhyming) and emergent math (essence of addition, ordinal numbers) again of kindergartners, this time at risk for learning disability (LD). The researchers concluded that there was a significant improvement in the study variables among the two groups of subjects who worked with the e-book when compared to the control group, the experimental group that received metacognitive guidance as part of their e-book experience exhibiting greatest improvement in rhyming.

Thayer (2011) suggests elementary school students would benefit more from the replacement of printed textbooks with e-readers and slate computers, since young people typically have more malleable study habits and academic reading practices than undergraduate students. Though not specifically approaching e-books or e-textbooks, Burke and Rowsell (2008) developed a case study over digital reading practices of young adolescents. It highlighted the complexity of the critical skills young adolescents need to comprehend interactive texts. In the next section, we describe our study on the perception of students and teachers in an elementary school in Spain on e-textbook use.

3. Study method

The study questions which guided our reflections were: 1) Do kids have favorable, negative or mixed perceptions on e-textbook use?; 2) Do kids and their teacher hold a shared perception on the use o e-textbooks?; 3) How does school culture regarding selection of course materials for students influence e-textbook adoption? A case study approach (Yin, 1994, Yuen, Law & Wong, 2003; Hoseth & McLure, 2012) guided by multimodal principles (Jewitt, 2006; Knight, 2011) was adopted.

3.1. Data gathering

Three sources of data were used: 1) Video recording and class observational notes. In-depth focus group interviews, 2) E-textbook online platform. The data language is Catalan, the official language spoken in Catalonia, Spain. Whenever data transcripts are relevant to support analysis presentation, an English version of them will be provided.

3.2. Sampling

The school chosen for the study is a public primary school which does not use traditional textbooks. 14 students were involved in this study, 11 and 12 year olds. They are all Catalan speakers. All students in the observed group had computers at home and all, but one, had Internet connection. In class, each student had a laptop with access to internet and user name and password to access the e-textbook online platform. The teacher in charge of the group has been in this school for five years and has been the school technology planning coordinator for three years. He is 29 years old and uses technology in his classrooms on a regular basis to teach mathematics, social sciences and language.

3.3. Data gathering

3.3.1. Lessons observation

The recordings lasted around 40 minutes each and took place in the participants' usual classroom, a bright aired room which was a familiar setting for them. The classes seem to have had three distinct moments, however, there is no abrupt end and beginning of a new phase:

1) First, students began getting in the classroom, settling down, turning computers on and connecting to internet. The teacher gave brief instructions on the activity that the students were supposed to do and organized group sittings of students who had chosen to study the same period of history together. He also helped some students access the digital pedagogical materials on the server's online platform. Altogether, this phase lasted about 10 minutes, though, occasionally, one or more students experienced more connections problems than the rest of the class.

2) In the second phase, students would concentrate in reviewing the information available in the e-textbook and in doing the activities the teacher had assigned them on the online platform. This phase lasted about 15 minutes.

3) In the last part of the classes, students would start to do the self correction of their activities. Most of them share their assessment grade with other students and/or the teacher and some of them ask the teacher why they were corrected in a particular way by the e-textbook. For most of the students, the teacher revises the digital textbook correction looking at their own laptops, but a few of the students would occasionally get their correction on the class digital board. This final part of the classes lasted about 15-18 minutes.

3.3.2. Focus group interviews

The focus group interviews were conducted at two different levels: student level and teacher level.

The teacher interview lasted 25 minutes. Students were interviewed in groups with 3 or 4 participants. These interviews lasted approximately 10 minutes. All interviews were semi-structured. With consent from the respondents, all the discussions and interviews were video recorded.

3.3.3. The e-textbook

The e-textbook under analysis is available to students on an online educational platform managed by an e-learning content service provider. Each lesson was structured in six parts which can be accessed by a curved verbal side bar menu or from an iconic lateral menu, as can be seen in figure 1.

Figure 1. History e-textbook under analysis.

The lessons are organized as follows:

• Get down to work: Students can find introductory text, images and activities.

• Let's explore: Generally relates the content under study in the lesson to the students' previous knowledge through self-correcting activities like quizzes, drag and drops, cross words, ordering letters or open questions.

• Let's learn: Content is presented through a combination of text, images and animations.

• Applying knowledge: Students are expected to form groups and do activities that may involve interaction with their classmates and teacher, less dependent on technology.

• Wrapping it up: Students can find a list of the things they have learned in the lesson.

• Activity menu: Students have access to all the activities which are presented in the different parts of the lesson.

There are no videos in the materials selected by the teacher for the classes observed, neither links to Internet sources of related content. In the lateral side bar menu students could also find a link to a printable version of the unit, in PDF format.

The class recordings and field notes were reviewed and discussed by the authors. This information allowed us to prepare the semi-structured approach of the focus group interviews. At the data analysis phase, the interviews were inductively open coded for emergent themes and analyzed for patterns using grounded theory approach.

4. Analysis and results

Four main themes emerged out of the analysis of the interviews:

• Classroom roles: From the initial 5 minutes, when the teacher would tell the students what activity each group should do, there was no moment when all students were listening to the teacher. Students usually reviewed the content they had assigned to their group and did the corresponding activities. Those who had doubts on the corrections they received from the e-textbook raised their hands or called out the teacher's name – something that happened pretty often. Students also extensively spoke to their classmates, especially in the self correction phase and after it, making comments on their punctuation, boasting, expressing surprise or complaining about it. The teacher frequently used the digital board to review the answers given by some students and at this moment some other students would listen to what was being said about their colleague's activity correction.

• Mutual support: Though the teacher instructs the students to do the activity individually, this recommendation is taken in very flexible terms both by the students and by the teacher. When performing the activity, students would frequently check what was on their classmate's screen, point at it, ask and answer questions. It was usually only after not being able to solve a difficulty by asking nearby colleagues that students would raise their hands and ask for the teacher's help. The unsolved doubt of a student would become a shared doubt of many students as a consequence of presenting a challenge that none of the students seated near each other could solve. Such doubts could be

technical aspects - especially if in the first phase of the class-, related to content, to the activities procedure or feedback, or more generally to the functioning of the e-textbook.

• Complementary literacy technologies: We identified the coexistence of traditional and digital literacy technologies in the pedagogical practice of the teacher in charge of the observed group. For example, apart from drawing on digital resources like the e-textbook lessons the group was using to study different periods of history, the students also created a timeline where they identified historical periods, outstanding historical characters and relevant facts for each period. The timeline was placed on the classroom walls.

It is not surprising that teachers draw on traditional and digital resources in different moments to achieve their pedagogical objectives. However, in the observed classes, the teacher drew on both traditional and digital technologies simultaneously. At the beginning of class, the teacher would give the students printed versions of the lessons they were supposed to study. This means all students received a printed document of the PDF which was available to students online as an option in the e-textbook menu. The teacher had three reasons for doing that: 1) He felt it was important to have an alternative in case the computers did not work properly or Internet was too slow; 2) He thought the printed documents would be useful for the kids at home; 3) He wanted to avoid students from getting lost, in case menu navigation was not enough to help them.

Most students drew on the printed versions of the lessons extensively, checking the computer screen and the paper documents in turns, as can be seen in figure 2. We asked the students if they thought the paper versions of the lessons were necessary. All students but one agreed they would not need them. However, class recordings show students looked for information as much on the printed documents as on the computer screen. In the focus group interviews, students explained they used the printed documents as a personal note taking resource. It seems reading on the screen was an easier step to accomplish than writing down the information they personally considered most important.

• A shared view, different perceptions: When we asked the study participants how well they valued the e-textbooks, we found that the students and the teacher both shared a common view on it, but different perceptions regarding this view. The common view is that both the teacher and the students think the e-textbook used in their history project classes presents very specific, concrete information. This shared view of the digital resource, however, leads to different perceptions on it. While the students liked the resource style, highlighting the easiness to find the information they wanted to do the activities proposed, the teacher valued it negatively because it offered students a limited amount of information.

All students said they liked the e-textbook and they actually preferred using it to traditional textbooks. However, they also seemed to find the information presented in the material insufficient, since one recurrent theme in the focus group interviews was the possibility to complete the information using search engines, like Google, or complementary sources of content, like Wikipedia. The students actually did not seem to draw a definite line distinguishing the e-textbook from other digital resources.

Easiness to do activities and find information, the possibility to see images and videos, and the novelty of e-textbooks were the positive aspects of e-textbooks highlighted by the students. The teacher, on the other hand, was less attracted then students by e-textbooks. The teacher also had a list of other limitations which will probably hinder future e-textbook adoption in the case school. First, the teacher acknowledged this generation of e-textbooks is better than previous materials, which were simply PDFs, but he still missed more

Figure 2. Student drawing on e-textbooks on screen and in its printed version simultaneously.

multimodal content. Secondly, the perspective given in the materials is frequently farfetched from a more local view of relevant facts.

Thirdly, the teacher thought the economic limitation would be an important obstacle for the adoption of the e-textbook at the case school. The school would have to pay to use the platform and also pay for the educational resources. In the case school, teachers were supposed to develop the curriculum drawing extensively on their own ability to find and elaborate pedagogical materials. In this situation, e-textbooks would have to offer a richness of form and content which does not convince the teacher we interviewed for the moment: «You can find it all on the Internet, and here (e-textbooks) you have to pay. You have to pay for the platform and for the educational resources. If you have it well structured, you can find it all on the net» (Teacher).

Notwithstanding the more than reluctant perception the teacher expressed on e-textbooks, we could notice the students clearly enjoyed using it. We asked the teacher if the students simply enjoyed anything or if he thought there was something special about this material that was calling their attention: «These students are happy to come to school. They want to learn, they like anything that is new to them. I think some time in the future, after they grow up like this, using so much technology, you will give them a sheet of paper and they will «uaaauu», a sheet of paper. That's so cool» (Teacher). In this respect, the teacher's perception is that the reason the e-textbook is a success among students is in their own predisposition to learn, on the one hand, and on the resource's novelty, on the other one.

5. Discussion and conclusion

The use of e-textbooks in the case classroom favored a sort of distributed learning. The teacher was definitely not the protagonist. Students' work was something intermediate between being individual and collaborative. Additionally, the classroom was both a rich and supportive environment. Not being the centre of attention of the classroom gave the teacher enough freedom of movement to assist those students who requested his presence. There was also plenty of peer to peer support. Combined, those two results seem to indicate positive aspects of e-textbook use, even if they are not specific of this semiotic resource. It is obvious any digital learning object can produce such results, but the fact that an e-textbook does it is something notorious in itself. It shows that even if e-textbooks are not as multimodal as they could be, including videos and sound in the content presentation, they also do not seem to favor traditional teacher centered approaches in which the teacher is the main source of feedback in the classroom.

Literacy technologies change fast, pedagogical practices do not. The case classroom observations showed there was a symbiotic interaction of digital and non digital technologies. The pictures and drawings which changed the classroom wall into a timeline, for example, constitute semiotic work which compliments in symbiotic ways the work done while students engaged with the e-textbooks. Also, while students were using the e-textbook itself, they often referred to the printed version of the lesson provided by their teacher. It is possible they did not need the printed materials, but the class observation clearly shows students extensively use them as scaffolds. There is no simple way to take all the richness of symbolic meaning going on during a classroom into account. Multimodal theory is clearly an attempt to, from the acknowledgement of the diversity of data available to the analyst, makes an effort to systematize impressions not always easy to reconcile. If the analyst only takes into account clear cut realities presented in objective data, much of the meaning making practices going on during the most ordinary classroom will simply be disregarded, though the richness of the evidence.

We asked at the beginning of this paper if kids have favorable, negative or mixed perceptions on e-textbook use, if the kids and their teacher hold a shared perception on the use of e-textbooks and how school culture regarding selection of course materials for students influence e-textbook adoption. Kids participating in this research hold favorable perceptions on e-textbooks. The students enjoyed using the e-textbook and reported preferring it to traditional textbooks, however expressing the need to compliment its information using search engines, like Google, or complementary sources of content, like Wikipedia. The students are not always able to distinguish the e-textbook from other digital resources: the computer (in the case of this present research), the Ipad or the e-book reader seems to be what kids identify as the learning object, not the semiotic resources which educators make available to them on the different pieces of technology they use.

As mentioned above, the students and the teacher basically shared a common view on the e-textbook, but different perceptions regarding the specific e-textbook used. The common view is that the e-textbook used in their history project classes presents very specific, concrete information. The differing perception is

that while the students liked the resource style, highlighting the easiness to find the information they wanted to do the activities proposed, the teacher valued it negatively because it offered students a limited amount of information. Finally, it could be said that e-textbook users' perceptions greatly depend on the institutional culture in which they are embedded. In contexts like the case school, where the adoption of e-textbooks does not mean a transition from traditional textbooks to e-textbooks, students and teachers may develop a more demanding range of criteria which will have to be met by e-textbook providers so as they can become a real alternative to all the resources teachers can find for free on the Internet. The results of this study indicate that although e-textbooks favor a communicative active style of learning and are attractive to elementary school students, there still are real challenges to be overcome by editorials so that e-textbooks do not become the next forgotten fad.

6. Limitations and Ethical considerations

The purpose of this research is not to make any generalized claims on e-textbook use or perception. Thus, the relevance of our case study should be understood as illustrative rather than definitive. More research will be needed to shed light on the wider scope of this intellectual endeavor.

Permission must be requested for the video recordings to be shown with the research team, allowing short clips, stills and photos to be used for teaching and dissemination purposes.

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A Community of Practice: An Intervention Model based on Computer Supported Collaborative Learning

Comunidades de práctica: un modelo de intervención desde el aprendizaje colaborativo en entornos virtuales

ABSTRACT
This paper describes the results of a research study on the establishment of a Community of Practice through social eLearning and Computer Supported Collaborative Learning (CSCL). The sample consisted of 20 adult women of gypsy origin of various ages, educational level and work activity residing in Extremadura (Spain). The study makes a contextualization and then describes the design, implementation and evaluation of a training scheme in social eLearning about Equal Opportunities and Social Leadership. This is followed by an analysis of the content of the course forums, according to the dimensions of the «Community of Inquiry» model (CoI) which is one of the most promising theoretical perspectives on e-learning and collaborative and constructivist approaches developed in hundreds of studies during the last decade. And finally, the study evaluates the learning experience, using triangulation as procedure for data analysis. The most important research results are: a) the validity of the design and implementation of the training, b) the forming of an effective Community of Practice for Roma women in virtual learning environments, and c) the significant changes in the participants that can favor the cultural promotion of women. It provides a new model of ICT-based educational intervention in CSCL, aimed at improving training for and promotion of sociocultural groups in situations of social exclusion.

RESUMEN
Este artículo describe los resultados de investigación de un estudio sobre la conformación de una comunidad de práctica a través de e-learning social y aprendizaje colaborativo en entornos virtuales (CSCL). La muestra está formada por 20 mujeres gitanas adultas y residentes en Extremadura (España) heterogéneas en edad, nivel formativo y actividad laboral. El estudio parte de la contextualización y posterior diseño, implementación y evaluación de una acción formativa de e-learning sobre igualdad de oportunidades y liderazgo social. Posteriormente, analiza el contenido de foros del curso, según las dimensiones del modelo «Comunidad de Indagación» que es una de las perspectivas teóricas más prometedoras sobre e-learning y enfoques constructivistas colaborativos y que ha sido desarrollada en cientos de estudios durante la última década. Y, por último, evalúa la experiencia formativa, utilizando la triangulación como procedimiento para el análisis de datos. Se destacan como resultados la validez del diseño y aplicación de la acción formativa; la conformación efectiva de la comunidad de práctica de mujeres gitanas en entornos virtuales de enseñanza-aprendizaje colaborativos; y los cambios significativos en las mujeres participantes que favorecen su promoción sociocultural. Se aporta un nuevo modelo de intervención socioeducativa con TIC basado en CSCL, destinado a la mejora de la formación y a la promoción sociocultural de los grupos en situación de exclusión social.

KEYWORDS / DESCRIPTORES
E-Learning, community of practice, digital literacy, digital inclusion, collaborative learning, virtual learning environment, social change, women.
E-Learning, comunidad de práctica, aprendizaje colaborativo, alfabetización digital, inclusión digital, entorno virtual de aprendizaje, cambio social, mujeres.

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1. Introduction

Virtual learning environments offer a series of possibilities for collaborative processes in which students actively produce knowledge, formulating ideas that are shared and constructed as from the reactions and responses of others (Resnick, 2002). A new centre of interest is arising in educational sciences around the so-called Computer Supported Collaborative Learning (CSCL) that became an emerging paradigm of educational research in the 1990s in which a variety of studies were carried out that have in common an interest in understanding how Information and Communication Technologies (ICT) can facilitate collaborative development processes in teaching-learning situations, and how collaborative learning environments can improve and favour interaction, teamwork and consequently the result of the learning process of the participants (Rubia & al., 2009; Rubia, Jorrín & Anguita, 2009).

Collaborative learning is characterised by being active; the teacher is a facilitator; teaching and learning are shared experiences; the students must assume responsibility for their learning; they are encouraged to reflect on their cognitive processes, and social skills and teamwork are developed by means of the construction of consensus (Krischner, 2001). Collaborative learning leads to a more profound level of critical thought, shared understanding and a more prolonged retention of the material learnt (Garrison, Anderson & Archer, 2001; Johnson & Johnson, 1999). It also provides opportunities for the development of social and communicational skills, positive attitudes towards people, group cohesion and the building of social relations.

These effects are strengthened when collaborative learning is applied in flexible environments and in the face of complex tasks within authentic contexts, as these conditions also increase the efficiency of the social building of knowledge (Jonassen, 1991; 1994). Although different variables exist (e.g. group size and composition, characteristics of the task, learning styles) that have been identified as factors influencing the efficiency of collaborative learning, all of them are related in one way or another to a basic element: social interaction (Kreijns, Kirschnerb & Jochems, 2003). If collaboration is present, then social interaction exists; and vice versa, without social interaction there is no real collaboration (Garrison, Anderson & Archer, 2001). The mere grouping together of students does not guarantee collaboration, which means that instructive design is essential for its development. A cognitive approach promotes «epistemic fluidity», i.e. the capacity to identify and use different forms of knowledge, to understand its various forms of expression and assessment, and to assume the perspectives of others that operate with different epistemic structures. It is achieved by means of collaborative tasks so as to describe, explain, predict, argue, criticise, assess and define concepts or realities. In a direct approach collaborative techniques are used to structure a task within a learning activity (e.g. Jigsaw). Finally, in a conceptual approach use is made of positive interdependence; the interaction promoted within the group itself; the individual responsibility to learning; teamwork skills; and a reflection on the execution of the group itself (Kreijns, Kirschnerb & Jochems, 2003).

The scientific community agrees on the importance and congruence between e-learning and collaborative constructivist approaches. One of the most promising theoretical perspectives is the «community of inquiry» (Coi) (Garrison, Anderson, & Archer, 2000), which has been developed in hundreds of studies over the last decade (Arbaugh & al., 2008). This theoretical model maintains that the construction of knowledge in virtual teaching-learning environments (VTLE) takes place by means of the development of a community that is characterised by three «presences»: teaching, social and cognitive. In the absence of face-to-face interaction, participants in virtual learning environments must strive to recreate the social processes of the building of knowledge that take place in the negotiation of meanings in the classroom.

«Teaching presence» refers to the curriculum and organisational design, the facilitation of a productive discourse, and direct teaching developed in VTLE in a context of collaboration between teachers and students (Anderson & al., 2001). «Social presence» allows one to understand how VTLE participants project themselves as «real» people, especially in asynchronous communication contexts based on texts (e.g. forums) that show attachment, group cohesion and communicative opening-up; these elements are necessary to establish a feeling of confidence and belonging to a community orientated towards the building of knowledge. Finally, «cognitive presence» is included through a series of four cyclic phases that begins with a trigger event that promotes exploration, integration, and resolution. They define critical and creative thought processes (Shea & al., 2010).

Garrison, Anderson & Archer (2000) propose a conceptual on-line learning model that encourages interaction between teachers and students with the aim of building, facilitating and validating understanding, and developing skills that aim at the continuity of

training, encouraging simultaneously cognitive independence and social interdependence. The essential characteristic of this model lies in its communicational and interactive potential. It establishes that learning processes will be more profound and meaningful when the three «presences» mentioned come together. These dimensions are characterised by the fact that they can be provided to the community by the different participants even beyond their specific roles of students or teachers, which assumes a flexible model that allows the capturing of the horizontal dynamics of a community.

The objective of the research presented in this article is the forming of a Community of Practice of gypsy women by carrying out a virtual training action on equal opportunities and social leadership so as to encourage the socio-cultural promotion of this group of women. In order to do so a virtual training action was designed, implemented, and assessed, and it was analysed whether the Community of Practice had been formed together with its predominant characteristics. The whole of this inquiry process was carried out with a qualitative research approach within the framework of CSCL and the social perspective of e-learning (Planella & Rodríguez, 2004; Ros, 2004; García-Martínez, 2007).

2. Material and methods

2.1. Methodology

The dialogue approach of research into CSCL has been used; it is based on the idea that learning is a socially organised activity. The unit of analysis is a group of people who interact to achieve a shared goal. The key concepts are mediation, appliances and tools, and social practice so as to encourage collaborative learning (Ludvigsen & Mørch, 2010). It is located on the central axis of this research and is connected with the socio-critical paradigm, with Research-Action (RA). As a support it uses the case study method transposed to virtuality and takes cyberspace as a field of study (Hine, 2000; Olsson, 2000). This perspective forces the reformulation and adaptation of certain re-elaboration techniques (Hine, 2000) owing to the characteristics of the field of study itself.

Table 1. Dimensions, categories and indicators of Community of Inquiry (CoI) model (Garrison & Anderson, 2005)

SOCIAL PRESENCE			
Affective	**Open Communication**		**Cohesive**
Expression of emotions Use of humor Self-disclosure	Continuing a thread Quoting from others' messages Referring explicity to others' messages Asking questions Complimenting, expressing appreciation Expressing agreement		Vocatives Addresses or refers to the group using inclusive pronouns Phatics, salutations
COGNITIVE PRESENCE			
Triggering Event	**Exploration**	**Integration**	**Resolution**
Evocative (inductive)	Inquisitive (divergent)	Tentative (convergent)	Committed (deductive)
TEACHING PRESENCE			
Instructional design and organization	**Faciliting discourse**		**Direct Instruction**
Setting curriculum Designing methods Establishing time parameters Utilizing medium effectively Establishing netiquette Making macro-level comments about course content	Identifying areas of agreement/disagreement Seeking to reach consensus/ understanding Encouraging, acknowledging, or reinforcing student contributions Setting climate for learning Drawing in participants, prompting discussion Assessing the efficacy of the process		Present content/questions Focus the discussion on specific issues Summarize the discussion Confirm understanding through assessment and explanatory feedback Diagnose misconceptions Inject knowledge from diverse sources, e.g., textbook, articles, Internet, personal experiences Responding to technical concerns

2.2. Sample of the study

The incidental sample is that of a virtual learning community of gypsy women (N=20) with heterogeneous levels of study.

2.3. Procedure

Three distinct parts of the research can be established. In the first part a study is carried out that is intended to contextualise and subsequently design, implement, and assess an e-learning practice based on CSCL and that aims to train gypsy women in Equal Opportunities and Social Leadership. In order to assess the appropriateness of the initial design, it was submitted to the opinion of four experts on the subject by means of a «Design Assessment Pattern for Experts» to include five assessment sections: the pedagogical approach, the contextual framework, the selection of didactic strategies (methodological, of motivation, and of learning), the designing of the formative action, and interactivity, support, and communication elements. The second study is based on a content analysis of the forums of the formative action designed to confirm the dimensions of the «Community of Inquiry» model (Garrison & Anderson, 2005) that lead to the forming of a Community of Practice. The third study is based on the assessment of experience. Triangulation as a data analysis procedure was implemented so as to obtain the results of the assessment of the formative action from a descriptive-interpretative analysis of data from the assessments of students, external experts, and the teachers taking part in the course. The data for this analysis were obtained from participative observation during the carrying out of the formative action, from a semi-structured interview, and in depth in classroom and on-line modes to the teachers-tutors and the communicational discussion group with participants after teaching the course (Flecha, Vargas & Dávila, 2004). Two questionnaires complement this last part of the study: a questionnaire to assess the formative action applied to the students and a questionnaire on the didactic assessment of the model and the teaching strategies used which is aimed at external experts.

3. Analysis and results

If we take into account the three parts of the study indicated in the procedure, we obtain in the first place a complete design of the virtual formative action «Equal Opportunities and Social Leadership». As far as the designing and planning of the latter is concerned, the ADDIE generic design model (Branch & Merril, 2012) has been followed from the stages of conception, analysis, design, production, and assessment. The second study carried out is that of the forming of the Community of Practice according to the model of CoI and the CSCL, in which it can be observed that of the three presences the one considered most important for one of the objectives of the research is that of the analysis of «Social Presence» because of its special significance within a CSCL context. A high percentage has been identified of messages belonging to this dimension, in particular those referring to the category of «cohesion». It can be said that a learning community identity is created, integrating the others within the discourse and recognising them as part of the same. Taking into account the full analysis of the categories making up Social Presence and the data on the evolution of the categories of this dimension, it can be affirmed that the basis of the Community of Practice has been established and that on the completion of the formative action its shaping can be witnessed.

In this dimension a number of references to «affective communication» can be observed; in other words explicit indicators appear that show that the students share a socio-emotional sphere that is essential to the communicative function and to the cohesion of a community, and that likewise they constitute the basis of collaborative learning. This category includes the expression of emotions and feelings, which in the face of the impossibility of establishing visual and intonation clues show themselves by means of the written resources of punctuation, emoticons, and capital letters. Taking into account the visual environment in which it is developed, affective communication becomes a key element for the satisfactory operation of collaborative work (Garrison & Anderson, 2005). The indicators studied in this category show that there is an important degree of confidence in which the group strengthens the relationships between them as the formative action progresses. Another of the categories related to Social Presence is «open communication», the study of which results in the appreciation of a strong level of commitment in the process of reflection and critical discourse (which is closely related to the cognitive dimension) on the themes that are intended to be worked on during the course. The third category related to Social Presence is «cohesion» and it is here where in reference to the indicators established by Garrison, Anderson, and Archer (2000), three types of interventions can be found that it is important to emphasise.

- The first group of interventions located belong to formalisms in communication such as introductions, greetings, and farewells.
- A second group of interventions in which the

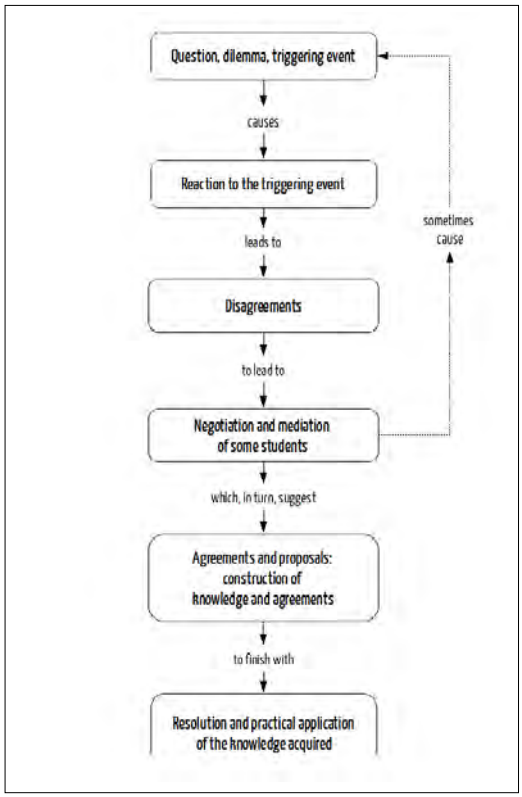

Figure 1. Different moments of response in the development of forums (cognitive presence).

student or students declare themselves to be identified within the group through expressions such as «us, our, the group, the community, classmates, friends», among others. As we have seen in the analysis carried out, expressions of this type are numerous. It is stressed that the fact of belonging to the same ethnic group has contributed towards cohesion in this formative action. A shared repertoire is identified in which they recognise each other, in principle based on their cultural identity; this generates one of the aspects present in any Community of Practice (Wenger, 2001).

• Thirdly, it is appropriate to place the intervention where the students make proposals or suggest themes, whether these are related to this formative action or not, that include the whole group. This group of interventions can be found within one of the forums. These aspects, which are characteristic of an informal relationship, refer to themes treated outside work and proposed activities (Crook, 2000) that must develop in the formative action, and play an important social role in the forming of the Community of Practice. If one of the themes originates in a proposal from one of the students to «make the forum their own» in order to debate themes related to joint interests, this denotes a rapprochement to the idea of a joint enterprise in the search for common objectives (Wenger & al., 2002) as an element of the Communities of Practice. On the other hand, another of the themes is that of the search, proposed by one of the students with the agreement of the remainder, for the joint commitment that determines another of the essential aspects of the Communities of Practice (Wenger, 2001).

On putting into practice the didactic model proposed it should be emphasised that taking students from the level of the exchanging of ideas and reflections to the joint construction of knowledge, referred to «Cognitive Presence», is a task that entails difficulties in virtual teaching. It is observed that the students participate in the exchanging of opinions and the sharing of ideas, but that it is more difficult to go deeper into knowledge of some themes by means of debate on the forums. A response pattern was detected that is shown in the following diagram:

After inquiring into this characteristic that has been detected, it can be seen that this may be due to two factors:

• Many of the forums analysed are opened on the initiative of the students, who share a teaching role that on occasion leads to a lack of guidance and orientation in the debate established.

• Most students had never taken part in a formative action of this kind. Together with the low digital literacy level of some of the students, this may have contributed towards the fact that the resolution phase is not always reached.

The educational activity carried out by means of the forum by the teachers of the course, the «teaching presence», is essential if the phase of the resolution and building of knowledge is to be reached. This didactic dimension entails the assuming of different roles by the teachers, such as debate facilitators, moderators, guides-advisers, experts answering individual and group questions, managers, etc. The study of this dimension includes all the categories and indicators in the teaching carried out in the formative action. It is important to stress that on the virtual forums studied a greater participation by students than by tutors has been detected, thus inverting the tendency in classroom teaching in which teachers intervene and participate more than students, concentrating more on the teaching process than on that of learning. It has even been affirmed that teaching presence is not restricted to the teacher and that students have at times taken on this role:

• In one of the themes we can observe the horizontality with which one of the tutors intervenes in a

theme opened by one of the students as a member of the group to exchange roles, with the teacher assuming the part of student and vice versa. Here «horizontal» student-teacher-student interactive communication can be appreciated.

• In some other themes, especially those opened by the students, some indicators can be identified to show the interchanging of roles between some students and others, assuming a teaching role that is shared between them. It may be, especially in one of the forums, that communication among the students occurs without intermediation from teachers and in themes that the former open themselves on their own initiative. We can speak of «vertical» interactive student-student communication according to whether one role or another is adopted. On the other hand, it can be seen that the confluence of the three presences is necessary in order to achieve a Community of Practice with an educational meaning. It can be affirmed that this model and its categories cross over between the different dimensions; in the study it is the Social Presence that establishes the basis by giving meaning to the administration of knowledge through emotions, maintaining this throughout the formative action, which the cognitive presence has needed from the basis created by the social presence and from the teaching presence so that the stage of the final resolution is reached in the knowledge building process. In other words, if the practical research stages are to be completed it is necessary for affective communication and the didactic dimension to gather strength. All this comes together in the relationship that Garrison & Anderson (2005) establish in the representation they make of these dimensions, in which the three Presences are related and are essential for maintaining that community of active study by means of the creation of an atmosphere of collaborative learning.

Finally a study was carried out to assess the application of the formative action for the shaping of the Community of Practice through virtual environments so as to obtain three dimensions. As far as the first dimension is concerned, the «didactic» one, the teachers consider that the keys to success were the participation, motivation, and dynamism of the students.

For the students the possibility of carrying out a university formative action by using a virtual campus has been assessed as a good opportunity that is both motivating and enriching. Research provides three essential axes based on experience as keys to the pedagogical designing of e-learning actions from a social and collaborative learning perspective: participation, motivation, and learning. As to the strengths of the experience, two key constructs stand out: motivation and participation. The biggest weakness observed has to do with the time needed to teach the course, both the virtual component and the classroom sessions. As to the pedagogical design, it has been assessed as an adapted design that is demanding and profound and suitable for the target students, the didactic strategies of

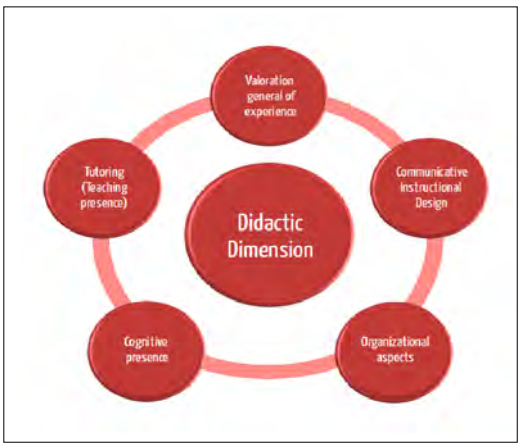

Figure 2. Didactic dimension.

whom have been rigorously complied with but without excessive rigidity. The tutors report surprising results, given the obstacles from which we originally started out, owing to the characteristics of the students. Although the results have been positive, the students criticise their own work in the last stage of the course in which a reduction in their participation has been detected that has discouraged them somewhat. If we go deeper into the reasons for this lack of motivation, it can be traced to participants who left the course for professional and/or personal reasons. If we specify the resources used, forums clearly predominate in the interventions. This has been the key resource for interaction and communication between the participants and for sharing and building knowledge together. As for the process of communication that occurs during the course by means of the tools used for this purpose, it is constituted as a motivating process in which learning has come about among equals (Aubert & al., 2008) and in collaboration, sharing knowledge and experiences.

On the other hand, the teachers, recognising the different academic levels of the students, believe that the construction of meanings has been reached in which each of them made use of this learning in keeping with their previous knowledge. It is pointed out that there may be differences between activities; some may have managed to reach this level and others have

been more «instrumental». The role played by the revitaliser of the course has been a vital one and constitutes a basic pillar for maintaining the motivation and continuous participation of the students, as well as avoiding that feeling of solitude that sometimes characterises some virtual formative actions.

In the «socio-cultural dimension», in general the tutors consider that this experience has been contextualised, taking into account the heterogeneity of the students and their adaption to their situation. It is established that the contents worked on through the activities can be applied to their socio-cultural contexts.

As to «social presence» as an indicator of this dimension, above all the «emotiveness» component must be mentioned, stressing factors such as cultural aspects and even virtuality as determinants of this component and in order to encourage the establishing of the basis of a Community of Practice. Other factors can be mentioned as determinants of this shaping of the Community of Practice, which are among others: the designing of the manner of working, the virtual platform, the system of interactions, the adaptation to the students and their previous knowledge, the subject matter approached, and the dynamics followed in training. On the other hand, a closer look is also taken at the attitudes that the participants must have for the shaping of the Community of Practice. Emphasis is given to predisposition, curiosity, opening-up to new themes, wishing to make progress and change, dedication, motivation, commitment, and the desire to participate. The students confirm that they have felt themselves to be part of a virtual learning community and mentioned fluid dialogue, good communication, participation, dynamism, collaboration and help between classmates, and in particular enjoyment, as the keys to this community feeling. The efficiency of the tutorials

Figure 3. Socio-cultural dimension.

in encouraging these positive relationships and the satisfactory development of the formative action were also noted.

A final matter of vital importance in this dimension is that concerning the assessment of the development of the action by the participants there is evidence of changes and transformations in the latter. The following can be stressed: changes in discourse; opening-up to the possibilities of ICTs as a medium for communication, for getting to know new people, for seeking information and employment, for studying the balancing of work and family life, and even for acquiring new habits; and for purchasing new computer equipment and installing Internet at home. Other elements that should be emphasised are the updating and acquiring of knowledge, personal growth and effort, contact with other people, and overcoming shyness when communicating.

To conclude, starting from the «technological dimension» that has less effect than the previous ones it has been assessed that the technological platform used has been functional and adequate and free from significant incidents in the development of the formative action.

4. Discussion and conclusions

The main conclusions and contributions of this complete study refer to five aspects. In the first place, we contribute to a contextualisation and bibliographical revision of e-learning and new keys to the analysis of the factors determining social e-learning in a CSCL context. Secondly, from the approach adopted it is concluded that in order to form Communities of Practice by means of the VTLE a didactic model based on participation, motivation, and learning/interaction should be adopted. This model should justify itself from a globalising and integrating perspective that is constructivist in nature. Thirdly, from the analysis carried out based on the «social, teaching, and cognitive presence» model it can be inferred that a strong sense of community increases the students' participation in the formative action. It can be concluded that the messages referring to cohesion show that identification with the community and the integration of the students within it is generated (it forms the shared repository of the Communities of Practice) and that the interventions carried out outside the course fulfil an important social function (the mutual commitment and the joint enterprise that characterise the Communities of Practice are constituted). The categories of the analytical model cross over the three dimensions, with the «Social Presence» being that establishing the basis

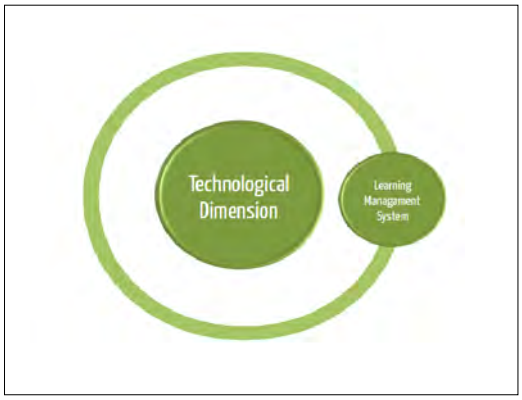

Figure 4. Technological dimension.

for the «teaching presence» and both for the success of the «cognitive presence». It is important for the teachers to create a positive environment so that good cognitive results can be obtained. All the results show that the Community of Practice is formed. It can be concluded that the qualitative content analytical model used is suitable for studying the forming of Communities of Practice in virtual learning environments and that it is a model that is simple to apply. It can be adapted to a variety of pedagogical designs and allows the study of interactions to try to improve them and to exploit the pedagogical and social value. Fourthly, the virtual formative action carried out was appropriate, was successfully implemented, and was defined as innovative in its field of action. ICTs as a medium have helped to provide an opportunity for learning and personal development. From this point of view and fifthly, a new model of social intervention is provided by means of ICTs; it is sustained by a piece of research that aimed to constitute an intervention process designed to improve and promote the way of life of the gypsy women taking part. Changes have occurred in the participants that point to their social and cultural promotion. From this point of view this study confirms that it is necessary to encourage the creation of learning contexts among equals that help in communication between the various participants in a virtual formative action. We believe that by means of this environment of exchange of information obtained from various sources, reflection and the acquiring of new knowledge is possible from a framework of independent learning, always assessing the moment for this acquisition. In short three keys can be indicated: pedagogical design and the principles within which it is established correspond to the results obtained by validating its appropriateness; the Community of Practice of gypsy women from Extremadura has been formed through the VTLE; and it has been accompanied by changes in the participants that point to their socio-cultural promotion.

The results of this research provide specific strategies that can guide the introduction of ICTs in educational practice, in this case from an environment that links what is formal and what is not formal, strengthening these new ways of learning in virtual collaborative spaces. On characterising a virtual community as an analytical tool and studying it from an educational perspective in a VTLE, specific pedagogical strategies are provided that will allow use of the potential of participation in these communities for training purposes (Sloep & Berlanga, 2011). It must be pointed out that this research is not only of scientific value owing to its results, but also of social value in that it makes the study original from the moment when our interest is directed towards studying how ICTs affect social and educational dynamics and in what way. Through them and in the last analysis, it can contribute towards the welfare and general development of a group of gypsy women who experience situations of discrimination that may even be multiple. We point out that the contribution of ICTs to the social development of this community may constitute the objective of further research deriving from this thesis. All the foregoing implies a contribution to the development of the so-called «social perceptive of e-learning» (Planella & Rodríguez, 2004). For this reason, a scenario is proposed in which ICTs are used from a social perspective with the objective of helping to encourage the empowering of gypsy women through learning and thus encourage their social leadership within the ethnic group to which they belong. Given what may be a new learning environment for these students, it is considered important to provide them with an atmosphere that will encourage them to undertake the joint construction of knowledge supported by critical reflection and social interaction with others in a Community of Practice based on CSCL.

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Design Thinking and Collaborative Learning

Pensamiento de diseño y aprendizaje colaborativo

ABSTRACT
This paper presents design thinking as an alternative approach to conduct research on collaborative learning with technology. The underlying premise of the paper is the need to adopt human-centered design principles in research and design of computer-supported collaborative tools. Two research results are described in order to discuss the possibilities and challenges of applying design methods for designing and researching collaborative knowledge building tools. The paper begins by defining collaborative learning with new technologies as a wicked problem that can be approached by adopting a design mindset. Design thinking and particularly research-based design relies on a shared, social construction of understanding with the people who will later use the tools. The key phases in research-based design (contextual inquiry, participatory design, product design and software as hypothesis) are described and exemplified through the presentation of two research results. The two prototypes presented are the fourth version of the Future Learning Environment (Fle4), a software tool for collaborative knowledge building and Square1, a set of hardware and software for self-organized learning environments. Both cases contribute to the discussion about the role of artifacts as research outcomes. Through these cases, we claim that design thinking is a meaningful approach in CSCL research.

RESUMEN
El artículo presenta el pensamiento de diseño como un enfoque alternativo para realizar investigaciones sobre aprendizaje colaborativo con tecnología. Se describen dos resultados de investigación a fin de debatir las posibilidades y los retos de aplicar métodos de diseño para diseñar e investigar herramientas de construcción de conocimiento colaborativo. El texto comienza definiendo el aprendizaje colaborativo con nuevas tecnologías como un problema complejo que puede afrontarse mejor mediante la adopción de una actitud de diseñador. Se presenta el Diseño Basado en la Investigación (DBI) como un ejemplo de pensamiento de diseño basado en la construcción social del conocimiento con las personas que más adelante utilizarán las herramientas. Se describen las fases clave que caracterizan el método DBI (investigación contextual, diseño participativo, diseño de producto y software como hipótesis) y defiende la necesidad de adoptar un enfoque de diseño centrado en las personas. Los dos prototipos presentados son la cuarta versión de Future Learning Environment (Fle4), un software para la construcción de conocimiento colaborativo, y Square1, un conjunto de dispositivos y aplicaciones para entornos de aprendizaje auto-organizados. Ambos son ejemplos de DBI y contribuyen a la discusión sobre el rol de los artefactos como resultados de investigación. A través de estos casos, se afirma que el pensamiento de diseño es un enfoque significativo en la investigación sobre el aprendizaje colaborativo mediado por ordenador.

KEYWORDS / DESCRIPTORES
Methodology, design, research, learning, collaboration, cooperation, environments, tools.
Metodología, diseño, investigación, aprendizaje, colaboración, cooperación, entornos, herramientas.

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1. Introduction

Wicked problems is a term used to describe problems that are difficult to solve because they are incomplete, requirements are constantly changing, and there are various interests related to them. Solutions to wicked problems often require that many people are willing to think differently on the issue and change their behavior. Wicked problems are common in economics, social issues, public planning, and politics. Characteristic of wicked problems is that solving part of the problem often causes other problems. To wicked problems there are no true or false answers, but rather good or bad solutions (Rittel & Webber, 1973).

Teaching, learning with technology in general, and computer-supported collaborative learning (CSCL) in particular can be seen as a wicked problem (Mishra & Koehler, 2008; Leinonen 2010). Many problems related to collaborative learning and computers are incomplete and contradictory. In CSCL practices, there are many actors with various complex interdependencies, including teachers, learners, and the interconnected computers. According to Mishra & Koehler (2008), researchers working in the field should recognize the complexity of the situations in an educational context with learners, teachers and technology. In this sense, there is a growing demand for collaboration between researchers, designers, teachers, and learners during the process of designing technologies for learning (Dillenbourg & al., 2009; Bonsignore & al., 2013).

Design thinking has been identified as a meaningful approach to tackle wicked problems (Buchanan, 1992). For instance, according to Nelson and Stolterman (2003), design does not aim to solve a problem with an ultimate answer, but to create a positive addition to the present state of affairs. This way, design differs significantly from ordinary problem solving. Designers do not see the world in such a way that somewhere there is a perfect design they should discover; rather they aim to contribute to the current state with their design. So, design is an exploratory activity where mistakes are made and then fixed. Poetically, one may say that design is navigation without a clear map, relying only on current context and the information gathered from it.

The epistemological basis of design thinking is that most parts of the world we are living in are changeable, something we as humans can have an impact on. In design thinking, people are seen as actors who can make a difference. People can design relevant solutions that will have a positive impact. This way, design thinking is a mindset characterized by being human-centered, social, responsible, optimistic, and experimental.

In this article, we present design thinking as an alternative approach for conducting research in the field of CSCL. To demonstrate the results of design thinking-driven research in CSCL, we present two artifacts produced with the approach. We start with a general discussion about design and design thinking. We continue with a description of our methodological approach. We then present two results from our research in the field of CSCL, which we got by using a strong design-thinking approach. The results are applications designed for collaborative knowledge building (Scardamalia & Bereiter, 2003) and collaborative learning in a self-organized learning environment (Mitra, 2013).

2. Design thinking in context

Design research often starts with observation, reflection, and questioning. A questioning design researcher is especially interested in everyday life practices. He or she may realize that many things that are considered to be normal, natural, and unchangeable are actually problematic. A questioning design researcher is interested in reflecting upon his or her research's significance for human life in general and on different human practices in an everyday context. People involved in the research are seen as part of the same human reality. In the research, they are not objects of the research, but rather subjects in the research. A questioning design researcher does not see that his or her job would be to produce neutral facts or be neutral at all. Therefore, consideration and discussions on value and their impact on the research are a large part of the research. An inquiry by a questioning design researcher holds an ethical meaning as a valuator of human existence and behavior (Varto, 2009; Leinonen, 2010).

In questioning design research, the focus is not only on aesthetics and usability, much broader and fundamental issues are taken into consideration. For instance, Hyysalo (2009) categorizes design on five different levels. To illustrate the different levels of design, we may use the design of a mobile phone's power button as an example.

1) On the first level, design is about details. For instance, design of a mobile phone power button's physical shape, icon, and color is a design of details.

2) On the second level, there is the user interface design. A decision that one should hold the power button down for a second and after that the phone will give feedback with a vibration telling that it is starting up is one example of user interface design.

3) On the third level of design, the interest is on systems. The logic that the phone will keep its setting although it is turned off is design of the entire software system running on the phone.

4) The fourth level in design includes social issues. For instance, the functionality included in a mobile phone's power button making it possible to put it in silent mode or in meeting mode is a decision that pays attention to the social contexts in which the phone is used.

5) The fifth level in design takes into consideration broad societal implications. The decision that switching off with the power button will make the phone impossible to track can be a decision made to protect the user's privacy.

Decisions made on the different levels of design cannot be made separately. They are interconnected and influence each other. The complexity of design requires research, the ability to see both the whole and the details, and the skill to analyze them.

Design may provide people an idea of new ways of doing things and different perspectives and interpretations about the reality they are living in. This way, design can be a way to confront complexity and respond to people's intentions to deliberately change the world (Nelson & Stolterman, 2003). When including interpretations of complexity, design can never be a neutral activity. Behind design, we may find value-laden, even ideological, ideas and principles. As Bruce (1996) highlights, it is not only that the meanings of these artifacts are socially constructed, but the physical design and social practices around them are socially constructed. Understanding design as socially constructed and results of design as something that will have a real impact on the socially constructed reality people are living in, asks for responsibility and accountability from the designers and the people taking part in the design.

The Scandinavian tradition of participatory design is one of the earliest models of design thinking. In participatory design, the people who are expected to be the beneficiaries of a design are invited to take part in the process from the early stages. By involving people in the process, it is expected that the results as a whole will be better than if done without them. For instance, Ehn and Kyng (1987), who have done design research related to computers in workplaces, have noticed that the design of a computer tool is not just a design of a tool, but it also has consequences on the work processes and the entire workplace. The adoption of collaborative learning in education presents similar challenges, since it requires rethinking the classroom culture as well as the curricular goals and the institutional framework (Stahl, 2011). Therefore, recognizing people as the primary source of innovation is crucial in order to reach designs that will serve the needs of the people who will work, learn, or teach with the designed tools. This means that at the same time as the design of the tool, the community is asked to partly reconsider and redesign their current work processes.

First, design thinking, in the case of designing tools for CSCL, means that the design researchers will work simultaneously on all the different levels of design. Rather than enabling just collaboration, a successful collaborative learning environment creates the conditions for effective group interactions (Dillenbourg, 2009). When designing tools, design researchers must adopt a complex understanding of group interaction and consider the social implications of their work, but they also make decisions on the user experience, interface, and their details. Secondly, in the design of CSCL tools, we must be aware of the different interests among the different stakeholders. In the case of education, there are, for instance, different value bases, ideologies, and pedagogical approaches that are often hard to consolidate. The designers must stand for something and be transparent about the value-based decisions in the process. Thirdly, teachers and learners must have a voice in the design process, and the object of design should not only be the CSCL tool, but the entire learning process and practices of the school.

3. Methodological approach: Research and design interventions

To tackle the wicked problem of CSCL, we have used research-based design as a methodological approach (Leinonen & al., 2008; Leinonen, 2010). In research-based design, it is essential to see the results of the design –the artifacts– as primary outcomes and the main results of the activity. This way, the artifacts on their part are arguing the research results.

The research-based design process is a research praxis inspired by design theories (Ehn & Kyng, 1987; Schön, 1987; Nelson & Stolterman, 2003). It emphasizes creative solutions, playful experiments, and the building of prototypes. It encourages researchers and designers to try out various ideas and concepts. The research-based design process can be described as a continuous process of definition and redefinition of problems and design opportunities, as well as design and redesign of prototypes. Most of the activities take place in a close dialog with the community that is expected to use the tools designed. The process can

be divided into four major phases, although they all happen concurrently and side-by-side (figure 1). At different times of the research, researchers are asked to put more effort into different phases. The continuous iteration, however, asks researchers to keep all the phases alive all the time.

In the first phase –the contextual inquiry– the focus is on the exploration of the socio-cultural context of the design. The aim is to understand the environment, situation, and culture where the design takes place. The results of the contextual inquiry are better understanding of the context by recognizing in it possible challenges and design opportunities. In this phase, design researchers use rapid ethnographic methods, such as participatory observation, note-taking, sketching, informal conversations, and interviews. At the same time as the field work, the design researchers are doing a focused review of the literature, benchmarking existing solutions, and analyzing trends in the area in order to develop insights into the design challenges.

In the second phase –participatory design– workshops with the stakeholders are conducted. The workshops are based on the results of the contextual inquiry. In small groups of 4-6, the results of the contextual inquiry are discussed and developed further. A common practice is to present the results as scenarios made by the design researchers containing challenges and design opportunities. In the workshop, the participants are invited to come up with design solutions to the challenges and to bring to the discussion new challenges and solutions. Later, the participatory design workshops are organized to discuss the early prototypes.

The results of the participatory design are analyzed in a design studio by the design researchers and used to create early prototypes that are then tested and validated again in participatory design sessions. By keeping a distance from the stakeholders, in the product design phase the design researchers will get a chance to analyze the results of the participatory design, categorize them, use specific design language related to implementation of the prototypes, and finally make design decisions.

Ultimately, the prototypes are developed to be functional on a level that they can be tested with real people in their everyday situations. The prototypes are still considered to be a hypothesis, prototypes as hypothesis, because they are expected to be part of the solutions for the challenges defined and redefined during the research. It remains to the stakeholders to decide whether they support the assertions made by the design researchers.

Research-based design is not to be confused with design-based research (Barab & Squire, 2004; The Design-Based Research Collective, 2003; Fallman, 2007; Leinonen & al., 2008). In research-based design, which builds on art and design tradition, the focus is on the artifacts, the end-results of the design. The way the artifacts are, the affordances and features they have or do not have, form an important part of the research argumentation. As such, research-based design as a methodological approach includes research, design, and design interventions that are all intertwined.

4. Results: FLE4 and Square1 prototypes

By using the design-thinking approach and research-based design process described in the earlier sections, we have designed and developed two prototypes of the CSCL tools: (1) the fourth version of the Future Learning Environment (Fle4), a web-based software program for collaborative knowledge building, and (2) Square1, a collection of learning devices designed for collaborative learning at school.

Fle4 and Square1 both rely on social constructivist

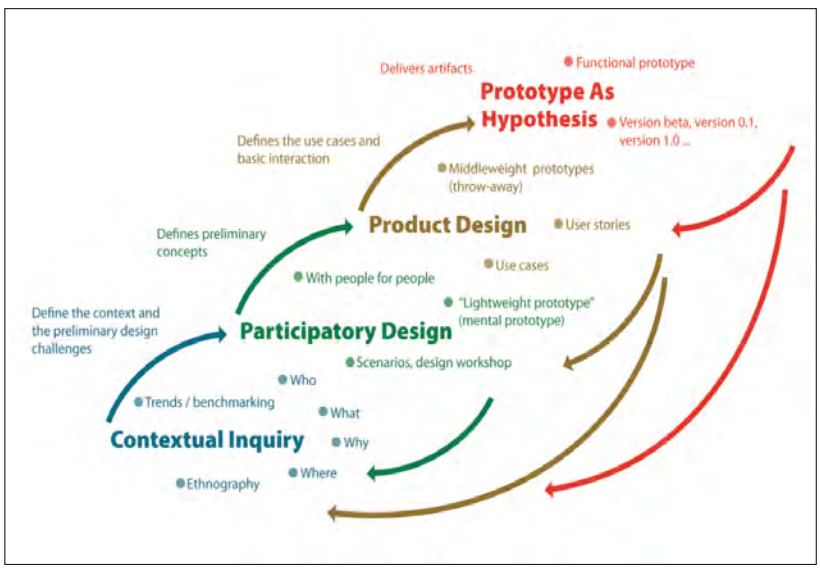

Figure 1. Research-based design process.

learning and Lev Vygostky's theory of the proximal development zone. The prototypes are designed to help and guide the learners' social process of knowledge construction that is distributed among the people and their tools in use. The pedagogical foundation has had a great impact on the design of prototypes. For instance, prototypes are designed so that learners do not only construct knowledge but also have a role in the co-creation of their learning environment.

Fle4 and Square1 have been designed based on the latest research in CSCL, where researchers have emphasized the importance of engaging students and teachers in coordinated efforts to build new knowledge and to solve problems together (Dillenbourg, Baker, Blaye & O'Malley, 1996). Similarly to other environments such as CoVis[1], CoNotes, Beldere[2], and CLARE, research on the two prototypes has focused on building upon and testing the theories of collaborative production, knowledge building discourse, and scaffolding. In the following, we present the tools, Square1 and FLE4, and describe in more detail the design research in different phases of the research-based design process.

4.1. FLE4 – Future Learning Environment 4

Fle4 (Future Learning Environment 4) is a tool for knowledge building designed to work on the WordPress blog platform (http://fle4.aalto.fi/about). Fle4 is the latest iteration and version of the FLE research started in 1998. During the years, we have released four functional prototypes, FLE (1988-1999), Fle2 (2000-2001), Fle3 (2002), and Fle4 (2012). FLE was originally addressed to children, teachers, and parents in Finland. Later the research was continued in a European context. In the case of Fle3, the tool has been used in all the continents, and the user interface has been translated into more than 20 languages. Even today, Fle3 is used in some primary and secondary schools.

The challenge that motivated the original design of FLE was the observed lack of student-centered knowledge building activities in schools in Finland. Although these ideas were discussed among teachers and in teacher-training schools, the actual practices in classrooms were seen to be traditional and hard to change. Therefore, FLE was intended to support Progressive Inquiry learning (Hakkarainen, 2003), a learning model developed side-by-side with FLE. Progressive Inquiry is a way of learning where teachers and learners are engaged in sustaining continuous knowledge building across different school subjects. The idea is to imitate practices of knowledge-intensive work – a process that is common among scientific research groups.

Similarly to other tools focused on collaborative inquiry, FLE aims to facilitate higher-level understanding by asking learners to present questions, to generate explanations and theories for the phenomena under investigation (Bruner, 1996; Carey & Smith, 1995; Dunbar & Klahr, 1988; Perkins & al., 1995; Scardamalia & Bereiter, 1993; Schwartz, 1995). Engaging learners to formulate new questions and explanations is a key issue as learners are more used to find answers to pre-existing questions rather than posing new ones.

The hypothesis of the FLE prototypes was that a well-designed computer supported collaborative learning tool could drive the inclusion of more knowledge building activities in the classroom and therefore change the existing pedagogical practices in schools. As the first full prototype of the FLE, the Fle3 offered a digital space in which members of the learning community could find: 1) Web-tops for learners to collect and share information, 2) a Knowledge building tool for scaffolded online discussion with the aim of increasing the group's level of knowledge and understanding about the topic under investigation, and a 3) jamming tool for the collaborative design of digital artifacts.

As the latest version, the Fle4 builds on the work carried out in the design of the Fle3. The FLe4 offers a tool for knowledge building that can be integrated and used with a blog service. When compared to the Fle3's knowledge building tool, the Fle4 provides visual and zoom-able network views to the discourse (figure 2). This is expected to help learners keep track of the various activities in the knowledge building discourse as well as organize notes according to their importance. Fle4 also provides more advantaged ways to explore the knowledge building discourse by clustering notes according to authors and used knowledge types. Learners may also view the notes on a timeline.

In the design research of the different versions of FLE, the contextual inquiry of the research-based design process has been focusing on the practices of school learning and the possibilities to change some of them. By studying school children, teachers and parents were able to recognize a need to change the practice, although we also realized that it can be very hard and may take very long time. Another key observation deals with the changes happening in the whole knowledge infrastructure: the Internet connections and computers in schools were supposed to challenge traditional school learning, although at the same time, services such as the Learning Management Systems (LMS) provided for schools were relying on the traditional methods of teaching and learning. With the

FLE, we wanted and still want to present an alternative approach to use computers and the Internet in school learning: more student-centered with a strong emphasis on collaborative work with knowledge.

As part of the design-based research process in the FLE research, we have conducted numerous participatory design sessions with teachers and schoolchildren in several European countries. In these, we have designed features with teachers and children and tested paper prototypes and early versions of the software.

In the product design phase of the research-based design process, we have analyzed the qualitative data gathered from the participatory design sessions and have made design decisions related to the prototypes. Often we have found out that what teachers or schoolchildren want is not what they need, and by negotiating these conflicts, we have often reach a good consensus with most of the people who have taken part in the sessions.

Later in the research-based design process, we have developed the prototypes by following the principles of agile software development, which consists of short cycles of development that allows getting immediate feedback from the people using the software. In the case of FLE prototypes, they have been tested by thousands of users. From this testing we have collected both quantitative and qualitative data that has been analyzed to inform design decisions for the next iterations of the prototype.

Parallel to the design and development of FLE, learning methods based on collaborative inquiry processes were designed and communicated to thousands of teachers in order to validate the pedagogical approach. By building an FLE prototype and introducing a new learning model –the progressive inquiry– we were able to raise awareness among the educators but not necessarily to change school learning. Still, we may claim today that the experiments carried out with the various FLE prototypes and discussions around them, have shaped in a small way the research field of technology-enhanced learning and computer-supported collaborative learning.

4.2. Square1

Square1 is a prototype that consists of several learning devices designed for collaborative learning at school. The design builds on Sugata Mitra's Self-Organizing Learning Environments (SOLE) (2012, 2013; Mitra & al. 2010). In SOLE, schoolchildren, working in groups of four in front of a single computer, are given relatively open-ended questions they must answer by searching information from the Internet and by developing their own explanations. While studying in small groups, they may visit other groups and see what they have found out and they can also change groups if they want. This kind of collaborative construction of explanations is expected to engage children in the learning process that Perkins et al. (1995) have characterized as a process of understanding by «working through». By searching and trying to understand in small groups, students are empowered to work with various information sources, to evaluate them, to combine from them explanations with their own level of understanding, and to have sensible and meaningful discussions on difficult topics.

Square1 connects with the move from personal to interpersonal computers (Kaplan & al., 2009). This has strong implications in how we conceptualize collaborative work, learning, and the sort of interactions that we intend to happen in face-to-face situations. In the original SOLE model, four children work in front of a single computer. In practice, the computers are used only to search information related to the topic under study. With the Square1, we wanted to experiment with how devices could exist that are precisely designed for SOLE or a similar kind of collaborative process, that, in addition to searching information from the Internet, supports students to negotiate on the findings, to organize them, and to create new knowledge such as problems, hypothesis, and conclusions about the issues under study.

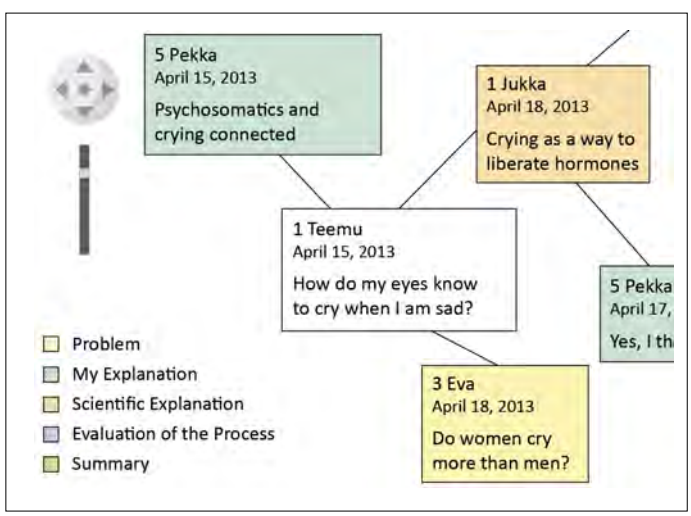

Figure 2: FLe4 knowledge building tool's map view.

The Square1 prototype set includes three devices: (1) one for writing, (2) one for drawing, and (3) one central computer device for search and presentation composition (figure 3). With these devices, a group of four schoolchildren can do searches on the Internet with the central piece, write notes with the writing devices, and draw pictures with the drawing devices. Working with the central piece is expected to generate negotiation on the reliability and selection of sources, which will be used in the presentation of their research. With the writing and drawing device, children are expected to create content that will be included in the presentation of their findings and explanations. The things written and drawn with the devices can be moved to the central piece, where they are again composed together to be the presentation of the research.

A distinguishing aspect of the Square1 prototype is its connection to and fostering of a maker culture. The Square1 is designed to be assembled by children in school. The blueprints of the cases can be downloaded from a website and manufactured either with computer-aided manufacturing tools such as 3D printers and laser cutters or with traditional handicraft tools such as saws and screwdrivers. From the website, children may also find information about the components needed to assemble the devices and download all the software needed. In this sense, Square1 relates to some extent to the principles of Educational Sloyd, an educational movement started in Finland in the 1860s, which advocated handicraft-based general education. Other references in the Square1 concept come from initiatives, especially in the United States, that promote children as makers (e.g., Tinkering School[3], the Mentor Makerspace[4] program, and Otherlab)[5].

The hypothesis of the Square1 prototype has been that by introducing a set of computer devices that are built by children and precisely designed for SOLE purposes, children will reach a higher level of ownership of their learning, get a better understanding of the technology used in their everyday life, and get engaged to the SOLE kind of learning projects. The experience of building their own learning devices and by using them in learning where they are responsible for the results of learning is expected to have a long-lasting empowering effect on the children.

The design of the Square1 prototype also carries the idea of slow technology. The slowness does not mean slowness of the software running in the device but rather being slow with some tasks when compared to the time needed to complete them with a pen and paper or a laptop computer. This approach is aligned with slow technology where, according to Hallnäs & Redström (2001), slowness is a key factor that could bring forth, and make room for, reflection. In this regard, slow technology should be considered as an attempt to discuss the foundations for design as such in information technology (Glanville, 1999).

During the contextual inquiry of the Square1's research-based design process, we have visit several schools in Finland to observe their ways of using laptops, tablets, and smartphones as well as trends related to handicraft teaching in schools. In many schools, there are good facilities to assemble devices like the Square1, and the lack of deeper technology education with the information and communication technologies has been recognized by many teachers. The SOLE model is known by some teachers, and there is interest in trying it out in schools. The information gathered and the analyses of it done during the contextual inquiry helped us to define the design challenge.

In the participatory design phase of the research-

Figure 3: Visualization of the Square1 November 2012 prototype (by Anna Keune).

based design process, we have run 12 workshops with schoolchildren in Finland and in the United States. In these participatory design sessions, children have been creating the initial idea and have developed it further with paper and cardboard prototypes. In the research group, we also have played SOLE with the cardboard prototypes to get a first-hand experience on the learning model and its possible implementation with the Square1 prototype.

Back in our design studios in Helsinki (Finland) and Berkeley (USA), we have analyzed the data from the participatory design sessions and have made design decisions on the development direction of the prototype. Parallel to the hardware design, we have started working on a software prototype. Furthermore, we have started to test potential components available in the market. This way, the product design is already partly mixed with the production of the first functional prototypes.

Square1 is still in the stage of being an early prototype, and the research is a work in progress. Initial testing of the first functional prototypes in a classroom environment will start in the autumn of 2013. In the first stage of testing, we will focus on the use of the devices in the SOLE and then move to the second stage of testing, where children will be asked to assemble their own devices.

5. Discussion and conclusion

As a methodological approach, design thinking and the research-based design process relies on a shared, social construction of understanding with the people who will later use the tools. For instance, Bonsignore et al. (2013) have proposed participatory design techniques in the design of technologies for collaborative learning. When using the design-thinking approach, we may also see that the insights are gained in a dynamic process of «reflection-in-action», where action is used to extend thinking and reflection is governed by the results of action (Schön, 1987).

Design thinking is deeply human-centered system thinking. In the case of CSCL research, it can help researchers take into consideration both the students and the teachers in a system. With research-based design, design research can conclude with prototypes that will have a real impact on the everyday practices of teaching and learning.

The research-based design process aims to meet the challenge of designing for use before it actually has taken place – design for use before use (Redström, 2008). In order to achieve this goal, it is crucial to involve the participants in the design process, allowing them as «owners of problems» to act as designers and to keep the prototypes open for further development (Fischer, Giaccardi, Ye, Sutcliffe & Mehandjiev, 2004). In the research-based design process, it is not possible to decide at first what the problems are and what is needed. Therefore, it is essential for designers to engage in an open dialogue with participants and collaborate with them in a process of shared meaning construction.

Approaching CSCL research with a design-thinking mindset opens the door for more experimental prototypes in which failures are also considered as results. Although in research-based design it is important to be systematic and analytical, creativity, serendipity, and intuition that comes from the art and design traditions can offer valuable input.

Another aspect to take into consideration in the discussion about design thinking and research-based design in CSCL research is the designers' commitment to service. The tools designed are there to serve the learners and teachers and this should be a driving force throughout the design research process. The utilitarian service approach doesn't mean that designers should not be aware of theories of pedagogy and social science – quite the opposite. Designers must understand pedagogical ideas and be able to use them in their designs and enrich the field with their contribution. Therefore, we consider that design thinking can be an interesting, alternative approach in CSCL research, especially when the aim is to provide learners and their teachers with CSCL tools that will serve them.

Notes

[1] CoVis: www.covis.northwestern.edu (02-09- 2013).

[2] Beldevere: http://belvedere.sourceforge.net (02-09- 2013).

[3] The Tinkering School, 2012: www.tinkeringschool.com/about (02-09- 2013).

[4] Mentor Makerspace, 2013: http://makerspace.com/tag/mentor-makerspace (02-09- 2013).

5 Otherlab: www.otherlab.com (02-09-2013).

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Primary School Second Grade Teachers' and Students' Opinions on Media Literacy

Creencias sobre alfabetización mediática en profesores y estudiantes de Educación Primaria

ABSTRACT
In this study, interviews were conducted with teachers of media literacy to determine the needs of media literacy teaching in the classroom. As a result, we see that teachers need in-service training for classes in media literacy; the media literacy lesson is adequate in terms of content but inadequate as an activity. Students indicated significant changes in their perceptions of media after taking these lessons. A «Media Literacy Level Scale» and a «Media Literacy Attitude were applied to determine students' level and attitude. The information on students was obtained through the «Private Information Form». As a result, a positive, low-level and significant relationship was found between the students' attitude levels on media literacy lessons and their media literacy levels. The study's conclusion is that there is no significant difference between the media literacy classes taken by the primary school second grade students and their attitudes and levels on media literacy. Also, no significant difference was found between the educational levels of the parents of these second graders and their attitudes and levels on media literacy. However, there was a significant difference between the students' daily newspaper reading habits and the frequency of listening to the radio and their attitudes on media literacy classes and media literacy levels.

RESUMEN
El objetivo de este trabajo es definir la situación y necesidades actuales de alfabetización mediática en el aula, a través de una serie de entrevistas. Los resultados demuestran que los docentes necesitan formación en esta área, que la enseñanza en alfabetización mediática es adecuada en términos de contenido pero inadecuada como actividad. Los estudiantes muestran cambios significativos en sus propias percepciones sobre los medios tras recibir clases de alfabetización mediática. Para evaluar el nivel y la actitud de los estudiantes se aplicaron una escala de alfabetización mediática y una escala de actitud. La información se obtuvo a través de un formulario de información privado desarrollado por los investigadores. En las conclusiones se halló una relación significativa, positiva y de bajo nivel entre los grados de actitud hacia los contenidos de la alfabetización mediática. La principal conclusión obtenida es que no existe una diferencia significativa entre los estudiantes que asisten a clases de alfabetización mediática en segundo grado de educación primaria y sus actitudes en el aula y su nivel de alfabetización. Asimismo, tampoco se aprecia una diferencia significativa entre el nivel educativo de los padres y sus actitudes. Sin embargo, sí se aprecian diferencias notables cuando existe hábito de lectura diaria de la prensa y la radio.

KEYWORDS / DESCRIPTORES
Media literacy, Primary School, teacher training, perceptions, scales, attitudes, educational levels.
Alfabetización mediática, educación primaria, formación docente, percepciones, escalas, actitudes, nivel educativo.

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1. Introduction

Media is a word of Latin origin and it originates from Medium, Mediae which means belonging to the public (Bülbül, 2000: 1). This author describes the media as the whole mass media that includes print media (newspapers, magazines), electronic media (radio, television, cinema and film) and planning of cinevision, multivision, hypermedia, Internet, computing, video, books, tele-photos, radio-photos, lifax, frequencies, telephone satellites, telex, fax and telecommunication, all of which enable communication through the written word, audio or video. Media is a wide area which covers all mass media. But according to Potter (2001), we live in two different worlds; one is the media world (the virtual world contains all mass media where we can access messages), the other is the real world (the world where we come together and communicate with our friends and the people around us and exchange ideas) (Kutoğlu, 2006: 62). The media that reach everyone (young and old people) to a greater or lesser extent not only inform but also entertain; they affect and sometimes change the individual's value judgments, attitudes and beliefs (Özad, 2006: 56). The media that seek out all people of all ages can easily influence the individual, who sometimes realizes that he is subjected to media influence and is consciously affected, but on other occasions he can be unaware. Samuelson (2003) declares that individuals mostly do not realize the effect mass media news, advertisements or messages have on the clothes they wear, their lifestyle or political opinions; furthermore, people feel happy when they act, talk or live just like those they see in the media (Karaman & Karataş, 2009: 800). Media not only influence the individual, they also influence society. Media as an effective force acting on society are considered to be part of the fourth estate after legislation, enforcement and pronouncement, and they can even affect the other three estates from time to time, not only in our country but also around the world (Şeylan, 2008: 9).

According to Potter (2001), media literacy has many definitions. It has different modes. It is relative and depends on the person. Audience-oriented, it changes according to the conscious and the known. Nobody is completely media literate. It is a complicated concept, not simple (Efe-Özad, 2006: 56). The most common definition of media literacy is defined as the capacity to access a variety of messages and gain the capacity to analyze, evaluate and communicate with them (Çöloğlu & Özalpman, 2009: 195). According to the definition from «The National Leadership Conference on Media Literacy», media literacy includes the ability to analyze, evaluate and respond to messages (RTÜK [Radio and Television Supreme Council], 2007). Media literacy requires the ability to access media messages, analyze and evaluate them. Media literacy is a skill of critically thinking that allows the user to interpret the information received through the channels of mass media and enables them to develop independent decisions about the content (Erdoğan, 2010: 50). Media literacy is the capacity to take independent decisions about media content and think critically.

According to Baran (2004), media literacy is the ability to take pleasure from media content through comprehension and appreciation of media literacy (Özonur-Çöloğlu & Özalpman, 2009). Media literacy is not only a means for understanding media content, it is also about feeling secure in an appreciation of the media. Today media literacy has the same meaning as in the ninth century (Apak, 2008: 13). In the study by Sonia Livingstone and Maria Bovill, «Young People, New Media» (1999), they define media literacy as the ability to appraise critically, gaining relative values from information of different sources, and the capacity to understand the structure, form, power and limitations of screen-based content (Thoman & Jolls, 2005: 9; Apak, 2008: 13). Media literacy requires a critical point of view regarding media tools; it particularly requires the ability to comprehend tools such as TV and Internet. Media literacy can be defined as a term describing a person who deserves the title of media master as a result of an educational process which requires educational organization, background knowledge and capacity to detect and differentiate media messages (reconstructed) and make comments about them (Taşkıran, 2007: 7).

Media literacy requires the skill to realize that the messages taken from media are reconstructed in the media. An individual needs a different skill, background knowledge and educational organization in order to be media competent. In order to be media literate, we should be in touch with media. The individual who is in touch with media can begin to access information about mass media. Then, he acquires a critical understanding of the mass media. Media literacy (media competency) means acquiring capabilities to undertake appropriate actions in the world formed by media (Alver, 2011: 11). Media literacy is a framework that summarizes life and it is a potential skill that requires continuous updating year-on-year, and which changes the quality of life completely (Sadriu, 2009: 54). Media literacy gives information to the individuals about media

tools and improves the quality of their lives.

2. Method

This research presents the views of teachers and students on a media literacy class for second grade primary school pupils. What is the extent of the relationship between the attitudes on media literacy of second grade primary school students who have received media literacy education and their media literacy levels?

Are their attitudes on media literacy and their media literacy levels different according to their

1) class year?
2) father's educational levels?
3) mother's educational levels?
4) the hours they spend watching TV per day?
5) their habit of reading daily newspapers?
6) the frequency they listen to radio?
7) What are the opinions of the media literacy teachers in the second grade of primary school regarding media literacy?

This study is configured with a mixed methodology including a survey as part of the quantitative measurement process, and interviews as part of the qualitative measurement process.

2.1. The working group

This research working group includes the students who take the media literacy lessons as optional subjects and the teachers who give those classes in the primary schools of Konya-Ereğli.

According to table 1, the working group consisted of 246 students from sixth grade, 72 students from seventh grade and127 students from eighth grade.

The interviews were carried out with four teachers, two men and two women. The statutory tenure of teacher T1 is 12 years, of teacher T2 18 years, teacher T3 7 years and teacher S1 10 years. Three teachers graduated as Teachers of Turkish and one in Social Sciences.

The interviews were conducted between 01/05/2012 – 16/05/2012. The longest interview was 35 minutes, with T1, and the shortest was 20 minutes, with S1. The teachers had had no in-service education on media literacy lesson.

Table 1: Distribution of students who entered the working group by class

Class	Nº	%
Sixth Grade	246	55.1
Seventh Grade	72	16.2
Eighth Grade	127	28.5
Total	445	100

Table 2: Information about the teachers who entered the working group

Teacher Code	Gender	Age	Faculty Graduation	Statutory Tenure
T1	Female	34	Turkish Teacher	12
T2	Male	56	Faculty of Education/Turkish Teacher	18
T3	Female	29	Turkish Teacher	7
S1	Male	32	Social Sciences Teacher	10

2.2. Data collection tools

This study used a «Teacher Interview Form», an «Attitudes Scale on Media Literacy» and a «Media Literacy Level Assessment Scale» as research tools. During the interview with teachers, the interviewer posed the questions in the same order and phrased them in same way, and tried to minimize his impact and subjective judgments. The interviews were recorded with the permission of the interviewees. All participants were given a code number in order to analyze the data obtained from the interview. Turkish Teachers were coded as T1, T2 and T3 while the Social Sciences Teacher was coded as S1.

Tabla 3: Entrevistas con docentes

Código docente	Fecha entrevista	Lugar de la entrevista	Duración de la entrevista
T1	01/05/2012	Biblioteca	35 minutos
T2	03/05/2012	Biblioteca	30 minutos
T3	14/05/2012	Biblioteca	25 minutos
S1	16/05/2012	Despacho profesor	20 minutos

The scale applied to the students consists of three parts. In the first, there are 8 questions under the heading «Private Information Form», which aim to determine how many hours a day the students spend watching TV and the educational level of their parents.

In the second part, there is a 31-item scale named «Attitudes Scale on Media Literacy» that aims to determine the students' attitudes towards media literacy (Elma & al., 2009a).

The «Media Literacy Attitude Scale» is a 4-factor scale that measures the alpha internal consistency coefficient and item-total correlations as a reliability symbol for each sub-factor; the articles of the scale are seen to be distinguishing. A five-point Likert rating scale was used to determine the students' ideas. The scale consists of these choices: (5) I completely agree, (4) I agree, (3) I have no idea, (2) I disagree, (1) I strongly disagree.

In the third part, there is a «Media Literacy Level Assessment Scale» prepared by Karaman & Karataş

(2009), whose purpose is to determine teacher media literacy levels. Some articles are adapted in accordance with the elementary school students' levels of understanding.

The data collection tool consists of three parts to determine the students' socio-demographic characteristics, the relationship between the students and mass media, and the students' media literacy levels. The questions are rated as five-point Likert including 1= Never, 2=Rarely, 3=Sometimes, 4=Mostly, and 5= Always. The articles on the scale are classified as three factors; «having true knowledge», «ability to analyze and form a reaction» and «ability to hear/see the implicit messages».

2.2.1. Structural validity and reliability of the media literacy level assessment scale

It was decided to make a factor analysis of the study in order to determine the validity of the scale. First, KMO and Barlett tests were done in order to test whether the scale was appropriate for the analysis. In this context, the KMO test score should be .50 or higher, and the Barlett globalization test should be statistically significant (Jeong, 2004: 70). As a result of this study, the KMO test score was 93 and the Barlett globalization test ($P<0.01$) result was significant. In the exploratory factor analysis, the limit value is taken as .45 for the factor loading, and the varimax rotation technique, as one of the vertical techniques, was used to find items with a high correlation and to facilitate determinations on the factors. Two factors were obtained as a result of the exploratory factor analysis on the Media Literacy Level Assessment Scale. The first factor reached 28.45% and the second factor 27.97% of the total variance of the scale. The total size of the scale was 56.42%. For Büyüköztürk (2002: 119), it is sufficient for the rate variances to be explained if the scale has one factor that is 30% or higher. The data obtained from the factor analysis emphasize that the validity of the scale is high level.

The Media Literacy Level Assessment Scale initially included 16 articles, but then it was decided to discard those substances (5, 16) which did not figure in any article or which had a load value under .45, thus reducing the scale to 14 articles. Büyüköztürk (2002: 119) indicates that if the factor co-variance of the substances is close to 1 or higher than .66 then it is a good solution, but, in practice it is generally difficult to accept. After factor rotation, the first factor is seen to include 7 substances (8, 10, 11, 12, 13, 14, 15), as does the second (1, 2, 3, 4, 6, 7, 9).

Cronbach's alpha reliability coefficient was performed to determine the reliability of the scale. According to the statistics, Cronbach's alpha value was.93, and the values related to the scale's first and second factors were .87 and .90 respectively.

2.2.2. Structural validity and reliability of the attitude scale on media literacy

It was decided to make a factor analysis to determine the validity of this scale. First, KMO and Barlett tests were run to find out whether the scale was appropriate for the analysis. In this context, the KMO test result should be .50 or higher, and the Barlett globalization test score should be statistically significant (Jeong, 2004: 70). In this study, the KMO test result was 88 and the Barlett globalization test ($P<0.01$) result was significant. In the exploratory factor analysis, the limit value was taken as .45 for the factor loading, and the varimax rotation technique, as one of the vertical techniques was used to find items with a high correlation and to make determinations on the factors.

Four factors were obtained as a result of the exploratory factor analysis on the Media Literacy Level Assessment Scale. These factors amounted to 22.59%, 9.13%, 8.54% and 8.46% of the total variance of the scale, respectively. The total scale size was 48.72%. The data obtained from the factor analysis emphasize that validity of the scale is high level.

The Media Literacy Level Assessment Scale initially included 31 articles. However, after discarding those substances with a load value under .45 (6, 11, 12, 13, 25, 28), there remained 25 articles. Büyüköztürk (2002: 119) indicates that if the factor covariance of the substances is close to 1 or higher than .66 it is a good solution, but, in practice it is generally difficult to accept. After factor rotation, four factors were observed to include 13 (14,15,16, 17,18,19, 20, 24, 26, 27, 29, 30, 31), 4 (7,8,9,10); 5 (1, 2, 3, 4, 5) and 3 articles (21, 22, 23), respectively.

Cronbach's alpha reliability coefficient was performed to determine the reliability of the scale. According to the statistics, Cronbach's alpha value was .88 and the values for the scale's factors were .89, .73, .63, and .70, respectively.

2.3. Data resolution and analysis

Before resolution of the data, the surveys were given a sequence number. We used 445 scales for the evaluations. In conclusion, the points on the attitude scale on media literacy are: 5) I completely agree, 4) I agree, 3) I have no idea, 2) I disagree, 1) I strongly disagree. The media literacy level assessment scale is determined as: 1=Never, 2=Rarely, 3=Sometimes, 4=Mostly, 5=Always.

Table 4: The correlation table shows the relationship between the attitude on media literacy classes and media literacy levels		
	Attitude	Level
r	1	.195(**)
p		.000
n	445	445

3. Results and comments

The correlation table related to the question «What is the level of the relationship between the attitudes towards media education of students who have received media literacy education in the second grade of primary school and their media literacy levels?» is shown in table 4.

When we analyze table 4, we see a positive, low-level and significant relationship between the attitudes of primary school second graders towards media literacy and media literacy levels (r=.195, p<0,05). This result could mean that the greater the change in the attitude level towards media literacy classes of primary school second grade students, the more the media literacy levels can fluctuate.

As the perception styles and levels of being influenced by the media literacy classes among primary school second grade students change, so their attitudes towards this lesson modify. The levels of media literacy of students with positive attitudes towards this lesson also increase.

1) Results of the first sub-problem. The results related to the problem expressed in the question «Are primary school second grade students' attitudes on media literacy and their media literacy levels different according to their classes?» are presented in table 5.

As we see in table 5, the one-way variance analysis shows that there is no significant difference related to media literacy lessons (F(3-441)=2.555, p>0.05) and media literacy levels F(3-441)=.979, p>0.05) between the classes taken by primary school second grade students and attitudes. Yeşil & Korkmaz (2008: 68), who are student teachers, determined that there is a significant difference according to class grade between TV addiction and literacy levels. That is, the TV literacy levels of the students who are in 4th grade are higher than those of students in 1st grade.

2) The results of the second sub-problem. The results related to the problem raised in the question «Are primary school second grade students' attitudes on media literacy and their media literacy levels different according to their fathers' educational level are shown in table 6.

As observed in table 6, the result of the one-way variance analysis shows there is no significant difference related to media literacy lessons (F(4-440)=.342, p>0.05) and media literacy levels (F(4-440)=.802, p>0.05) between the educational level of the fathers of primary school second grade students and attitudes.

Table 6: One-way ANOVA table shows the Primary School Second Grade Students' Attitude Level on Media Literacy and Media Literacy Levels according to the fathers' educational level						
Scale		Sum of Squares	Sd	Average of Squares	F	p
Attitude	Between Groups	.624	4	.156	.342	.849
	In group	200.615	440	.456		
	Total	201.239	444			
Level	Between Groups	3.722	4	.930	.802	.524
	In Group	510.532	440	1.160		
	Total	514.253	444			

In literature, we have not found a study which shows the relationship between attitude levels on the media literacy of the primary school second grade students who take media literacy classes and their fathers' level of education.

3) The results of the third sub-problem. The results related to problem posed in the question «Are primary school second grade students' attitudes on media literacy and their media literacy levels different according to their mothers' educational level are shown in table 7.

As seen in table 7, the result of the one-way variance analysis is that there is no significant difference related to media literacy lessons (F(5-439)= .807, p>0.05) and media literacy levels (F(5-439)=

Table 5: One-way ANOVA table shows the Primary School Second Grade Students' Attitude Towards Media Literacy and Media Literacy Levels, according to the classes they taken						
Scale		The sum of squares	Sd	Average of squares	F	p
Attitude	Between Groups	3.439	3	1.146	2.555	.055
	In Group	197.801	441	.449		
	Total	201.239	444			
Level	Between Groups	3.403	3	1.134	.979	.402
	In Group	510.850	441	1.158		
	Total	514.253	444			

Table 7: One-way ANOVA table shows the Primary School Second Grade Students' Attitude Level on Media Literacy and Media Literacy Levels according to the mothers' educational level

Scale		Sum of Squares	Sd	Average of Squares	F	p
Attitude	Between Groups	1.834	5	.367	.807	.545
	In Group	199.405	439	.454		
	Total	201.239	444			
Level	Between Groups	5.050	5	1.010	.871	.501
	In Group	509.204	439	1.160		
	Total	514.253	444			

.870, p>0.05) between the educational level of the mothers of primary school second grade students and attitudes. In literature, we have found no study which shows the relationship between the attitude levels on media literacy of the primary school second grade students who take media literacy lessons and their mothers' educational level.

4) The results of the fourth sub-problem. The results related to the problem in the question «Are primary school second grade students' attitudes on media literacy and their media literacy levels different according to the hours they spend watching TV per day?» are in table 8:ol Second Grade Students' Attitude Level on Media Literacy and Media Literacy Levels according to how many hours they spend in front of the TV.

As observed in table 8, the result of the one-way variance analysis is that there is no a significant difference related to media literacy lessons (F(5-439)=1.030, p>0.05) and media literacy levels (F(5-439)=.860, p>0.05) between the number of hours the primary school second grade students spend watching TV per day and attitudes. In literature, we have found no study which shows the relationship between the attitude levels on media literacy of the primary school second grade students who take media literacy lessons and the amount of spent time in front of TV.

5) The results of the fifth sub-problem. The results related to the problem in the question «Are primary school second grade students' attitudes on media literacy and their media literacy levels different according to their habit of reading daily newspapers?» are shown in table 9.

As seen in table 9, the independent test reveals that there is a significant difference related to media literacy lessons (t(441)=3.582, p<0.05) and media literacy levels (t(441)=2.482, p<0.05) between the primary school second grade students' reading of daily newspapers and attitude. When we look for a reference for this difference, we see the balance is in favor of those who read daily newspapers.

Karaman & Karataş (2009) researched student teachers' media literacy levels regarding reading daily newspapers. According to their research, there is a significant difference between those who read newspapers on a daily basis and those who do not. In addition, the media literacy levels of these readers of daily newspaper are higher. Şahin & Tüzel (2011) made a study to determine to what extent student teachers believe the media reflect what is happening in the real world. They concluded that it is understood that those student teachers who consider TV, radio and the Internet to be the most reliable media tool have more positive views about the issue of the media reflecting the real world than those who consider books and newspapers to be the most reliable media tool. Santibáñez (2010); Ponte & Aroldi (2009) made an important study on this subject. In a study by Yazgan & Kıncal (2009: 509), they determined that college students who read more newspapers than their peers have greater skills in critical media literacy (Şahin & Tüzel, 2011:135). The results of similar studies support the result of this research.

6) The results of the sixth sub-problem. The results related to problem expressed in the question «Are primary school second grade students' attitudes on media literacy and their media literacy levels different according to how often they lis-

Table 8: One-way ANOVA table shows the Primary School Second Grade Students' Attitude Level on Media Literacy and Media Literacy Levels according to how many hours they spend in front of the TV per day

Scale		Sum of Squares	Sd	Averages of Squares	F	p
Attitude	Between Groups	2.333	5	.467	1.030	.399
	In Group	198.906	439	.453		
	Total	201.239	444			
Level	Between Groups	4.989	5	.998	.860	.508
	In Group	509.264	439	1.160		
	Total	514.253	444			

Table 9: Independent Test showing the Primary School Second Grade Students' Attitude Level on Media Literacy and Media Literacy Levels based on reading daily newspapers?

Scale	Reading Newspaper	n	$\bar{x}$	S	t	P
Attitude	Yes	215	3.55	.65	3.582	.000
	No	228	3.33	.68		
Level	Yes	215	3.58	1.07	2.482	.013
	No	228	3.33	1.07		

ten to the radio?» are presented in table 10.

As seen in table 10, the result of the one-way variance analysis shows that there is no significant difference related to media literacy lessons ($F(3\text{-}4441)= 4.508$, $p<0.05$) and media literacy levels ($F(3\text{-}441)= 3.868$, $p<0.05$). between how often primary school second grade students listen to the radio and attitudes.

According to the results of the Scheffe Test made to determine the differential reference point in the primary school second grade students' attitudes on media literacy between those who listen to or do not listen to the radio, we can see that there is a difference in favor of those who listen to radio a few hours a day. The test shows that in the primary school second grade students' media literacy levels, there is a difference in favor of those who listen to the radio once a week and those who do not. In the literature review, we found no result that was as directly proportional or inversely proportional as this result.

4. Conclusions and recommendations

4.1. Conclusions

When we examine the relationship between the primary school second grade students' attitude level on media literacy classes and media literacy levels, we find a positive, low-level and significant relationship. This situation shows that the more the attitude level on media literacy lessons of primary school second grade students increases, the greater the fluctuation in media literacy levels. It is well-understood that there is no significant difference between primary school second grade students' classes where they are taught media literacy and attitudes towards the media literacy lesson and media literacy levels. It is seen that there is no significant difference between the educational level of the fathers of primary school second grade students and the attitudes related to media literacy classes and media literacy levels. It is also seen that there is no significant difference between the educational level of the mothers of primary school second grade students and the attitudes related to media literacy lessons and media literacy levels.

There is also no significant difference between the number of hours the primary school second grade students spend in front of the TV and attitudes related to media literacy lessons and media literacy levels. We also observe that there is no significant difference between the primary school second grade students' consumption of newspapers on a daily basis and attitudes related to media literacy lessons and media literacy levels. There is also no significant difference between how often primary school second grade students listen to the radio and the attitudes related to media literacy classes and media literacy levels. Finally it is understood that there is a significant difference in favor of those who listen to the radio once a week and those who do not. The conclusions from the interviews with teachers about media literacy are that teachers do not have enough information about the media literacy education program or they give media literacy courses using a system that is virtually one of rote learning.

Teachers think that media literacy lessons are adequate in terms of content but the activities are inadequate. They also indicate that they use the «Teacher's Handbook for Media Literacy Lesson» and they mainly use the discussion method during the lesson. As a result of interview we can see that teachers have some difficulties with these lessons because they did not have in-service training on how to give media literacy classes. Teachers think that this lesson has a positive effect on the students' perspective on media. On the other hand, teachers indicate that there is positive progress in students' attitudes after taking this lesson.

Table 10: One-way ANOVA table shows the Primary School Second Grade Students' Attitude Level on Media Literacy and Media Literacy Levels according to the frequency with which they listen to the radio?

Scale		Sum of Squares	sd	Average of Squares	F	P
Attitude	Between Groups	5.987	3	1.996	4.508	.004
	In Group	195.252	441	.443		
	Total	201.239	444			
Level	Between Groups	13.185	3	4.395	3.868	.009
	In Group	501.068	441	1.136		
	Total	514.253	444			

The teachers agree that a media literacy lesson can be effective. They state that, after taking this lesson, there is a progress especially in the perception of TV, for example, which they watch in accordance with their age and level. The teachers think that media literacy classes are related to their own departments, so Turkish teachers think this lesson is associated to the teaching of Turkish and the Social Sciences teacher thinks this lesson is associated with Social Sciences. Teachers also think that they should receive training in this area before they give courses; media education should be given to student teachers at university and conferences should be organized on this issue; working in the various media organs at the universities can also be useful for students. The evaluation of the interviews with the teachers show us that they are not trained sufficiently in the constructivist teaching method. The teachers think that there should be more mass media in the context of the media literacy lesson.

4.2. Recommendations

The more students' attitude levels on media literacy increase, so their media literacy levels rise as well. Students develop their attitude as they perceive the media literacy lesson, and he/she is affected by that lesson. A media literacy education program should be developed considering this situation and the activities that can catch the attention of children and which would be appropriate for them. Thus, the lesson will have reached its objective and the media literacy level will have increased. Because there is no difference between the children's classrooms (where they are educated) and their attitudes to the media literacy class and their media literacy levels, whenever we want, this lesson can be given to the primary school second grade students (6th, 7th and 8th grades), students who read daily newspapers which affect their media literacy levels and attitudes in a positive way. For this reason, students should be directed to use the newspapers in the media literacy lesson. Students' listening to the radio affects their media literacy levels and attitudes in a positive way. For this reason, students should also use the radio in the media literacy lesson. The teachers should take in-service training on how to plan a media literacy lesson. In that way, the lack of knowledge would be overcome about media literacy lesson planning and this lesson's educational program. In addition, media literacy lessons should be given to student teachers at universities. Media literacy lessons are given at different schools and by different subject teachers. The necessary measures should be taken for this confusion to be removed.

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Empowering Media Citizenship through Educommunication

Empoderar a la ciudadanía mediática desde la educomunicación

ABSTRACT
This article analyses the different meanings of the citizenship concept (political, legal, social, economic, ecological and intercultural) in order to justify the current media citizenship concept, which is particularly useful and valid for media education. The ultimate goal is to rebuild the social, ethical and political dimension of educommunication on a practical and philosophical foundation. With this in mind, we have analysed two very powerful and current approaches, the ethics of dialogue and ability, mainly because of their links to communication and their contribution to the human development concept, which is on the media education agendas of international organizations such as UNESCO or the European Commission. From the philosophical foundation proposed, the criteria for evaluating and reconstructing the practical dimension of educommunication are: civic participation, freedom as development and critical autonomy, which are also considered goals of the educational systems in pluralistic and democratic societies, especially from a model of deliberate and participatory democracy. The paper concludes with a positive evaluation of interdisciplinary approach in the study of media education, an educational project that is crucial for the revival of civil society and the empowerment of citizens in the current communicative context.

RESUMEN
En el presente artículo se analiza el concepto de ciudadanía en sus diferentes significaciones (ciudadanía política, jurídica, social, económica, ecológica e intercultural), con el fin de justificar la actualidad del concepto de ciudadanía mediática, sobre todo por su validez en el ámbito de la educomunicación. El objetivo último es reconstruir la dimensión social, ética y política de la educomunicación a partir de un fundamento filosófico práctico. En esta tarea de fundamentación, cabe apelar a dos enfoques muy potentes en la actualidad como son la ética dialógica y el enfoque de las capacidades, por su vinculación con el ámbito comunicativo y por su contribución a la noción del desarrollo humano, presente en los programas de educación mediática de organismos internacionales como la UNESCO o la Comisión Europea. A partir de la fundamentación filosófica ofrecida, los criterios para evaluar y reconstruir la dimensión práctica de la educomunicación son la participación cívica, la libertad como desarrollo y la autonomía crítica, consideradas asimismo como fines de los sistemas educativos en sociedades plurales y democráticas, sobre todo desde un modelo deliberativo y participativo de democracia. Tras esta argumentación, el artículo concluye a favor de la interdisciplinariedad en el estudio de la educación mediática, un proyecto educativo que es crucial para la reactivación de la sociedad civil y el empoderamiento de la ciudadanía en el actual contexto comunicativo.

KEYWORDS / DESCRIPTORES
Media education, educommunication, media literacy, citizenship, participatory democracies, development, critical thinking, freedom.
Educación mediática, educomunicación, alfabetización mediática, ciudadanía, democracias participativas, desarrollo, pensamiento crítico, libertad.

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1. Introduction. The social and ethical dimension of educommunication

The theoretical framework of this investigation is directly influenced by an ethical viewpoint that is radically democratic and civic in nature, as befits the times we live in, since each time has its fundamental task (Ortega-Gasset, 2003), and ours is to provide an ethical and citizen-based explanation of the information and technology societies we live in. How can we develop a broad conception of citizenship in today's world from a media literacy perspective?

The main statement of this article would be that educommunication cannot be understood in its entirety unless it has a civic purpose, that is, it must be endowed with an ethical, social and democratic base that empowers citizens in their dealings with the media. Citizen empowerment means strengthening freedom, critical autonomy and participation in political, social, economic, ecological and intercultural affairs based on the correct use of the media and communicative technologies. What is the true meaning and reach of this statement? The answer lies in rediscovering the various dimensions of the concept of citizenship in democratic settings and showing the close link that exists between this concept and the action made possible by the media or communication technologies. This link leads the way to an acceptance of a new notion of citizen: media citizenship. Our article is based on this double challenge as an in-depth study of the more practical (social, ethical and political) side of educommunication.

2. Civic aspects of educommunication: of political citizenship to media citizenship

The notion of citizenship has recently made a comeback in response to post-industrial society's need to «generate among its members an identity they can recognize and which makes them feel they belong» (Cortina, 1997: 22). To talk of citizenship is more than just a reference to an administrative category related to the legal and judicial recognition of a person by the State. It is a call to a certain condition: to be an independent being in possession of freedom, acting with responsibility and as protagonist in the various spheres or dimensions of public life. It assumes liberation from the servitude and submission that can prevail in different settings in our lives in society today.

So, to live as a citizen with full rights means activating the idea of our political citizenship which first appears in Ancient Greece and which currently amounts to the active participation in public affairs, helping to shape the democratic ideal of «isegoría» (in the sense of among equals). It means defending and strengthening our legal and judicial condition as citizens, equal before the law and entitled to its protection. It also means reinforcing our social citizenship with the understanding that life in society cannot develop with dignity without the guarantee of a minimum of social justice in education and public health, a standard of living based on social rights such as the right to work, to education, health and housing (Ibíd.: 66). To be a citizen in todays' society means making our economic citizenship a reality, that is, to be free to participate actively in our economic environment via responsible and informed consumption or via a business activity governed by a sense of social responsibility that this entails. Economic citizenship derives from «the need to redirect economic activity by means of moral parameters such as justice, responsibility and solidarity» (Conill, 2004: 28). And this immediately leads to another form of citizenship, ecological citizenship (Dobson & Bell, 2006). Ecological citizenship means assuming those civic virtues needed for a sustainable society, for an environmental sustainability which is an ethical requirement of and a responsibility towards our and future generations (Dobson, 2005: 53).

In this short summary of the current dimensions of citizenship which is unavoidable in any exploration of the ethical and civic dimension of educommunication we cannot ignore cosmopolitan citizenship (Nussbaum, 1999; Benéitez, 2010), a notion that comes from the old ideal of stoic philosophy which through philosophers like Kant emerges today with real force in the idea of interculturality. The new world context, characterized by the processes of economic globalization and communicative connections between countries, explains the reflection on the need for a globalization of human rights and in the field of ethics, in which the defence of the equality of dignity for all peoples is associated to the acknowledgment of cultural diversity, with the aim of overcoming ethnocentric tendencies and extreme multiculturalism, that is, the tendency towards cultural imposition on the one hand and radical ethical relativism on the other (Cortina, 1997: 186).

Secondly, to live citizenship to the full in his day and age when so much is hypercommunicated and screened worldwide (Lipovetsky & Serroy, 2009) means emphasizing the civic use of the media, in other words, that set of media actions that citizens have to learn in a democracy in order to be valid protagonists in the political, legal, social, economic, educational and intercultural fields, and to avoid sliding into new forms of servitude within these settings. To be a citi-

zen today is to be a media citizen, and that means cultivating and acquiring an education in those competences necessary in order to use the media and communicative technologies in their broadest and most integral sense. For example in law and politics, the Internet is being configured as a platform that enables direct citizen participation in various areas of public interest on a national and international level (Kahne, Lee & Feezell, 2012), via virtual participation in campaigns and mobilizations promoted by citizens themselves (Avaaz.org; Change.org), or via open consultations of reports on corporate crime and political corruption (transparency.org), etc. Media interaction is also an element of social citizenship in the sense that such interaction is a basic skill in the educational and work setting, just as the citizen who is informed through the media mobilizes to claim a health and educational system that is worthy of a society imbued with social justice. In the economic field, the Internet provides citizens with an infinite number of media to enable them to claim their rights in the face of abuse of those rights, for example, by financial institutions (a search for «forums against banks» on Google generated 22.3 million results, from «foroantiusura.org» to calls to mobilize those affected by the «preference shares» scandal in Spain), or as an instrument for active, demanding consumption (a search for «consumer associations» in Google found 6.08 million entries, while for English language users there were 38.6 millioni).

The civic use of the media encourages awareness of the environmental consequences of private acts of communicative consumption, for example the poor recycling of mobile phones or computers once they are discarded; media citizens also demand to be informed about and to stop the consequences of the extraction and commercialization of coltan, used to make mobile phone and computer screens…On another level, the intercultural citizen is enabled and strengthened by communicative interactions which are an authentic resource of intercultural dialogue (Pérez-Tornero & Varis, 2008) that breaks down frontiers and broadens the meaning of identity and dignity by giving voice and visibility to someone who is a stranger and from a different culture.

In sum, a reflection on the civic use of the media and communicative technologies points to a new form of citizenship: media citizenship, which is citizenship in and by the grace of the media, be they traditional or interactive (Gozálvez, 2012). If today it is important to be a citizen in the political, legal, social, economic, educational and intercultural fields then it is no less so in the media, since the media and communication dimension undoubtedly defines our age and society, and in this sense the role of educational institutions is crucial. And here, the media citizen becomes one of the goals of educommunication since it is by no means removed from the values of freedom, critical independence or solidarity in our dealings with the media. However, to talk of ethical, civic and political values in media education requires a deeper philosophical base.

> Participative or purposeful democracy cannot be conceived as anything but «a multiple network of communication circuits in which public issues are discussed. The public arena is necessarily a space of communication…In modern democracies, the governed are increasingly demanding to be informed of the processes that generate political policies and about their consequences. But they also want to be heard and to openly define their problems, the issues that affect them and their priorities».

3. Philosophical base of educommunication. Ethical theories for current media education

To help us in this reconstructivist task we look to various philosophical references to enable us to evaluate the ethical and social dimension of educommunication. The current ethical landscape provides philosophical models that offer a solid operational basis in theory for the pedagogical construction of media citizenship. Firstly, we have the «ethics of discourse» or «ethics of dialogue», with their roots in Kant and linked to a «hermeneutic critique». Any pedagogical program for Educommunication would need to look to the ethics of discourse for a theoretical reference point for

its critical perspective, or put another way, a foundation based on the conditions of possibility for our acts of speech or communication given meaning. In recent times ethical dialogue has provided us with a broad reflection on the critical and prescriptive evaluation of all argumentation (Apel, 2007: 284); such evaluations help define communication performed in suitable settings, hence this philosophical approach is especially interesting for media education.

A key work on the ethics of discourse is Habermas' «The theory of communicative action» (1981), which presents a critical theory of society based on its participants' communicative relations which open up a space for intersubjectivity in the search for agreement on questions of truth, justice and social progress. In discourse ethics, the communicative action amounts to an interaction between subjects mediated by symbols, and which adjusts to the aims that the participants presuppose as the conditions of dialogue in their acts of speaking: truth in dialogues on reality, correction in dialogues on justice with a view to those interests that can be universalized, freedom to enunciate and interpret acts of speaking, equality or symmetry among the participants (in which the key lies in the force of the best argument and not in the position or privileges of the speaker), and truth or sincerity in the process of communication. These conditions of «communicative rationality» aim to provide an intersubjectively acknowledged validity which is required, out of a sense of responsibility, to resolve conflicts of action by means of consensus and to critically evaluate which acts of communication match the criteria of authentic dialogue and rational deliberation. With dialogue as a base, and in pluralist societies, it is vital to cultivate the «public use of reason»; the media can play their part as an expression of «human social activity», with legitimate goals and internal resources that help to define how a citizen uses these media, one of which would be their contribution to enabling «mature, responsible public opinion» (Cortina, 2004: 20). So, we see the connection between proposals based on the ethics of dialogue and educommunication: the latter aims to use education to promote those values of communicative rationality crucial for criticism and social progress. We refer to values such as transparency and plurality, the freedom to discuss and argue based on being well-informed, equality in dignity and the respect for others as valid interlocutors, or the effort to reach agreement following best-argued case criteria. And of course, the call to citizen solidarity as a resource for propagating calls for justice.

This article analyses the theoretical link between educommunication, the ethics of dialogue and the capabilities approach in order to reconstruct a valid ethical and political base for media education. We have also investigated the keys that will empower citizens and convert them into protagonists in the media environment by extending the current theory of citizenship by means of the «media citizen».

Secondly, and from a neo-Aristotelian tendency, the «capabilities approach» promoted by Sen (1999; 2009) and Nussbaum (2012) represents another convincing model for today for setting the foundations of the social and ethical dimension of educommunication. The key to this philosophical model (ethical, social, economic and political) is understanding that human development is based on freedom understood as the ability to carry out one's own life project in a way that is socially and humanely compatible. Sen says that «according to this approach, the extension of freedom is both the main aim of development and its principal medium. Development consists of eliminating those restrictions on freedom that leave individuals with few options and opportunities to exercise their reasoned agenda» (Sen, 1999: 16, 223). Obviously «agency» or people's free capability within a hypercommunicated environment requires guarantees of transparency regarding pubic information as well as access to «a free press and active political opposition».

For several years Sen (Nobel Prize for Economics, 1998) was director of the United Nations Development Program (UNPD) which published numerous development indicators for countries that went beyond the usual GDP. What interests us most here is the clear and close relationship between freedom, human development and the media especially in edu-

cation. Citizen empowerment in the media arena is one of the conditions for human development and freedom in the broadest sense; freedom which is the capability to search for and select information, detect its origin and intentions and to decipher meaning in the images and understand the values and emotions behind the audiovisual world in order to produce alternative channels and messages, etc. In the end, «it is clear that we have good reason to pay attention to the creation of those conditions necessary for individuals to take better-informed decisions and promote intelligent public debate» (Sen, 1999: 336).

Several UNICEF and UNESCO reports support this idea, which acts as a bridge between human development, communication, citizenship and educommunication. This link can be seen in the «Media Development Indicators» report in UNESCO's International Program for Development of Communication (2008), UNICEF's «Development of Capabilities for the Exercise of Citizenship» report of 2006 and the «Media as Partners in Education for Sustainable Development» report by UNESCO in 2008. These reports link media empowerment to the ecology of citizenship. The new communication technologies can also be very useful in reaching the UN's Millennium Objectives (Del-Rio, 2010). Frau-Meigs and Torrent (2009) have analysed various international reports as references for a new global policy on media education aimed at «the well-being of its citizens, the pacific development of civic societies, the preservation of indigenous cultures, the growth of sustainable economies and the enriching of contemporary social diversity».

Definitely, the social and ethical values of educommunication are not the mere subjective preferences of a researcher or group of experts but are supported by internationally prestigious initiatives and a solid philosophical framework that justifies or legitimizes the most axiological facet of media education.

4. Educommunication and citizenship: freedom, critical autonomy and participation in media education

With this clarification of fundamental criteria, our interest now lies in reconstructing the ethical, social and political dimension of media education or educommunication as defined by international organizations such as UNESCO or the European Parliament (and by Spain, with its own Law on Audiovisual Communication). These educational proposals and recommendations declare for an education that foments reception and critical interpretation, and responsible civic production, in short, its aim is the correct use of the media. This adds value to media education as a means to social and democratic progress and human development in line with the philosophical approaches explained in the previous section.

One of the main principals is to prevent the information society from becoming, as Brey, Campàs and Mayos (2009) put it, an «ignorant society». These authors state the vast quantity of information we are constantly bombarded with can induce «an attitude of knowledge-renouncement due to lack of motivation, a surrender and a tendency to tacitly and comfortably accept prefabricated and clichéd viewpoints. A lack of critical capability is just another sign of our growing ignorance» (Brey, Campàs & Mayos, 2009: 26).

In the face of this paradoxical ignorance Brey, Moeller (2009: 66) emphasize the urgency of teaching citizens to be autonomous from a critical perspective, inviting people to «evaluate what they read, hear and see, and also to teach them to take notice of what is left unseen and unsaid». This is «crucial» to enable citizens to exercise «their own rights as citizens and have access to economic, political and social opportunities available».

In response to these challenges, international public institutions have for many years been proposing that states and social institutions adopt measures to encourage media education in their regulated educational systems and also as part of an informal and continuous education of citizens. UNESCO and the Grünwald Declaration of 1982 urge states to assume «those obligations that correspond to them to promote a critical understanding of communication phenomena among their citizens» (Grünwald Declaration, 1982: 1). The Paris Agenda of 2007 also stated that «media education helps to empower people and offers them a sense of shared responsibility in society, and as such, is an integral part of citizenship and human rights».

Recently UNESCO's Braga Declaration (2011) urged the development of education for the free, intelligent and critical use of the media as a necessary dimension of instruction for independent citizenship. It also emphasized the need for politicians to incorporate this aim in their action programs in order to facilitate and foment this initiative among the social actors. For Gutiérrez and Tyner (2012: 36), the call to critical thinking by UNESCO amounts to the need to provide an education in «the knowledge of personal and social values and responsibilities derived from the ethical use of information, as well as participation in cultural dialogue and the preservation of autonomy against the possible threats to this that are often hard to detect».

In 2008 the European Parliament declared that

«media education is essential for achieving a high level of media literacy, which is an important part of the political education that enables people to better direct their behaviour as active citizens and to be aware of their rights and obligations». It also stated that «well-informed and politically mature citizens are the basis of a pluralist society…and by constructing their own content and media products they acquire the ability to reach a deeper understanding of the principals and values behind professionally produced media content» (European Parliament, 2008: 11).

In Spain, the General Law on Audiovisual Communication (7/2010) clearly refers to the possibilities of citizen participation via the media. For the first time in Spain, the state provides a legal framework for community media, or non-profit enterprises such as community radio. Article 32 specifies that these media's function is to «attend to the social, cultural and communication needs of communities and social groups, as well as fomenting citizen participation and the construction of an associative network». These media can act as open microphones for citizens to air their grievances, and as such they play an important role in the media education of citizens.

Chapter 2 of Title 5 of this law includes the media education of citizens as one of the functions assigned to Spain's State Council of Audiovisual Media (CEMA). This organization is obliged to «oversee the promotion of media literacy in the audiovisual field with the aim of fomenting the acquisition on the part of the citizen of the highest levels of media competence». Likewise, this body must also evaluate the level of media citizenship among citizens by referring to «those indicators used by the European Commission and other information that the Council deems worthy of interest». So, as stated by Gavara and Pérez-Tornero (2010: 7), this law understands educommunication and media literacy as a civic right.

However, Gavara (2013) doubts that all this can happen since a proposed law would abolish the CEMA and replace it with the CNMC (National Market and Competition Commission). The author says that this would mean that media education would «pass from one authority, the CEMA, whose aim is to guarantee civic rights, that is, an authority based on the protection of citizens, to another centered on the audiovisual market in which the public is treated as a mere consumer or user».

Despite these problems, there is clear international recognition of the need to boost real media education among citizens as a resource for inclusion in accordance with a model of democracy that is more purposeful and participatory. This call for the reactivation of democracy leads us on to the most political dimension of educommunication. In this respect Masterman acknowledged that «in a world in which slogans are frequently taken more seriously than reasoning, and in which we all take political decisions based solely on what the media show us, audiovisual education is essential for the exercise of our democratic rights and to defend ourselves against the excesses of politically motivated media manipulation» (Masterman, 2010: 28)ii. So media education is a fundamental element in the «long march to true participatory democracy and the democratization of the institutions. Audiovisual literacy is vital if we want citizens to exercise their power, to take rational decisions, to be effective agents of change and to actively participate in the media». Similarly Sen declared that democracy must be valued in terms of the ability to enrich reasoned participation by increasing the availability of information and the opportunities for interactive debate: «Democracy must be judged not only by its institutions but also by how far the diverse voices of the various sectors of the population can be heard» (Sen, 2009: xviii).

Consequently, media education comes to be seen as a pillar of democracy, above all in its more purposeful and participative form (Macpherson, 2003). We talk of an education to achieve a form of communication that is an open, interactive and participatory process and not a one-way communication determined by the powers that be (government, religious authorities, media, business or financial corporations). As Sánchez Ruiz (2005) states, participative or purposeful democracy cannot be conceived as anything but «a multiple network of communication circuits in which public issues are discussed. The public arena is necessarily a space of communication…In modern democracies, the governed are increasingly demanding to be informed of the processes that generate political policies and about their consequences. But they also want to be heard and to openly define their problems, the issues that affect them and their priorities» (Ibíd.: 22-23).

The problem arises when the media cease to be of and for communication and become mere transmitters of messages, a vertical process that goes in one single direction. This would be the desired aim of the democratic elites (Cortina, 2010). Nevertheless, with the emergence of the Internet, Web 2.0 and the social networks, new technological and structural bases are being established to provide a more horizontal form of communication for the democratic redistribution of powers as a consequence of the redefinition of a

public space that is increasingly globalized (Castells, 2008).

Education needs to respond to these new communication relations and global powers in such a way that media education for citizens converges with an education for a global and deeply democratic citizenship. The way this new space for public deliberation is configured will be the key to the future of democracy. Media education, especially in the digital sphere, can develop crucial competences for an active, committed and participatory citizenship (Mihailidis & Thevenin, 2013). To counter communication understood as mere message diffusion, society-the global network represents an opportunity for the creation of purposeful public opinion open to new forms of participation, the communication of ideas and projects.

In the words of Greppi, what is important is not to talk about democracy but to determine its quality and conditions. Democracy is about an education in the notions of participation, public commitment and social responsibility, ideas that require a communicative, dynamic and open space. Public opinion in a democracy based on quality in reality amounts to critical public opinion that is purposeful and reflective, and this requires a space for its citizens «that is endowed with sufficient resources to enable them to pronounce on the relevant political questions of the day» (Greppi, 2012: 16-36). It is easy to deduce from these proposals that educommunication in its social, ethical and political dimension is an education that makes a valid contribution to this public communicative space which is increasingly global. A space that is interconnected which welcomes a public that is attentive, committed and well-informed, a public composed of «citizens capable of understanding the ebb and flow of reasoning that constitutes the substance of the democratic process».

5. Conclusion: A media education to reactivate civil society and empower the citizen

This article analyses the theoretical link between educommunication, the ethics of dialogue and the capabilities approach in order to reconstruct a valid ethical and political base for media education. We have also investigated the keys that will empower citizens and convert them into protagonists in the media environment by extending the current theory of citizenship by means of the «media citizen».

The need to empower citizens in the media setting is aimed at reactivating civic society in democracies so that they can be more purposeful and committed to human development. Not only international public institutions such as UNESCO are involved but also journals such as «Comunicar», which has provided a platform for socially committed scientific research dating back to Jacquinot (1999) and the more recent study by Culver and Jacobson (2012) and the contribution of Aguaded (2013: 7) on European recommendations for an integral media education whose aim is to «promote a citizenship that is more active, critical and participatory».

Initiatives for media education understood as a formative process through media literacy (Buckingham, 2005: 21) necessarily assume certain axiological references in their discourse. These practical and axiological references (ethical, political and civic) have been the focus of this study which is dedicated to explaining and interpreting them from the perspective of current philosophical approaches. Hence we insist on the need for interdisciplinarity in educommunication, in our case articulated as a means to legitimize this discipline from a social, civic and political viewpoint. To educate the media citizen is, reciprocally, and as we have argued throughout this article, a way of empowering citizens in plural, democratic and hyperconnected societies.

Notes

[1] Searches carried out on 25-03-2013.

[2] This can be consulted on www.cca.eca.usp.br/noticia/756 (26-05-2013).

[3] A bill for the creation of the National Market and Competition Commission. BOCG. Congreso de los Diputados Nº. A-28-1 de 19/10/2012. This can be consulted on www.congreso.es/public_oficiales/L10/CONG/BOCG/A/BOCG-10-A-28-1.PDF (26-05-2013).

[4] Originally published in 1985.

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Media Literacy and Information Literacy: Similarities and Differences

Alfabetización mediática y alfabetización informacional: similitudes y diferencias

ABSTRACT
In knowledge society, there is currently a call for cultivating a combination of media literacy and information literacy. This, however, requires cooperation from these two separate fields of study, and uncertainty regarding their boundaries hinders a smooth merger. It is unclear whether they are subsets of each other or separate entities. In this study, we have explored the relationship between these two fields by empirically mapping out their territories and discussing their similarities and differences. We have made use of the Web of Science database to delineate the content and boundary of these two fields. Our findings from 1956 to 2012 show that the two fields have different authors, university affiliations, and journals; they also differ in terms of academic origin, scope, and social concern. Information literacy has a closer tie to library science, while media literacy is more related to media content, media industry, and social effects. Due to their different academic orientations, the two fields adopt different analytical approaches. We have found that media literacy is not a subset of information literacy as some scholars have suggested, although the two fields have similarities. They share the same goal, and their publications overlap in terms of subject areas, countries of origin, and titles. The two fields could find common ground by cooperating together to contribute to the promotion of new literacy in knowledge societies.

RESUMEN
En la sociedad del conocimiento presenciamos la necesidad de plantear una combinación de alfabetización mediática e informativa que requiere, sin embargo, cooperación entre estas dos áreas de estudio independientes. La incertidumbre que rodea estos vínculos dificulta una fusión homogénea, y no resulta fácil determinar si, cuando hablamos de estas alfabetizaciones, nos referimos a subcategorías o entidades independientes. En este estudio hemos explorado la relación existente entre estas dos áreas de estudio determinando empíricamente sus territorios atendiendo a sus similitudes y diferencias. Para ello, hemos empleado la base de datos bibliográfica Web of Science, con el objetivo de delinear el contenido y los nexos comunes a ambos campos. Los hallazgos realizados entre 1956 y 2012 muestran cómo en cada ámbito se desarrollan distintos autores, afiliaciones universitarias y revistas; asimismo, también difieren en términos de origen académico, alcance e interés social. Mientras que la alfabetización informacional tiene una relación más estrecha con la biblioteconomía, la alfabetización mediática está más conectada con el contenido mediático, la industria de los medios y los efectos sociales que éstos causan. Debido a estas diferencias de orientación académica, ambos campos adoptan enfoques analíticos diferentes. En contra de lo sugerido por algunos expertos, hemos podido determinar que la alfabetización mediática no es una simple categoría de la alfabetización informacional, a pesar de que ambos campos muestran similitudes: comparten el mismo objetivo, y sus publicaciones se solapan en áreas temáticas, países de origen y títulos. Ambas disciplinas podrían identificar contextos comunes cooperando conjuntamente para contribuir a la promoción de nuevas alfabetizaciones en las sociedades del conocimiento.

KEYWORDS / DESCRIPTORES
Media literacy, information literacy, communication technology skills, knowledge society, Web of Science, boundary work.
Alfabetización mediática, alfabetización informacional, destrezas informativas, Web of Science, delimitación.

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1. Introduction

The 21st century has so far been a time of rapid change. Many countries are gradually shifting from industrial societies to knowledge societies, and this transition brings with it significant social transformations. In this new era, people need nontraditional competencies and skills to cope with the changing social and technological environments. Led by UNESCO, a new literacy movement to promote media and information literacy (MIL) has been launched. The purpose of the movement is to bring the fields of information literacy and media literacy together as a combined set of competencies necessary for life and work today (UNESCO, 2012). However, an ambiguous understanding of the boundaries and territories of these two fields makes cooperation somewhat challenging. It seems that the professionals in both fields do not have a full understanding of each other and have failed to establish a commonality. As a consequence, they have not been satisfactorily merged (Badke, 2009).

Media literacy has a long history, but its rapid development has only been noted in the past two decades. Over time, it has been framed in different ways (Brown, 1998; Potter, 2010). In Canada, media education is defined as «the process through which individuals become media literate – able to critically understand the nature, techniques and impacts of media messages and productions» (Media Literacy Week, 2010: 1). In the United Kingdom, media literacy is defined by Ofcom (2010: 1) as «the ability to access, understand and create communications in a variety of context». Media literacy is considered to be a series of communication competencies, including the ability to access, analyze, evaluate, and communicate information in a variety of forms (Lee, 2010; NAMLE, 2010). Although these definitions look different, they address similar purposes, including critically engaging with media messages and increasing the ability to access, understand, analyze, use, and create media products.

Different definitions of information literacy have also been proposed. For example, a study group for the National Forum on Information Literacy defines information literacy as the ability to access, evaluate, and use information from a variety of sources; this group has also developed a series of outcome measures. The Information Literary Group at the University of Calgary describes information literacy as «the ability to recognize the need for information and knowing how to access, evaluate, synthesize and communicate it» (Moeller & al., 2011: 32). In UNESCO's «Towards Information Literacy Indicators», Catts and Lau (2008) conclude that information literacy is the ability of an individual to 1) recognize their information needs; 2) locate and evaluate the quality of information; 3) store and retrieve information; 4) make effective and ethical use of information; 5) apply information to create and communicate knowledge.

Although media literacy and information literacy look like two separate fields, both concepts share the common goal of cultivating people's ability to access, understand, use, and create media messages or information. In the literacy family, they have always been seen as being closely linked. When the world entered the Internet age, the boundary between them became further blurred by digital technologies. Literacy actually has a symbiotic relationship with communication technology. When computer technology converged with media technology in the 1990s, which was referred to by Koelsch (1995) as the infomedia revolution, there was already a call for expanding the concept of media literacy to encompass infomedia literacy (Lee, 1999). As the Internet further advances, people need to acquire the skills and competencies of multiple literacies (Buckingham, 2007; Westby, 2010). Various concepts, such as multiliteracies (New London Group, 1996) and multimodality (Kress, 2003), have been proposed to address this need.

2. Different views on the relationship between the two fields

The development of digital technology is a key factor for combining media literacy and information literacy. In the Internet age, it is no longer adequate for librarians to offer a static set of indices and search tools. They need to be able to competently use the latest information technologies and to adopt a critical approach in handling information in libraries and beyond (Mitrano & Peterson, 2012). Therefore, information literacy experts are aware of the need to reach out to the media world and to pay more attention to the critical analytical skills of media literacy. On the media literacy side, while facing the vast amount of information in the digital age, these practitioners also recognize the importance of utilizing information literacy skills for searching, evaluating, and organizing information.

Many academics and educators around the world are making efforts to draw media literacy and information literacy together. However, in order to successfully integrate the two concepts, people from the two sides need to understand each other well and know how to complement each other. However, to date,

different views of their relationship have hindered substantial cooperation between the two fields. Two contrasting perspectives about their relationship have frequently been mentioned: «On the one hand, information literacy sees media education as a subset of its broader tenets. On the other hand, media literacy conceptualizes information as a subcategory of its broader spectrum of concerns» (Grizzle, 2010; Gutierrez & Tyner, 2012: 34).

In fact, many academics from the library science field regard information literacy as an umbrella concept that encompasses media literacy (Boekhorst, 2012; Kurbanoglu 2012). While Abid (2004) and McClure (1994) point out that media literacy is a major element of information literacy, some others propose that media messages are part of the broader term of information. While conducting a detailed review of the concept of information literacy and media literacy, Bawden (2001: 6) found that many authors in the field of information literacy «prefer to see media literacy as a component of information literacy». Badke (2009: 47) has described three movements (media literacy, information and communication technologies, and information literacy) as moving toward a point of convergence; he states, «I see the information literacy movement as the best contender to draw together the other literacy movement into a single emphasis».

In Ofcom's adult media literacy report, Livingstone, Couvering and Thumim (2005: 16) state that «media literacy sees media as a lens through which to view the world and express oneself, while information literacy sees information as a tool with which to act on the world» and that «both perspectives are relevant for developing media literacy policy». In the report, information literacy was brought to be discussed under the domain of media literacy. With regard to meeting the challenges of the Internet age, Hobbs (2010: 23) proposes the concept of digital and media literacy and includes «using information search and evaluation strategies» in her proposed curriculum outline. These scholars consider information literacy to be a useful tool of media literacy, and some experts just do not agree that media literacy is a subset of information literacy. To them, although a media message is a kind of information, media literacy does not only deal with media content, but also encompasses a large number of media institutions and the whole communication industry, which are not covered by information literacy.

Apparently, a consensus has not been reached regarding the boundaries and territories of these two fields, although both sides recognize the need for convergence. Badke (2009: 48) warned about «the danger of living in silos», saying that separation is a hurdle that these literacies must overcome so that they can play a foundational role in today's education. Koltay (2011) also comments that media literacy has to find its essential role in education as one aspect of some kind of multiple or multimodal literacy.

While UNESCO is seeking to promote media and information literacy around the world, a few studies have tried to address the dichotomy between the separate fields of information literacy and media literacy. Lau (2013) argues that both concepts aim at facilitating the development of information skills. The difference between them is in the information objects that they focus on, as one concentrates on mass media messages, while the other focuses on information in general. Carbo (2013: 97-99) proposes the use of «metaliteracy» as a bigger umbrella to bring together the many different competencies needed in the new society. Information literacy is central to this theoretical construct, which includes media and other literacies as components. While these two articles adopt a qualitative approach and information science perspective to discuss the specifications of the two concepts, Gendina (2013: 119) found that in Russia and the Commonwealth of Independent States «information literacy and media education develop in silos, hardly interacting with one another». The boundary dispute between two fields remains unsettled.

The objective of this study is to investigate the relationship between information literacy and media literacy. In sum, there are three competing views: 1) Media literacy and information literacy are basically different; 2) media literacy and information literacy are not the same but do have some overlaps; 3) and media literacy is just a subset of information literacy. Through investigating empirical data, we have sought to determine which of these views is closest to reality.

3. Research method

In the academic world, there are established criteria for evaluating a discipline or a field of study. Heckhausen (1972) distinguishes between disciplines by applying seven different criteria: its set of objectives, subject matter, level of theoretical integration, methods, analytical tools, applications, and historical contingencies. So (1995) has delineated a particular discipline according to its constituting members, institutions, theoretical approaches, stock of knowledge, subject matter, and group identity. A field of study is usually defined by the presence of certain subject mat-

ter but not by the existence of certain theoretical elements. By adopting these criteria for evaluating a discipline/field of study, we have compared media literacy and information literacy by empirically examining several aspects, including their patterns of development, academic origins, journals, constituting members, institutions, and subject matter.

In this study, we have made use of the Web of Science database, which includes about 12,000 journals, 150,000 conference proceedings, and more than 47 million documents from 250 fields. It is widely recognized, authoritative, and easily accessible. To be as inclusive as possible, we chose to use all document types from all three indices and from all possible years. The exact date of data collection was February 2, 2013. We searched the database by topic instead of title, as the former is more inclusive and is not limited by specific title words. We looked at the key words of «information literacy» and «media literacy» from 1956 to 2012 to determine what territory each concept would empirically reveal. Specifically, we gathered information about various descriptors, including: 1) the size of the territories; 2) the years in which the documents were published in order to see the trend; 3) the subject areas involved; 4) the journals in which the documents were published; 5) the countries of origin; 6) the authors; 7) the institutions; 8) the words used in the document titles.

The term «information» generated 1,451,947 document items. The term «media» generated 912,069 items. In contrast, «literacy» only produced 25,706 items as it is more specific in focus. For the combination of information and literacy (i.e., the terms were not necessarily adjacent to each other or formed a single concept), there were 4,803 items in the database. Using lemmatization and a more restricted search, the term «information literacy» generated 1,501 items. Similarly, for media and literacy, there were 1,468 items, but for «media literacy», there were only 467 items. From the above numbers, it is clear that the fields related to «information» are larger in scope than those related to «media». The ratio was about 1.6 to 1. Between «information literacy» and «media literacy», the specific ratio of documents found was about 3.2 to 1, which is even larger.

4. The landscapes of information literacy and media literacy

Information literacy is an area that is receiving increasing attention in academia. Before the 1990s, there were very few studies about this topic, and by 1994, it still only accounted for 3.4% of the total documents. Research in this area slowly began to increase, and between 1995 and 2004, the share rose to 22.4%. This interest has continued to grow; from 2005 onwards, the topic of information literacy accounted for 73.8% of the documents in the Web of Science database.

In terms of the subject areas of the information literacy articles, information science and library science are the most popular topics at 54.2% (see Table 1). Two closely related areas are computer science (16.8%) and education and educational research (11.1%). The other topics vary, and each comprises a very small percentage of the overall content area. So it is obvious that this information literacy is unmistakably situated in the areas of information science and library science. Among the top 13 journals shown in Table 2, all of them are in the field of library and information science. The Journal of Academic Librarianship stands out as the most important publication outlet.

Table 3 shows the top 24 authors in the field of information literacy. Heidi Julien, Maria Pinto, and Christine Bruce are the top three authors on the list. Table 4 is a list of the top institutions involved in infor-

Table 1: Top Subject Areas of Articles on Information Literacy and Media Literacy

Information Literacy			Media Literacy		
Rank	Subject Area	N (%)	Rank	Subject Area	N (%)
1	Information science and library science	1,080 (54.2)	1	Education and educational research	182 (25.7)
2	Computer science	335 (16.8)	2	Communication	135 (19.1)
3	Education and educational research	221 (11.1)	3	Psychology	82 (11.6)
4	Nursing*	51 (2.6)	4	Public environmental occupational health*	33 (4.7)
5	Engineering	42 (2.1)	4	Social sciences other topics	33 (4.7)
6	Business economics	30 (1.5)	6	Film radio television*	27 (3.8)
7	Medical informatics*	27 (1.3)	6	Information science and library science	27 (3.8)
8	Health care sciences services	25 (1.3)	8	Computer science	24 (3.4)
9	Communication	17 (0.9)	9	Pediatrics	20 (2.8)
10	Social sciences other topics	14 (0.7)	10	Linguistics	15 (2.1)
	All others	149 (7.5)		All others	130 (18.4)
	Total N	1,991 (100)		Total N	708 (100.1)

* Only appear in its respective area (information literacy/media literacy).
Note: The total number N exceeds the original number of articles because some articles belong to more than one subject area.

mation literacy research. Researchers from the University of Alberta and the University of Illinois head the list. Among the 18 institutions analyzed, 9 are from the United States and the rest are from 6 other countries. As expected, the United States has produced the lion's share of the documents in information literacy at 40.6%. England (7.7%) and Australia (6.9%) take the second and third spots, respectively, followed by Canada (5.3%) and China (4.7%). Among the 17 countries and territories currently researching information literacy, most of them are in North America, Europe, and East Asia.

The use of certain words in the document titles can reveal the research foci in information literacy studies. When counting the words that appeared in all the documents, we found that «information» (N= 1,173) and «literacy/literacies» (N=937) were the top two words. The rest of the frequently used words help to illuminate the focus of information literacy research. Table 5 shows that there are three groups of words. The first group is related to library science (e.g., library and librarian). The second group is related to education (student, learning, education, instruction, teaching, university, etc.). The third group is related to technology (online, web, technology, digital, and Internet). It is worth noting that the word «media» is not on this list.

The concept of media literacy began to be addressed in the documents in the Web of Science database beginning in 1995, and this focus has grown steadily ever since. Before 1995, its share of the database was only 3%, but this percentage jumped to 26.2% between 1995 and 2004. Interest in media literacy has continued to rapidly develop in the past few years. From 2005 and onwards, it has accounted for 70.9% of the total documents.

There is no single dominant area in media literacy. The top three research areas are education and educational research (25.7%), communication (19.1%), and psychology (11.6%). The other fields, as shown in Table 1, include other social sciences, health and information, and library science. Table 2 shows the various journals that publish media literacy articles. Comunicar is the top journal (N = 47), followed by American Behavioral Scientist (N=24). For the rest of the journals, there are two major areas of focus—communication and health. There are also some «hybrid» journals involving both of these fields, such as Health Communication and

Table 2: Top Journals Publishing Articles on Information Literacy and Media Literacy

Information Literacy				Media Literacy			
Rank	Journal	N	5-Year Impact Factor	Rank	Journal	N	5-Year Impact Factor
1	Journal of Academic Librarianship*	124	0.864	1	Comunicar*	47	0.293
2	Portal Libraries and the Academy*	67	---	2	American Behavioral Scientist*	24	0.946
3	College Research Libraries*	63	---	3	Journal of Communication*	15	3.627
4	Reference User Services Quarterly*	42	---	4	Journal of Adolescent Adult Literacy*	14	---
5	Journal of Librarianship and Information Science	40	0.602	5	Journal of Popular Film and Television*	9	---
5	Library Trends	40	0.344	6	Health Communication*	7	1.744
7	Electronic Library*	39	0.642	6	Journal of Adolescent Health*	7	3.849
8	Libri	37	0.356	6	Journal of Broadcasting and Electronic Media*	7	1.058
9	Information Research An International Electronic Journal*	35	---	9	Pediatrics*	6	---
10	Journal of Documentation*	34	1.333	10	Journal of Health Communication*	5	2.307
11	Health Information and Libraries Journal*	29	1.230	10	Journal of School Health*	5	2.014
11	Program Electronic Library and Information Systems*	29	---	10	Journalism and Mass Communication Quarterly*	5	0.691
13	Library Information Science Research*	27	---	10	Media Psychology*	5	1.856
				10	Procedia Social and Behavioral Sciences*	5	---

* Only appear in its respective area (information literacy/media literacy).

the Journal of Health Communication.

The major authors in media literacy are Brian Primack, Renee Hobbs, and Erica Austin. In terms of the institutions most related to media literacy, the University of California system tops the list, while Washington State University is a close second. As Table 4 also shows, among the 19 institutions, the United States is home to 14 of them. The other countries represented include Australia, England, Canada, and Spain. For the origins of the documents, the United States ranks first with a share of 51.8%. England comes second, but its share is only 5.8%. Canada, Spain, and Australia are also near the top of the list. North American and European countries are dominant, but East Asian countries, such as China, Japan, and South Korea, are becoming a rising force.

The title words related to media literacy are shown in Table 5. The words «media» and «literacy» rank first and second, with 346 and 255 uses, respectively. Three groups of words were identified: The first group had something to do with education (such as education, school, teacher, student, or curriculum), the second group of words was related to communication (such as television, effect, communication, advertising, news, or Internet), and the third group was health related (such as smoking, eating, prevention, intervention, or risk). Here we also see the presence of the word «information».

5. Similarities and differences

We can compare the two fields in terms of six aspects. The first aspect is their similar patterns of development. The two concepts have developed rather quickly in recent years. This acceleration is most obvious in the 2000s, especially from the year 2005 onwards. In the past two decades, the two fields have been young and upcoming academic areas in the literacy family (Google, 2012). As for affiliated countries, the United States is the most important place for both information literacy and media literacy research. Other countries that are active in both areas include England, Australia, Canada, Spain, China, and South Africa.

The second aspect is their different academic roots. While information literacy emerged from the library and information sciences, media literacy originated from the media, education, and social sciences. The top three journals that carry information literacy publications are library journals, while those carrying media literacy publications are communication and social sciences journals. Media literacy-related journals tend to have higher impact factors, while the library journals are either non-Social Sciences Citation Index publications or have lower impact factors (table 2).

The third aspect is the difference of constituting members and institutions. In Table 3, of the 48 authors shown on both lists, only one of them is listed in both fields. For the top three authors on each list, they do not appear at all on the other list. This level of divergence is a good indicator that the two fields are being investigated by two entirely different groups of researchers. The institutional affiliations in Table 4 essentially repeat this finding. Of the 37 universities listed on both lists, most of them do not overlap. Of the 18 media literacy-related universities, 12 are ranked among the top 100 in the 2013 Shanghai Ranking of world universities. Of the 18 information literacy-related universities, the corresponding number is only 5.

The fourth aspect is their overlapping scopes and subject matters. Education is the common bond bet-

Table 3: Top Authors of Information Literacy and Media Literacy Articles

Information Literacy			Media Literacy		
Rank	Author	N	Rank	Author	N
1	Julien, H*	23	1	Primack, BA*	12
2	Pinto, M*	16	2	Austin, EW*	11
3	Bruce, C*	14	2	Hobbs, R*	11
4	Lloyd, A*	12	4	Pinkleton, BE*	7
5	Badke, W*	9	5	Wade, TD*	5
5	Fourie, I*	9	5	Wilksch, SM*	5
5	Majid, S*	9	7	Brown, JD*	4
8	Oakleaf, M*	8	7	Cohen, M*	4
9	Arp, L*	7	7	Fine, MJ*	4
9	Crawford, J*	7	7	Land, SR*	4
9	Foo, S*	7	7	Potter, WJ*	4
9	Koltay, T	7	12	Chen, YC*	3
9	Kwon, N*	7	12	Christ, WG*	3
9	Millet, MS*	7	12	Gold, MA*	3
9	Mokhtar, IA*	7	12	Greene, K*	3
9	Walter, S*	7	12	Kesten, A*	3
17	Bawden, D*	6	12	Kupersmidt, JB*	3
17	Gross, M*	6	12	Livingstone, S*	3
17	Limberg, L*	6	12	Page, RM*	3
17	Sales, D*	6	12	Raich, RM*	3
17	Saunders, L*	6	12	Scull, TM*	3
17	Sundin, O*	6	12	Strasburger, VC*	3
17	Webber, S*	6	12	Trier, J*	3
17	Woodard, BS*	6	12	Tyner, K*	3

* Only appear in its respective area (information literacy/media literacy).

ween the two fields (Table 5). This overlap forms a basis for the proposed integration and cooperation, but each field also has its own emphasis, as can be seen in their major title words. In fact, they also differ in terms of their targets of study. The objects of interest for the information literacy scholars are mainly peer-reviewed publications. For media literacy, the attention is focused on mass media and media messages. In recent years, they have both focused on multimedia material and have been associated heavily with information and communication technologies. There is also an overlap between the two fields in terms of subject area. Both literacy concepts guide users to meet their information needs through locating, retrieving, evaluating, using, and communicating media and information. One is more concerned with research skills, while the other is linked with critical analysis of media products (Hobbs, 2010; Lau, 2013).

Table 4: Top Institutions Conducting Information Literacy and Media Literacy Research

Information Literacy				Media Literacy			
Rank	Institution	N	Shanghai Ranking	Rank	Institution	N	Shanghai Ranking
1	University of Alberta*	23	101-150	1	University of California system	17	3 (Berkeley)
2	University of Illinois system	22	25 (Urbana-Champaign)	2	Washington State University	15	201-300
3	Indiana University	21	85	3	University of Pittsburgh	12	61
4	University of Granada*	20	301-400	4	Temple University*	9	301-400
5	City University of New York system	19	301-400 (City College)	4	University of London	9	201-300 (Queen Mary)
5	Queensland University of Technology*	19	---	6	University of North Carolina Chapel Hill*	8	43
5	University of Sheffield*	19	101-150	6	University of Texas Austin*	8	36
8	Charles Stuart University*	17	---	6	University of Toronto*	8	28
8	University of California system	17	3 (Berkeley)	9	Autonomous University of Barcelona*	7	201-300
10	Washington State University	15	201–300	9	Flinders University of South Australia*	7	301-400
10	Pennsylvania State University	15	54	9	Harvard University*	7	1
10	Nanyang Technological University*	15	201-300	9	University of Wisconsin system	7	19 (Madison)
10	Victoria University of Wellington*	15	401-500	13	Arizona State University*	6	79
14	University of Pretoria*	14	---	13	Pennsylvania State University	6	54
15	Loughborough University*	13	---	13	Rutgers State University	6	61
15	Ohio State University	13	65	16	Brigham Young University*	5	301-400
15	State University of New York system	13	201-300 (Buffalo)	16	University of Sydney*	5	97
18	Syracuse University*	12	301-400	16	University of Washington	5	16

* Only appear in its respective area (information literacy/media literacy).

The fifth aspect is their divergent analytical approaches. Information literacy concentrates on analyzing information (Lau, 2013). Therefore, it mainly focuses on textual analysis and emphasizes the research value of finding the truth in documents. It is concerned with the critical assessment of research-related information quality but it does not examine information audience and information effects (Lau, 2013). In contrast, media literacy has strong academic roots in media studies and social sciences. It addresses key facets of the mass media phenomena, such as media messages, media industries, media audiences, and media effects (Martens, 2010). Thus, media literacy adopts more analytical approaches. Apart from textual analysis, it also conducts institutional analysis, medium analysis, and audience analysis.

The sixth aspect is their objectives. Information literacy and media literacy have the same objective – training people to access, understand, evaluate, communicate, use, and create media messages and information. Both highlight the importance of the ethical use of information, the critical analysis of content, the use of multimedia platforms, and knowledge production. There is a recent call for information literacy to extend its functions to build citizenship, to guarantee the survival of democratic institutions, to serve as a vital tool for lifelong learning, and to address the value of relevant information in a commercial world that is driven by a knowledge economy (Bawden, 2001). Media literacy scholars also propose that media literacy should contribute to democracy, the knowledge economy, and lifelong learning (Livingstone & al., 2005).

6. Discussion and conclusion

The empirical findings from the Web of Science database show that there are more differences than similarities between the fields of information literacy and media literacy. Information literacy is a much larger field than media literacy. It has a clear but narrow focus on library science and technology. On the other hand, media literacy has a broader scope and is more

Table 5: Top Title Words in Documents on Information Literacy and Media Literacy

Information Literacy			Media Literacy		
Rank	Word	N	Rank	Word	N
1	Information	1,173	1	Media	346
2	Literacy/literacies	937	2	Literacy/literacies	255
3	Library/libraries	248	3	Education	70
3	Student(s)	248	4	Adolescent(s)	46
5	Learning	189	5	Child/children	34
6	Education	149	6	Study/studies	31
7	Skill(s)	118	7	School(s)	29
8	Teaching	107	8	Television/TV	27
9	Instruction	106	9	Program(s)	25
9	Study/studies	106	10	Use(s)	24
11	Based	101	11	Effect(s)	23
12	University/universities	88	11	New	23
12	Research	88	13	Information	22
14	School(s)	76	14	Teacher(s)	21
15	Librarian(s)*	73	15	Smoking*	20
16	Assessment(s)	72	15	Students	20
17	Practice(s)	72	17	Communication(s)	19
18	Online	70	18	Digital	18
19	Web	69	18	Intervention(s)	18
20	Academic	66	20	Based	17
21	Technology/technologies	62	20	Eating*	17
22	Use	60	22	Culture(s)	16
23	Approach(es)	56	22	Curriculum/curricula	16
24	Health	55	22	Development(s)	16
24	Undergraduate(s)	55	25	Advertising*	15
26	Teacher(s)	52	25	Girls*	15
26	Curriculum/curricula	52	25	Learning	15
28	Science(s)	51	25	Social	15
29	Development	50	25	Teaching	15
30	Model(s)	49	25	Youth(s)	15
30	Using	49	31	Analysis	13
32	Digital	48	31	Body*	13
33	College(s)	47	31	Evaluation	13
33	Course(s)	47	31	News	13
35	Case(s)	45	31	Prevention*	13
36	Higher	42	31	Research	13
37	Faculty	41	31	Risk(s)	13
38	Nursing*	40	31	Role	13
39	Evidence	39	39	Approach(es)	12
39	Internet	39	39	Internet	12
			39	Skills	12

* Only appear in its respective area (information literacy/media literacy).

related to communication, health-related issues, leisure, effects, and culture. It is clear that these fields overlap to some extent, but media literacy is not a subset of information literacy, and information literacy is also not a subcategory of media literacy.

These two fields come from different academic traditions, have different concerns, and play different roles in the process of educating people and raising literacy levels. Information literacy is more related to information storage, processing, and use, while media literacy is concerned more with media content, media industry, and social effects. Despite their differences, however, they have a number of common concerns. Information literacy and media literacy share common goals and future directions. They overlap in the core skills they aim to develop. They both aim at cultivating literate individuals who can make informed judgments regarding the use of information in the digital age. Both emphasize the use of multimedia platforms and knowledge creation. While we recognize their differences, it is not difficult to find that the two fields are, in fact, linked and complementary.

The experts in these two fields should seek to learn from each other and to understand the specifics of the other field. In today's world, neither information literacy nor media literacy alone is sufficient to equip individuals to deal with the huge volume of media messages and the abundance of information platforms. There is an urgent call to combine these two fields to develop a joint set of media and information literacy competencies needed in the new technological environment. Their integration could certainly facilitate individuals' participation in the emerging knowledge societies.

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Adolescent Students as Media Fictional Characters

Relatos audiovisuales de ficción sobre la identidad adolescente en contextos escolares

ABSTRACT
Media fictional narrations on adolescents as characters and target are used by teenage audiences when looking for references for their identity building. As a starting point for Media Literacy activities to help teenage students in this process, this research focuses on the representations of adolescent students proposed by different kinds of media fictional narrations. Three European narrations have been chosen in order to analyse and compare different genres, codes and values: the television series «Física o Química» and the films «Harry Potter and the Order of the Phoenix» and «The Class». A classic narrative analysis approach has been applied in order to encourage teachers to use this kind of Media Literacy activities by employing methodologies that they are familiar with. The results show that such a methodology could facilitate the comparative analysis of important coincidences between these examples (such as the importance of friendship and couple relationships) and also underlines meaningful differences (like the orientation towards the future). The conclusion reached is that the comparison between such different kinds of media fictional narrations is a useful educational tool for improving Media Literacy skills and helping teenage students in the identification of the values and images they really want to choose as reference and inspiration for their own identity building.

RESUMEN
Los relatos audiovisuales que tienen a los adolescentes como audiencia y protagonistas son utilizados por éstos para buscar referencias con las que construir su identidad. Esta investigación busca comprender cómo es la identidad de los estudiantes adolescentes en distintos tipos de relatos audiovisuales de ficción, como punto de partida para la elaboración de materiales de alfabetización mediática que les ayude en dicho proceso. Para ello se seleccionaron tres narraciones europeas recientes sobre la vida escolar de adolescentes, con las que poder contrastar entre géneros, códigos y valores: la serie televisiva «Física o Química» y las películas «Harry Potter y la Orden del Fénix» y «La clase». El método ha sido el análisis textual de tipo cualitativo, utilizando como categorías las de la morfología del relato clásico. Los resultados reflejan que dicho esquema, familiar para el profesorado de Literatura, permite detectar importantes coincidencias entre relatos (como la importancia de las relaciones de pareja y amistad…), que hacen más significativas las diferencias del contraste (como la orientación hacia el futuro o el valor del pensamiento y del profesorado en dicho proceso). Se concluye que la comparación entre los tres tipos de relatos representa un óptimo recurso para la alfabetización mediática así como para ayudarles a tomar conciencia de cuáles son los valores con los que quieren identificarse y los problemas que pueden obstaculizarlos.

KEYWORDS / DESCRIPTORES
Media literacy, media storytelling, film, television, character, education, adolescents, identity.
Alfabetización mediática, relatos audiovisuales, cine, televisión, personaje, educación, adolescentes, identidad.

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1. Introduction

As underlined by UNESCO (2011), Information and Media Literacy is nowadays a necessary condition for protecting and guaranteeing the human right of freedom since it endows citizens with competences that allow them to use Media and Communication as tools of empowerment and self-orientation. Accordingly, research on the influence of Media during teenage years underlines the need to teach adolescents how to use new communication in order to increase their opportunities and diminish the risks of such influence (Buckingham, 1996; Clarembeaux, 2010; Hart, 1998; Von Feilitzen, 2004).

In 1977, Umberto Eco stated that «democratic civilization could only survive when considering the language of image not as an invitation to hypnosis but as an invitation to critical reflexion». More than thirty years after these words, the competences to encode and decode media messages have turned into a fundamental literacy, as important as traditional reading-and-writing. Despite such progress there is still an absurd and very strong tendency to think that the mere consumption of media can alone guarantee the deep and real capacity to read and understand them, when research seems to suggest the opposite (Aguaded, 2012: 7).

Supporting this approach, a number of researchers of very different contexts concur in detecting that adolescents who spend more time watching television have more problems developing a strong link with school and show significant levels of apathy, extreme orientation to the present and a lack of goals (Delle & Bassi, 2000; Dotterer, McHale & Crouter 2007; Martín Serrano & Velarde, 2001). In order to explain such characteristics, these authors underline two important issues: the difficulty of emotional self-regulation, which is connected to those activities that can be done over several hours without demanding any intellectual or physical effort (Díaz-Aguado, Martínez & Martín, 2010), and the values that are transmitted by certain television broadcasts – highly popular among teenage audiences – whose characters are strongly focused on the present and very rarely on the future. These results concur with education agents in a common concern: the major difficulty of fighting against the negative influence of such broadcasts on adolescent audiences (Montero, 2005).

Pioneer research on the risk of copying antisocial behaviour from television has detected some conditions that increase this risk of imitation: when spectators share gender with the characters that show such antisocial conduct, when these characters present other features that the viewer would like to share (such as popularity, rebellion or beauty), when violence is shown as normal and legitimate behaviour and helps to gain an advantage, and when explicit examples of how to execute violence are shown (Bandura, 1986). Longitudinal studies have revealed that it is possible to predict the level of violence that would be executed at an adult age by considering the level of violence that was seen during childhood (Huesmann & al., 2003).

Despite the increasing consumption of new media technologies among teenagers in recent years, television is still seen as one of the leading agents of influence: a media that teenagers prefer to enjoy without the presence of adults (Eggermont, 2006), and which is considered by them as one of the principal sources of inspiration in their process of identity building (Imbert, 2002; Loirq, 2008). It seems important to emphasize that adolescents prefer television content in which teenagers star in the leading roles and particularly if they are playing rebel characters in strong opposition to authority and they are involved in current and controversial issues (Thornham & Purvis, 2005).

Research like this explains the huge success of certain media fiction with teenagers both as target and leading roles (Rodríguez-Merchán, 2013). Analysis of the most successful American series underlines that such programmes often (70%) choose to connect their plots with a hedonistic and fatalistic dimension of sexuality and only 10% choose to mention the consequences: very significant conclusions, since research has found that the frequency of viewing this content is related to an increase in teenagers' estimation of sexual activities and to the lowering of the age of first sexual encounters (Brown, Keller & Stern, 2009; Rivadeneyraa & Lebod, 2008).

Studies on one of the most popular Spanish television series, «Al salir de clase», find that it presents a very stereotyped portrait of teenagers (Guarinos, 2009), by mixing in a contradictory way values and problems that represent adolescents only as emotionally unstable, rebellious, undisciplined, egoistical and materialistic, with very fragile social relationships and an exaggerated orientation to risk, since in the plots these characters are very often involved in drug problems, alcohol abuse, gangs, rape or unwanted pregnancies (Montero, 2005).

In order to counteract the possible negative influence of this sort of content, a new need emerges: to train young audiences to read such representations (Díaz-Aguado & Falcón, 2006; Medrano, 2008) by analyzing and comparing them in contrast with other media alternatives that are oriented to protecting and

projecting the same values that school aims to instil. Clarembeaux (2010) suggests using media narrations as a tool to educate individual and collective memory and to protect the European cultural patrimony. Research on prevention programmes to counter risky behaviours (Díaz-Aguado & Falcón, 2006; Hernando-Gómez, 2009) underlines the efficacy of media documents – when properly selected – as a complement to other educational tools: they reinforce the emotional impact, are remembered longer, favour empathy and are more easily shared by the whole of the class, including students who normally don't read or follow traditional teaching (Díaz-Aguado, 2003).

UNESCO's Media and Information Literacy Curriculum for Teachers (2011) recommends the use of activities favouring the link between media documents and traditional teaching strategies and materials (such as text analysis in the Literature class, for instance). One of the principal goals of this program is the empowering of young audiences with competences that will help them to identify the different codes used by different media and narrative genres. As educational activities, it recommends comparative analysis between commercial and independent productions and evaluation of the deep impact that new technologies may have not only on the external dimension of new representations but also on the very core of them. According to these Media Literacy goals and activities, the portrait of teenage characters in school contexts becomes one of the most meaningful and urgent sorts of representation to be considered.

As a starting point for the elaboration of Media Literacy materials, the main goal of this research is to go further in the comprehension of how adolescent students are being represented by different sorts of media fictional narrations. More specifically, this research aims:

1) To understand how adolescence is represented in different fictional genres (its search for identity, the value of knowledge, the relationship with teachers) in order to support the contrast analysis between television series with teenagers in the starring roles and commercial films and alternative narrations proposed by independent productions.

2) To test the use of traditional tools of narration analysis (such as those preferred when analysing literary texts) in the critical evaluation of the current media representation of teenage students.

3) To propose specific examples of media narrations to be used in Media Literacy activities. These examples should support the training of competences such as: the identification of specific storytelling codes of different media and genres, the critical evaluation of the impact that new technologies may have on the representations that they make, the detection of and ulterior comparison between positive references and patterns (teenage characters who care about the future, knowledge, improvement and self-empowerment…) and negative ones.

> The three cases may be used as interesting educational tools oriented to supporting debate and reflection about the fundamental tasks to be carried out during this period of life: through their shared analysis they may all become aware of those features of the characters that teenagers admire as values to be identified with, while other features, in contrast, are actually obstacles to preventing such awareness. These narrations may also represent an excellent resource for Media Literacy with teenagers due to their connection with the biggest issue that adolescents care about as media users (as consumers of media representations and social webs): their own identity building.

2. Materials and methodology

In view of the goals of this research, three specific narrations were selected according to the following standards:

1) Their characters and plots should pay special attention to the search for self-identity during teenage years, specifically in school contexts.

2) They should all have been recent European productions, as an expression of a common cultural patrimony to be comprehended by teenagers.

3) Their main characters should share age and equivalent school year.

4) They should support the comparative analysis between genres and storytelling approaches as well as the comparative analysis between different portraits of adolescent identity.

In line with these standards, after considering 50 European narrations, three examples were selected, all of which starred adolescent characters between 16 and 18 years old and framed their plots within an academic year. They were all produced and premiered at about the same time (between 2007 and 2010) and their characters and treatment were preceded – in the three cases – by considerable previous literary and/or media development.

As an example of television storytelling, we chose «Física o Química» (the literal translation means «Physics or Chemistry»), a Spanish series of considerable popularity and commercial success involving Spanish, French and American teenagers (the season selected was the sixth, broadcast for the first time in 2010 as a continuation of previous seasons starting in 2008 and created by Carlos Montero for the Spanish TV channel Antena 3 (later also broadcast in France on channel NRJ 12 and in several countries on the American continent through Antena 3 International).

This case may be considered a representative example of an abundant source of narrations that claim not to be addressed to underage audiences as specific targets (while, however, counting on these sectors as a very important part of their commercial strategies) and that choose secondary school as the main stage to place plots and develop storytelling techniques that are directly adopted from fiction for adults. The sixth season of «Física o Química» was presented as a consequence of the commercial success that the series enjoyed for two years (five narrative seasons) by developing its main characters and plots, and it may be considered a commercial sequel to a previous teenage daily soap opera, «Al salir de clase», also created by Carlos Montero.

As an example of a commercially successful narration specially acclaimed for its educational values, this research selected the film «Harry Potter and the Order of the Phoenix» (David Yates; United Kingdom, 2007): the fifth chapter of the film adaptation of the literary saga written by Joanne K. Rowling, a highly representative example of the abundant corpus of contemporary fantasy sagas that chose the circumstances of teenage life as the core for its metaphoric proposals. Chapter by chapter, the saga of the sorcerer's apprentice refers to the challenges and changing processes of adolescents, in a step-by-step journey through all the years of secondary school.

Thirdly, and as an example of an alternative production especially focused on the educational reality of teenagers, we selected the film «The Class» (Laurent Cantent, France, 2008); created as an adaptation of the previous novel «Entre les murs» by François Bégaudeau, this film presents a deep reflection on today's educational problems, needs and challenges. It is based on the professional experience of the writer and secondary school teacher François Bégaudeau and is the result of extensive documentary work, following more than two years of discussion sessions with teachers and students (who afterwards took part in the film as the actors of the production, playing their own roles under their real names, including Bégaudeau himself).

In their respective contexts, the three narrations achieved considerable success, a shared factor that allows us to address a matter of great importance for media literacy with teenagers: contrasting and questioning the extended belief that states that films and programs of high educational value cannot achieve popularity or commercial and communicative success.

Following the line of authors such as Clarembeaux (2010), this research has adopted a qualitative methodology based on the techniques of film and textual analysis (Bordwell, 1985; Aumont & Michel, 1990; González-Requena, 2006).

On a more specific level, it has followed the classic categories of narration analysis proposed by authors such as the pioneer Propp (1927) or Greimas and Courtés (1982), often used in school subjects such as Literature. After a prior general analysis of the contents and the formal style of the cases, these categories examine the narrations by focusing on the following questions: 1) What is the initial state of the main characters when the story begins? What are their main motivations? What are the main aims and tasks that will direct their path; 2) What are their main features and what are these features identified with? Who and which factors act in the plot to help these characters to achieve their goals, or act against them? 3) What are the changes or discoveries that emerge at the end, once the adventure is finished?

3. Results

3.1. General characteristics: formal features and contents

The selected season of «Física o Química» pre-

Image 1: Promotional photo for «Física o Química».

sents the life of students and teachers in a secondary school by focusing almost completely on intrigue plots linked to love stories, sexual attraction and exploration, the importance of friendship, the searching for self-identity and one's own limits, rebellious attitudes and different tensions that may arise in almost every social group (such as misunderstandings, rivalry, confrontations, reconciliations…).

The plot is mainly staged in an educational centre that verbally claims to host students from a low-income background, but the gestural language of the actors and the dynamic and colourful approach of the photography and art direction departments are influenced by the visual codes of fashion catalogues and imaginary pop stars: all members of the cast (both in the roles of students and teachers) seem to be extraordinarily photogenic, and they become even more so after passing through the wardrobe and make-up departments, in accordance with the standards of the fashion trends advertised in each chapter and on the website of the series; the classrooms and the corridors of the school shine in a bright and colourful way; even the condition and decoration of the students' and educators' apartments (including those who are presented by the plot as being in a very difficult economic situation) reproduce high standards of style and exclusivity.

The narration is based on a pluralistic approach: the different groups of teenagers (and adults that interact with them) develop a pluralistic web of parallel subplots. The screenplay and the editing organize the storytelling in a constant fragmentation, where each situation is based on quickness, brevity and strategic intrigue pauses placed in order to fit nicely with the commercial interludes without losing the audience.

«Harry Potter and the Order of the Phoenix» may be considered a narration in the classic archetypical mould of the «hero's journey», by telling the story of a hero who must perform an important search. It maintains the spectacular style of the whole saga, always mixing expressive codes from the fantasy genre with certain realistic features.

Monsters, spells and aerial fights are presented with outstanding camera movements and a sophisticated display of post-editing and special effects, but, at the same time, there are also constant signs reminding us that the issues told by this story bear a close similitude to the current problems of the audience. This is expressed by the art direction when presenting the house and the neighbourhood where Harry lives with his relatives, or the naturalistic costume design, make-up and hairstyling of the students and teachers, among whom are characters of special physical beauty but also ones who are less sculptured, who may be dishevelled, have teeth imperfections or wear untrendy glasses. According to the original novel (which was created by a mother who wrote it at the same time as educating her own son, a boy of the same age as Harry Potter and his friends), the main narrative feature of this film is the use of the fantasy metaphor as a tool to represent the challenges, difficulties and peculiarities of the teenage years.

The explicit definitions and explanations of the spells and magic creatures that are part of the plot are poetical statements on fundamental issues such as the importance of a shared memory, the need for building up one´s own identity through active searching, the importance of invoking humour and warmth and encouraging emotions in order to fight against fear or depression… All these are united by a main metaphor, particularly meaningful for this analysis, that seems to frame the general definition of this plot and its characters: the path these young heroes must go down is full of uncertainties and problems (as the teenage years are) that impact very strongly on their lives and the lives of the people who accompany them; they can only face these obstacles by empowering knowledge

Image 2: Frame of «Harry Potter and the Order of the Phoenix»

Image 3: Frame of «The Class».

in an active and progressive learning that comes –in the plot– from books and lessons, from friends (the story underlines the importance of friendship and emotions) and from conversations with teachers and other adult educational figures.

Coming from a very different expressive style, «The Class» follows a line of aesthetics and depth of reflection close to «cinéma verité» and the documentary genre. The dialogues and the plot line are the result of the real teaching experience of one of the authors and of demanding discussion sessions between teachers and students. The narrative challenge of the screenplay and the editing was to select meaningful excerpts of students during one academic year in a class of a high school on the outskirts of Paris, focusing on capturing such situations almost in their real-life entirety: the scenes avoid summarizing what really happened, including the misunderstandings, confusion, dilly-dallying, doubts and noise that so often describe current life in classrooms.

The visual approach and sound editing capture the spontaneous movement of attention (as if the cameraman and sound operator are capturing what happens in a real lesson, without a prior film plan). Both the work with the actors and the art direction share this realistic-documentary determination by choosing natural locations and players who are not actors, who play themselves (even using their own names in the film) and who stand in front of the camera in their real appearances and diversity. The plot focuses on the education process itself (its difficulties, goals, contradictions and achievements) and on the effort that it takes to get teenagers to understand the real importance of education and thought.

3.2 Starting point and identification of the hero's goals and tasks

At the start, the three narrations present their main characters in an explicit situation of uncertainty, directly linked to the beginning of a new academic year. Beyond the differences of expressive codes, the three present very different ways for their heroes to assume and face this situation. Even through explicit inner monologues, all the main characters of «Física o Química» express major concerns about the future and getting over the difficulties of their present: from the very beginning of a new school year, most of the student characters of the series express identification with a defeatist attitude and all of them refer to academic results as transactions to be negotiate in order to achieve a new stage of independence and relief, where no more obligations and explanations can be demanded by adults; educators are presented in romantic vaudeville subplots or detective intrigues, and even when some of them show interest in the talent of a student, as is the case of the Philosophy teacher in the first chapter of this season, the screenplay presents a situation of romantic confusion by exploiting the embarrassment of the teenage boy being alone with his young and charming female teacher. While no character from this narration (whether student or teacher) appears to be worried about educational goals, we do find explicit concern for such issues in the other two examples.

The main characters of «Harry Potter and the Order of the Phoenix» start the story in a time of darkness and danger, suffering from painful loneliness and longing for the only place –the school of magic– where they can be together and face the tasks and acquire the knowledge needed to fight against the injustice and fear that threaten their lives. It is important for the analysis that the narration chooses to underline that the villainous characters prefer the young heroes not to gain such knowledge in order to take advantage of their vulnerability, while, on the other hand, Dean Dumbledore and the good friends of Harry's dead parents –the main educational figures for Harry from the very beginning of the saga– fiercely protect him from those attempts. Through these characters, the narration provides an in-depth assessment of the role of the teacher and the importance of learning, crucial issues that are also at the core of the definition of the Literature teacher in «The Class»: the narration starts with a long shot of François, portrayed in a deeply thoughtful moment just a few minutes before a new school year begins.

The sequence is followed by a meeting session where he and his colleagues open the school year by sharing their worries about the educational difficulties that they are about to face. Only after this scene do we get to know his students: a group of varied teenagers,

in some meaningful cases quite rebellious and strong. Some of these students go into the classroom with a disruptive attitude, only worried about relations with their mates and focusing on taking advantage of every opportunity to defy François and all that he represents as an adult and teacher. Later on, the film shows how the linguistic skills that François tries to work on with them in his classes (vocabulary, comprehension skills and language accuracy) are precisely the tools that students will use in order to get stronger in their confrontation against authority.

3.3. Main identity features of the characters and identification of what and who is involved in the achievement of their goals

By defining the attributes of the main teenage characters, the three selected narrations underline the importance of friendship, the questioning of authority and the need to overcome certain tests in order to prove they are not children anymore. However, the three of them choose to connect the teenage characters, the teacher roles and the school's goals in a very different way.

In «Física o Química», the teenage characters are defined mainly by their physical beauty and their trendy appearance: if previous seasons presented certain characters with a more natural look, in this one they all conform to highly sophisticated standards of advertising beauty (as in the case of Paula, who appears with an outstandingly new slim figure and top model hairstyle and make-up precisely when she has just become a teenage mother).

Triumph is identified with moments when the characters reinforce their friendship, confront adults or find situations of special connection with empathic and attractive teachers, mainly in emotional conflicts and intrigue (in previous seasons the series contained several subplots of sexual tension or even sexual relations between students and teachers). No important goals associated with learning and intellectual effort are highlighted; despite the character of Alba showing considerable ambition with regard to her studies, this soon takes a negative twist in the story since she mixes it with Machiavellian procedures such as blackmail and intimidation. And even when main characters must overcome important challenges connected with crucial and current social problems –such as teenage motherhood, homophobia, anorexia or teenage suicide– these are rarely linked to the need for learning and reflection; as a matter of fact, these problems acquire a certain touch of confusing heroism by always being presented at the core of romantic subplots, as a narrative preparation for emotional rewards according to melodramatic soap opera techniques.

On the other hand, the other two narrations chose to present the way students and teachers face problems (also connected to important social issues) by underlining in an explicit way that such problems can only be resolved by the use of their mature thinking and skills: in both examples, teenagers must use what they have learned from their best educators in order to solve the crucial conflicts in the plot.

Both narrations denounce unfair or arbitrary teachers (including episodes of sporadic anger and loss of patience) and highlight the figure of the good educator as a role that presents the following main features: he or she brings together empathy and authority, is deeply convinced of the power and values of education as

> Media Literacy may help teenagers to understand the factors that determine certain narrative decisions that are taken due to expressive or commercial needs even if the portrayal of certain realities gets distorted. The contrast between these cases and other solutions that manage to preserve educational goals may strongly support such a process of understanding; this is the case of «The Class» and «Harry Potter and the Order of the Phoenix», both created by authors with a deep knowledge of adolescents' educational reality and needs, and both oriented to connecting to the explicit attention given to the importance of learning as a crucial tool for the transition towards adult life.

tools that will help students to have a better life, and puts huge effort into the educational task even when important personal sacrifices (as shown in the cases of François and Dumbledore) may be involved.

3.4. Changes or discoveries that come as a result of the adventure

The three narrations choose to close their plots by maintaining a strong sense of uncertainty about the future: three open endings which, once more, highlight notable differences between each. «Física o Química» chooses to tie together a number of romantic reconciliations that follow standard recipes of television melodrama (the attempted suicide of one of the teenagers gives him a certain heroic dimension, one of the girls runs away from her family home and that helps her to make up with her ex-boyfriend, an improvised teen wedding is cancelled at the very last minute when the true love of one of the fiancés bounces into the ceremony begging for everything to stop…); the last chapter of the season finishes in a roadside bar where the teenagers toast the happy endings and explicitly decide to leave «for another moment» any reflection on the consequences of their behaviour and decisions. In «The Class», François closes the school year in a state of restlessness that is very similar to the one he had when the year started, especially because a very respectful and timid student has sadly confessed to him that she is leaving school without having learned anything at all. On the other hand, the narration also shows a warm feeling of optimism in the last sequence of the football match between the students and teachers, and a final session where each student shares with the group the most interesting thing that they have learned during the year. From a near-narrative approach, Harry Potter and his friends get to overcome extremely difficult obstacles in the face of fear and darkness while still maintaining a strong attitude of watchfulness and determination: they need to keep on breaking through an increasingly uncertain time where every single piece of knowledge and competence learned will be essential in order to survive.

4. Discussion and conclusions

The classic scheme of narratological analysis used to examine these three examples has helped to reveal some meaningful issues on the media representation of teenage identity, such as features of personality, the questioning of authority, uncertainty about change, couple and friendship relationships and the difficulties that are linked to new possibilities of freedom and choice. For this reason, the three cases may be used as interesting educational tools oriented to supporting debate and reflection about the fundamental tasks to be carried out during this period of life: through their shared analysis they may all become aware of those features of the characters that teenagers admire as values to be identified with, while other features, in contrast, are actually obstacles to preventing such awareness. These narrations may also represent an excellent resource for Media Literacy with teenagers due to their connection with the biggest issue that adolescents care about as media users (as consumers of media representations and social webs): their own identity building. The use of these analyses and schemes that are familiar to them from school work in traditional subjects such as Literature can support teachers in their adaptation of new Literacy activities to their current academic approach and program as suggested by UNESCO (2011).

The common features shared by the three narrations add meaningful aspects to the analysis of their differences. When the plot is located in the school centre mainly to support intrigue concerning underage characters or to advertise certain trends oriented to young consumers, the narration is based on stereotyped representations following the previous tendencies of commercially successful teenage television dramas (Guarinos, 2009), mainly representing a confusing present focused on consumption and almost never concerned about the complex reality of young students. The three narrations selected (all of them very successful in their different contexts) achieve this partly by the way they portray social issues (like uncertainty about the future, for instance) that the audiences recognize as their own (Corroy, 2008). But, as the influence of reality on fiction can also happen the other way, these narrations can also act in the contrary sense: they may strongly inspire young audiences by moving them to reproduce in their own lives what they have seen on the screen even if reality has been deeply distorted for artistic reasons or commercial needs.

This process of imitation may lead to the identification of features and behaviour that may be presented in fiction as positive but which in real life would be identified as signs of dangerous problems: this is the case with an excessive tendency to focus only on the present (and reject facing the future), a social issue detected in teenagers who have problems establishing positive links with school and who spend too much time consuming television (Díaz-Aguado & al., 2011; Martín-Serrano & Velarde, 2001). As proposed by Clarembeaux (2010), Media Literacy may help teenagers to understand the factors that determine certain

narrative decisions that are taken due to expressive or commercial needs even if the portrayal of certain realities gets distorted. The contrast between these cases and other solutions that manage to preserve educational goals may strongly support such a process of understanding; this is the case of «The Class» and «Harry Potter and the Order of the Phoenix», both created by authors with a deep knowledge of adolescents' educational reality and needs, and both oriented to connecting to the explicit attention given to the importance of learning as a crucial tool for the transition towards adult life.

As proposed by UNESCO (2011), this analysis shows the efficacy of educational activities based on a comparison between different sorts of narration, including cases of notable success among teenage audiences (such as the series «Física o Química» or the film «Harry Potter and the Order of the Phoenix») and also independent productions like «The Class»), focusing on school goals by means of a realistic, even documentary, approach that may help adolescents to understand in a deeper way what the real perspective of those who care about their education is.

The three narrations analysed may support the work of Media Literacy with teenagers by providing training on three important competences underlined by Clarembeaux (2011): 1) the detection of content and patterns which, coming from screens, may exert a strong influence on adolescents, becoming a reference source of models to imitate; 2) the differentiation of the positive and negative features of such reference patterns according to the values that teenagers really want to incorporate in their identity building; and 3) the elaboration of new proposals and alternatives to those possible influences finally seen as negative, as empowered and active media consumers and authors of their own screenplay of behaviour and expression. In line with this, as a continuation of the work presented here, the following model of Media Literacy is to be tested and included in broader programs of education on values (Díaz-Aguado & Falcón, 2006):

1) Activating previous schemes by asking teenagers about their relation to the narrations presented and by giving them the role of experts on media.

2) Presenting content and aesthetic approaches by analyzing contrasting examples.

3) Encouraging debate in heterogenic groups (4-6 students) about how teenagers and schools are represented in each narration.

4) Helping teenagers to create their own media narrations on the role of school in the building of their own futures.

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Researching on and with Young People: Collaborating and Educating

Investigar con y sobre los jóvenes colaborando y educando

ABSTRACT
This paper reports on collaborative research on and with young people. In this study five groups of students in the final year of their Compulsory Secondary Education (CSE) from five different schools developed five ethnographic studies about how they communicate, express themselves and learn inside and outside school, with the support and collaboration of teachers and members of our research group. The paper begins by discussing the dimensions of collaboration in education, taking into account the contribution of collaborative and cooperative learning, and the potential of digital resources, situating earlier influences and characterizing the work realised. Then there is a description of the research carried out on and with the young people we invited to perform as investigators. The results focus on the description and conceptualization of the different types of collaboration that have emerged while carrying out the ethnographic studies in each of the schools using digital technologies. Finally, we discuss the implications and limitations of the work as a contribution to anyone interested in researching on and with young people, collaborating, educating and using digital resources.

RESUMEN
Este artículo da cuenta de una investigación colaborativa realizada con y sobre los jóvenes. En este trabajo, cinco grupos de estudiantes de cuarto de Educación Secundaria Obligatoria (ESO), de otros tantos centros de Cataluña, han realizado cinco estudios etnográficos de forma colaborativa entre ellos, algunos de sus docentes y miembros de nuestro equipo de investigación, con la finalidad de explorar cómo y con qué los jóvenes se comunican, expresan y aprenden dentro y fuera de las instituciones educativas. Comienza discutiendo las dimensiones de la colaboración en la educación, teniendo en cuenta las aportaciones del aprendizaje colaborativo y cooperativo y las potencialidades de los recursos digitales, y situando los antecedentes y las particularidades del trabajo llevado a cabo. Sigue con la caracterización de cómo y en qué ha consistido la investigación con los jóvenes a los que invitamos a ejercer como investigadores. Los resultados se centran en la descripción y conceptualización de las formas de colaboración a las que ha dado lugar la producción de estos cinco estudios etnográficos en cada uno de los centros utilizando tecnologías digitales. Finalmente, se discuten las implicaciones del trabajo realizado y se señalan sus limitaciones lo que se configura como la principal aportación para quienes se propongan investigar con y sobre los jóvenes colaborando, educando y utilizando recursos digitales.

KEYWORDS / DESCRIPTORES
Digital communication, collaborative learning, training, secondary school, collaboration, cooperation, research, ethnography. Comunicación digital, aprendizaje colaborativo, formación, educación secundaria, colaboración, cooperación, investigación, etnografía.

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1. State of the question

This article reports on the process and results of one of the stages of the IN-OUT research project in which, five groups of final-year Compulsory Secondary Education (CSE) students from five different schools undertook ethnographic studies to explore how they communicate, express themselves and learn inside and outside the school. The most innovative methodology used has been to invite the students to be researchers of a phenomenon that both concerns and involves them directly and to ask them to do so in collaboration with their teachers and university professors. Moreover, it extends the concept of collaborative learning based on digital technologies beyond the use of a specific platform (Lehtinen & al. 1999). This forms an example of what researching and teaching in collaboration about and with technologies may mean.

1.1. Scope of the collaboration

The interest in collaborative or cooperative learning, often used synonymously, has increased with the rise of digital technologies and competence-based curricula (OECD, 2005; European Communities, 2007; Hmelo-Silver, Chinn, Chan & O'Donnell, 2013). Nevertheless, it is not new in the educational field or in the history of humanity. If we look back over the evolution of civilisations, the line that gives continuity to the human species and the development of individuals and people is the capacity to collaborate, to work with each other in undertaking a task, or the capacity to cooperate, to work together with another person or others for the same ends. In fact, all the technological developments that have involved the ability of the human species to progress have a strong collaborative or cooperative base (Sennett, 2012).

However, the School, in its existence of more than one hundred and fifty years, more than on collaboration and cooperation, has been based on, and above all encouraged, individuality as practiced in large groups, and competitiveness. This occurred despite movements such as the Progressive School (United States) and the New School (Europe), which began to place the focus more on the process than on the result of learning, understanding collaboration not only as a teaching practice but also as a broad strategy to learn together and come together to learn.

Our research is based on this pedagogical notion of collaborative learning and on the proposal of Vygotsky (1929) that there is a dialogical relation between individuals and their environment. From this comes the importance of the notion of the zone of proximal development and of mediation in order to favour thinking skills of a higher order. In this process of development, individuals not only dominate aspects of cultural experience but also habits, cultural forms of behaviour and cultural methods of reasoning. Collaboration between young people and adults can contribute to cognitive, emotional and social growth according to the importance of «the presence or absence of certain types of institutions (for example schools), technologies and semiotic tools (for example ball-point pens and computers)» (Hogan & Tudge, 1999: 41).

There are studies that combine the notions of collaborative learning with the potentialities of digital technologies that focus on the role of interaction, the intervention of teachers in the collaborative space and the collaborative construction of knowledge (Scardamalia & Bereiter, 1994; Yang & Wang, 2013). In our case, the existence of virtual environments that encourage collaboration and exchange is of fundamental importance. These settings can be characterised as online digital spaces where we can share information with others (Snowdon, Churchill & Munro, 2001) and work together, acting as organisers in the collaborative work (Guitert, Romeu & Pérez-Mateo, 2007; Sánchez, Forés & Sancho, 2011). They enable an asynchrony in space and time that is very useful, without forgetting that, like all virtual environments, they are only resources and do not guarantee either interaction or collaboration. In fact, to create an atmosphere of collaboration we do not need either digital or virtual tools, although they can help, and the success or failure of this does not usually depend on the tools.

In our research, we did not consider the use of virtual collaborative environments as an objective, but the appropriation of them in as much as they can facilitate or improve collaboration (Sánchez & al., 2011). Therefore, we have not chosen a priori a tool and we have used the digital resources that have best adapted to the needs of each school and the learning process.

1.2. Background to the study

In recent times, the argument has arisen for the need and convenience to include young people in the research processes, going from the notion of researching on young people to researching with young people (Kirby, 2004; Fraser, Lewis, Ding, Kellett & Robinson, 2004; Australian Research Alliance for Children and Youth, 2009; Hernández, 2011). Along these lines, there are collaborative research and learning projects between institutions and the educational system cycles that, as in our case, understand collaboration as a strategy to learn together and come together to learn, an issue we choose to highlight:

Collaborative research with teachers and secondary school pupils through the «Teaching and Learning Research Programme» (TLRP), carrying out eight interdisciplinary projects in which teachers and researchers collaborated for four years in distinct educational institutions. One of the actions was to undertake research with young people aged between eleven and sixteen starting from relevant questions about their lives (Gillen & Barton, 2010).

Participative research-action between secondary school students and their teachers. From the University of Queensland (Australia), over the last ten years collaborative projects with teachers, students and universities have been encouraged through processes of Participatory Action Research (PAR) (Bland & Atweh, 2007).

Participative research between the university and formal and informal educational institutions, based on visual production. Over recent years, in the South American context, from Art Education, research programs with young people have begun to emerge based on the idea of the young person as visual producer (Edarte, 2013).

1.3. In-Out Project

The RDi IN-OUT project: «Living and learning with new literacies inside and outside secondary school: contributions to reduce abandonment, exclusion and school disaffection of young people» starts from the confirmation that the majority of secondary schools do not seem to be prepared or equipped to face the changes in contemporary society. This reality generates «alienation, apathy, disaffection, boredom and apprehension» (Birbili, 2005: 313). Moreover, the limited impact of digital technologies in these schools (Hernández & Sancho, 2011; Sancho & Alonso, 2012) increases the difference between the experiences of young people inside and outside the institution, shaping two cultures with distinct expectations (King & O'Brien, 2002). Thus the initial hypothesis of this project is that there is a disconnection between what the secondary school considers as learning (mainly listening, doing exercises and reporting in the exam) and how young people learn outside the school in communities of exchange using different literacies. To explore this hypothesis and provide alternatives, we considered studying how young people learn inside and outside school. And we decided to do this with them. In this way, a fundamental stage of the project was to undertake research in five secondary schools in Catalonia. We highlighted the characteristic that the researchers were five groups of students, accompanied by and in collaboration with the research team as well as at least one teacher from each participating school.

> In this process of development, individuals not only dominate aspects of cultural experience but also habits, cultural forms of behaviour and cultural methods of reasoning. Collaboration between young people and adults can contribute to cognitive, emotional and social growth according to the importance of «the presence or absence of certain types of institutions (for example schools), technologies and semiotic tools (for example ball-point pens and computers).

2. Material and methods

When we planned our study, the curriculum for final-year Compulsory Secondary Education (CSE) in Catalonia included the production of a group research project. This project, on which one hour is spent each week, is understood as «a series of activities of discovery by the pupils regarding a subject chosen and marked out, partly by themselves, with the guidance of the teaching staff» (Departament d'Educació, 2010: 251). Thus we agreed with the five participating schools that the students would do it with us and that, as well as being presented publicly in the University of Barcelona (UB), would be evaluated by the school. This decision would contribute to give meaning to the process and to the results of the studies, although as we see in the results section, it was not thus in the five cases. The act of working with and about young people and doing it in an institutional context turned the negotiation with them, their families and the schools into an essential part of the research in order to satisfy the ethical requisites.

The epistemological and methodological positio-

ning of this research that involves secondary schools and students aged fifteen and sixteen for several months of continuous and demanding work led us to speak of an intentional sample (Patton, 2002) characterized by its quality and not its quantity. The participating entities are representative of the different existing socioeconomic groups (table 1). We also particularly emphasised that the groups represented the different groups of students: those that respond to the expectations of the teachers, those that broadly respond and those that do not respond (at least two in each group).

In line with the objectives of the project and the young people's interest, we developed five collaborative ethnographic studies which, although each group could produce its objectives and questions, were focused on the exploration of these questions:

• How and with what do we communicate, express ourselves and learn inside and outside the school?

• What connections, disconnections, complementarities or distances are there between learning inside and outside the school?

In relation to the methods of collecting information, each school team (made up of secondary school students, school teachers and university professors) decided on and learnt the techniques that would enable them to progress in the ethnographic study. In brief, these would consist of: observations and self-observations, field logbooks, audio-visual documentation (photography, video, music, etc.), interviews and group discussion.

Table 1: Participants

Institution	Teaching staff	Students
University of Barcelona	7	5
Virolai School (Barcelona)	1	6
Institute Alfacs (Sant Carles de la Ràpita)	1	11
Mallola Institute (Esplugues de Llobregat)	1	6
Palau Institute (Sant Andreu de la Barca)	2	6
Ribera Baixa Institute (Prat de Llobregat)	2	5
TOTAL	14	39

During the classroom sessions, training in these techniques was combined with research about them, their contexts and resources of communication, expression and learning. Other aspects dealt with were:

• How to analyse the information: identify differences and similarities between communication, expression and learning inside and outside the school.

• How to produce the information: writing up the individual ethnographic stories and the final report with the preparation of the public presentation.

The scope of collaboration of the process, the methodologies and digital resources used are detailed in table 2.

The work with the young people was undertaken between October 2012 and April 2013 except in the Els Alfacs institute which was extended until May, and in all the cases, with weekly meetings of each team and an exchange of information and communication by means of the technological resources chosen by each school. The collaborative research and learning process ended with the public presentation of the five projects in the UB, an event attended by colleagues and families of the students and primary, secondary and university teachers and professors.

3. Analysis and results

In our research, some of the characteristics of the studies reviewed occurred, above all that relating to the leading role of the students, who were placed in the function of researchers and went from reproducing to producing knowledge.

The results of this collaborative research and learning process have been multiple and different. Many of them have provided great satisfaction to all those involved, although they are difficult to express in the context of this article. We refer, for example, to the change of attitudes, the increase in involvement, how the students were authorised each day to speak, discuss, question and how they improved their forms of expression and communication. We also refer to the security and ease with which they all spoke in the auditorium of the Fine Art Faculty of the UB. These results go beyond the analogical and digital documents produced and shared in distinct digital platforms because they have come to form part of the students' background. From the perspective of educational research as a process that educates all the participants, for us this constitutes the most important result.

Table 2. Scope of collaboration and means

Collaborative learning and research	between	• University research team. • University and secondary school teachers. • University teachers and secondary school teachers and students. • Secondary school students from each school. • Secondary school students from five schools.	with	• Methodologies and practices of collaborative work. • Variety of digital resources: ○ Virtual learning environment. ○ E-mail. ○ Services of social networks. ○ Shared and collaborative online documents. ○ Intranet or web and Internet service.

The five ethnographic studies undertaken collaboratively by students and school and university teachers have produced important results regarding the comprehension of how and with what the students communicate, express themselves and learn inside and outside school. However, being coherent with the subject of the monograph, we focus on the forms of collaboration that occurred in the five schools and the technological resources they were provided with.

• Virolai case: from strategic to relational collaboration. We met in the Laboratory, where the young people attended with their laptops or tablets, and we altered the space to favour communication. From the first sessions, we tried to break with the dynamic of the adult who mainly decides and explains. We thus highlight a step forward when we agreed with the students that they interview and film each other explaining their learning and expressive experiences inside and outside the school. In these interviews, the young people gradually gave themselves different roles and made decisions and assumed their authorship.

During the ethnographic research, the most used digital resources were a website and the documents shared online. According to the young people, the use of the website enabled them to monitor the evolution of the research and do their project since the work sessions were ordered chronologically with their corresponding significant information in a single shared space. By way of example, when the young people produced the report of their project they placed, on one of the pages of their website, the titles of the contents linking them to documents shared online. According to them, the shared document facilitated their task of creating knowledge in a group while at the same time, quickly and simply, they always knew where the information was and that it would be updated with the latest entry. According to them, during this process of creation and analysis, they had the experience of knowledge as a social and negotiated construction of collaborative and shared re-elaboration where they mainly interacted through dialogue and questions. When they finished the project, the young people emphasised that they observed and analysed differently and were able to express themselves better in writing.

• Els Alfacs case: towards integrating collaborating. It was agreed with the school's management that the group sessions would be done within the setting of an extracurricular subject. These were held in the Visual Education classroom with several tables arranged for group work. We were faced with the difficulty of breaking with a traditional work dynamic where the adult decides and the young people produce. What enabled a change of course was when, after a few weeks, the young people stopped asking what we wanted them to do, and began to take hold of the reins themselves. At this moment each one of them became involved in a different way and intensity, contributing diverse aspects to the project. For example, when we agreed that they would record a video (speaking about their findings and learning experiences) they thought up the questions, recorded and edited it in with a sense of authorship considering their singularities.

The digital applications we decided to use were a key factor for the collaborative research and learning that we gradually constructed. A closed group in a social network would be used for the internal formal relations that they managed themselves. At the same time, a service of online documents would enable them to organise the findings with great flexibility in sharing and creating files according to needs. The young people ended up contributing textual, auditory, visual and audiovisual resources, maps and digital presentations. They also created another closed group in a social network service to encourage communication and exchange with the groups of the other four schools involved.

• La Mallola case: from occasional to accumulative collaboration. The work undertaken by the young people did not form part of the final-year Compulsory Secondary Education (CSE), but had institutional recognition since it was presented in the school with the attendance of a representative of the council. They decided on their participation in the project on a voluntary basis, but the fact of not forming part of a regulated school activity, although done during class time, put them off initially. The interest aroused in them by the study topic kept them in the group, despite their ambivalence, but meant, initially, that their collaborative research work and learning was focused in the classroom sessions.

After the first meetings, the need to broaden communication and collaboration beyond the confines of the school were considered, in order to share the material produced. The young people were unaware of the service of online collaborative and shared documents, although some of them remembered having used one in the school at one time. In the end they decided to create a closed group in one of the most popular social network services, in order to inform us and share material, one of the students creating it in a

moment on their netbook. From this moment on, the main use of this social network was to remind them of the work they had decided to do, share material (photos, videos, presentations...), see interventions and discuss strategies to improve their participation. The majority of interventions were by the two researchers from the university and three of the youths. As the presentation time approached, the occasional collaboration became accumulative. All the members of the group carried out the assigned tasks (writing texts, producing photos, videos, etc.) to create the report and multimedia presentation that represented their work.

• El Palau case: collaboration, separation, collaboration. The first stage of the collaboration was focused on interviews and observations. The youths divided into two equal groups with assigned roles. The written observations were shared among the whole group to analyse them and try to form conclusions. Two groups were organised from the individual essays and each one constructed, with our support, a table classified by categories. The youths from group A (of curricular diversification) took part less initially, but were more involved in individual tasks. As a result of the collaboration between members of both groups, those in group A ended up taking part more and those from group B undertaking the programmed tasks. In the second stage, the youths produced the project they had to present in the school. On having to do it with the group of their class, they had to be separated. This separation did not help either the development or the production of the report, above all for the youths from group A who presented a project that did not reflect the work done. The third stage consisted of the construction and preparation of the presentation in the UB. The results were satisfactory for all the youths as a result of the consensus between them, organised with our support again in a single group.

To share the information collected and make collaboration easier, after considering different options, it was decided to create a closed group in a social network service in which only them and us participated. This group was basically used as a deposit for what was produced, with occasional interventions from the researchers in the news forum with reminders of the contents of some sessions, documents to include or prepare changes of programme, etc.

• Ribera Baixa case: from sharing to collaborating. As the school had not yet decided how to undertake the final-year Compulsory Secondary Education (CSE) project, we agreed with the youths to meet after school. We had a sandwich together chatting about different things and later focused on the task at hand. This contributed to increasing the mutual trust and recognition. All the work sessions were carried out on school premises, which facilitated group work and equipment, except one which was done in a UB space.

The process reflected the conditions of the context. One of the students only attended one session. He did the work enthusiastically together with his colleagues, but did not return. His presence was very intermittent in the school too. Another took part sporadically, but had an important role in the development of the presentation in the university. These two cases show that collaborative research and learning are not an answer in themselves, despite the interest and the considerable results recognised by the students. The process of research and learning in collaboration went through distinct moments and forms:

• Directed collaboration. The university and school teachers suggested, and the students did. More present in the formation stages.

• Mixed collaboration. The decisions were taken with the active participation of the students who made them collaboratively. For example, search and processing of information of concepts involved in the research, production of final report or preparation of the public presentation.

• Collaboration between peers. The students proposed and took decisions that they carried out inside and outside the school. For example, they decided to make videos about themselves to include in the presentation of their work.

After analysing different options together, they agreed on a file storage service in the cloud to facilitate asynchronous collaboration and by e-mail to exchange day-to-day information. Through this service, those of us involved were able to accede to the information available. In this context, the production of the final report involved, as well as the commitment from the youths, establishing a turn so that each one could present their contributions.

4. Discussion and conclusions

The results of this stage of the research constitute a series of findings in order to base the importance of doing research with young people and not only on young people (Kirby, 2004; Fraser & al., 2004; Australian Research Alliance for Children and Youth, 2009; Hernández, 2011). Researching on and with young people collaborating and educating, as other studies have partly shown (Gillen & Barton, 2010; Bland

& Atweh, 2007; Edarte, 2013) in our study has involved:

• Converting the educational activity into personally significant and authentic experiences by undertaking research on them and about subjects that concern and interest them. This leads to contextualised and problematized learning (Cobb & Bowers, 1999), since the attainment of new knowledge is not independent from the context of young people and requires questions in order to move forward.

• Taking on intellectual risks that go along unfamiliar paths undertaking activities of description, analysis and creation using different digital devices. This gave rise to diverging and open understandings, not oriented to repetition where the interactive working methods were based on the setting of questions and dialogue which contributed to giving meaning to their process of inquiry (Hernández, 2007; Entwistle, 2009).

• Favouring the production of knowledge and learning not included in the curriculum. Young people as researchers produce, design, analyse and synthesise their research work based on an ethnographic study about their own reality. Learning experiences that help them connect and give meaning to the information (Burke & Jackson, 2007).

• Encouraging a vision of education that goes beyond attaining fragmented information or specific skills, offering opportunities for the creation of a product: the final-year secondary education (ESO) research project. Knowledge here is understood not as something set and immutable, but as a social and negotiated construction between the members of the each group, with collaborative and shared re-elaborations, in line with belonging to a culture of liquid information (Area & Pessoa, 2012).

• Overcoming the physical and organisational limits of the classroom, making the utmost use of different digital resources and tools of collaboration and learning, and assisting the youths to shape their knowledge and their own knowledge spaces.

• Promoting the responsibility of the youths in inviting them to participate in the process of producing knowledge based on investigation, deliberation, consensus and transference as a way of sharing, constructing and developing meanings.

• Considering the learners as biographical and cultural subjects, and not as minds that reproduce information (Hernández, 2004; Burke & Jackson, 2007).

• Bringing young people towards a constructionist vision of research (Gergen & Gergen, 2011; Holstein & Gubrium, 2008) and to conceptions of learning based on neuroscience (Fischer, 2009), Vygotskian social constructivism and the articulation of the curriculum though projects (Hernández, 2010); but also rhizomatic learning (Lind, 2005) and connectivism since in the different work sessions the youths learn with and from their colleagues using digital technologies.

The clearest limits of our research, as is generally the case in all learning framed in an institution, even though we surpass them, is found in the shortage of time for learning (Stoll, Fink & Earl, 2004). The fragmentations of the timetable, exams based on questions that already have an answer are educational aspects that are an obstacle to collaboration. In our cases, we had to unlearn and rethink the question of time, because research time is not the same as that of teaching and they had to pass several weeks before shaping a shared objective that led to the youths becoming involved as researchers and the learning process attained.

Finally, when working collaboratively, we cannot expect young people to have the same involvement all the time or contribute the same. This type of relationship brings out the potentialities of each one, making their contribution to the process a key aspect. In order do research and learn collaborating it is necessary to accept that each young person is distinct and that they will make different contributions. From this perspective digital technologies can facilitate collaboration improving group work, dialogue and learning from others and with others.

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Educational Possibilities of Social Networks and Group Work. University Students' Perceptions

Posibilidades educativas de las redes sociales y el trabajo en grupo. Percepciones de los alumnos universitarios

ABSTRACT
The change in classroom methodologies has in many cases come with the emergence of the Internet and 2.0 tools (mainly social networks). The development of a constructivist approach focused on group work means that students' training can be improved by this type of resources as they foster important aspects such as socialization, information searching and the achievement of a common goal, etc. This work aims to analyze the information and communication technology (ICT) university learning processes and student preferences for working either inside or outside the classroom at the universities of Córdoba, Sevilla, Huelva and the Basque Country. Our objectives are focused on knowing: the students' feelings on social software and its influence on collaborative and group work;) the social network tools they use and, if there are any differences between these universities in terms of collaborative work perceptions. The instrument for data gathering was a four-dimensional questionnaire. The main results are: students are interested in group work as a type of classroom methodology; students have little knowledge of technology tools (except for social networks). These results provide a reliable diagnostic instrument for the variables that comprise this tool.

RESUMEN
El cambio en las metodologías de aula viene de la mano, en muchos casos, de Internet y de las herramientas de la Web 2.0. Por otra parte, el desarrollo de una perspectiva de corte constructivista apoyado en el trabajo en grupo, suponen que la formación de los estudiantes puede ser alimentada a través de este tipo de recursos, dado que potencia, entre otros aspectos la socialización, la búsqueda de información, el logro de una meta común, etc. La investigación que aquí se presenta versa sobre la realidad de los procesos de aprendizaje universitario con TIC y las preferencias para trabajar dentro y fuera del aula de los estudiantes de las universidades de Córdoba, Huelva, Sevilla y País Vasco. Los objetivos se centran en conocer las percepciones que los alumnos tienen sobre el software social y el trabajo en grupo y colaborativo, cuáles son las herramientas de software social que emplean y si hay diferencias en función de la universidad de procedencia. Se empleó como instrumento de recogida de datos un cuestionario conformado por cuatro dimensiones. Se concluye que el alumnado está interesado en el empleo del trabajo en grupo como metodología de aula, así como su escaso conocimiento de las herramientas tecnológicas, salvo de las redes sociales. Al mismo tiempo, estos resultados aportan un instrumento fiable para el diagnóstico de las variables que lo conforman.

KEYWORDS / DESCRIPTORES
Social networks, Internet use, social relationship, research, student, learning, interactive youth, digital media.
Redes sociales, uso de Internet, relaciones sociales, investigación, alumno, aprendizaje, jóvenes interactivos, medios digitales.

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1. Theoretical approach

Recent times have seen universities transformed by events ranging from joining the European Higher Education Area (EHEA), the extension of methodologies and collaborative work or case studies, and the incorporation of Information and Communication Technologies (ICT) in general, and the Internet and Web 2.0, in particular.

As noted by Shang et al. (2011), the arrival of Web 2.0 in education means that the learning processes developed by students are now of a more social, dynamic and personal nature whereby explicit knowledge is produced and interacting with others is an ongoing process. Thus, education is more creative, participatory and socializing. We share Túñez and Sixto's opinion (2012: 78-79) that «Web 2.0 is not a technological change occurring in isolation, but falls within a model that understands learning as the result of the interaction and collaboration of people and places, with the student at the center of the process; so, it has to be understood as an instrument that facilitates model change in the learning process».

Among the Web 2.0 tools, «social media» and social networks in the university context have the potential to increase student participation, enhance their creativity and add a new perspective to the process of socialization. As Imbernón, Silva and Guzman (2011) state, they tend to provide a space for more interactive and dynamic learning.

As several studies (Marquis, 2011; Callaghan & Bower, 2012; De-Gouveia, 2012; Barajas & Fabiola, 2013, Alvarez & Lopez, 2013; Bernal & Angulo, 2013) have pointed out, these possibilities have led to social networks increasingly embedding themselves in student learning processes, with particular reference to cooperative and collaborative work.

With respect to collaborative work, different studies (Cabero, 2003; Gros, 2008, Martin, Dominguez & Parallel, 2011) have shown that social media yield a number of advantages such as: improving social relationships, increasing tolerance within the group, enhancing student participation, developing intrinsic motivation and self-esteem, advancing social skills and supporting group integration and cohesion, as well as fomenting democratic participation and the acquisition of leadership skills. .

However, the use of social networks for collaborative work depends on whether the student has a positive attitude towards this phenomenon, or adequate levels of interpersonal intelligence (Gardner, 2001). As indicated by Shen, Cho and others (2013), students' perceived self-efficacy with regard to group work conditioned the way such work developed; and this is related to their attitude towards teamwork and social presence, showing subjects in mediated communication environments (Kim, 2011). One cannot forget that students' negative attitude towards technology or mode of use impacts on the type of interactions established and the goals achieved by means of the same (Hung & Cheng, 2013), and that not all students have a positive attitude towards the use of social networks in their academic training (Irwin, Ball & al., 2012). The research we have developed deals with student perceptions on working in groups and collaborative and social networking. Technologies, collaborative environments and social media will, according to several Horizon reports, figure prominently in training centers (García, Peña-López & al., 2010; Durall, Gros & al., 2012).

2. Method

2.1. Starting objectives

This research is part of a more extensive investigation being carried out internationally.

The results obtained are taken from a Faculty of Education Sciences study at the universities of Córdoba, Huelva, Sevilla and the Basque Country among Primary Education undergraduates. These universities were selected as a result of the positive response and willingness to collaborate among professors at these institutions, hence the choice of this study population.

The objectives were:

- To know students' perceptions of social software and collaborative group work versus individual work.
- To know whether there are differences between each university regarding perceptions of group and individual work.
- To know which social software tools students prefer to use.

2.2. Research methodology

The type of sample used is non-probability incidental, meaning the researcher selects the sample directly and intentionally, because it is easily accessible and is representative of the population (Sabariego, 2004). The sample consisted of 525 subjects from an initial population of 728 at the four universities.

The methodological approach is quantitative, with a non-experimental and non-correlational descriptive design. To gather the information, a questionnaire designed by Anderson, Poellhuber & McKerlich (2010) called Social Software survey with unpaced undergrad was adapted to consist of 91 items distribu-

ted across the following dimensions: identification, learning preference, technical and technological skills, experience in social software, social software for learning, confidence in the ability to perform distance learning and conclusion.

The adaptation of the instrument involved the incorporation of an identification variable, university of origin, and the deletion of the last two dimensions of the original questionnaire, because they did not conform to the objectives we pursued. The final instrument was composed of 67 items, divided into: General (college, gender...) (6 items), preference for working in groups or individually (27 items), technical and technological skills (15 items), experience with Web 2.0 tools (10 items) and use of different social software tools in distance learning (9 items).

The questionnaire was distributed via the Internet, and is available on: www.sav.us.es/surveys/redsocial/index.htm. It offers a Likert-type construction with five response options (SD=strongly disagree, D=disagree, N=neither agree nor disagree, A=agree, SA=strongly agree).

In order to determine the internal consistency of the instrument, Cronbach's alpha reliability test was applied both to the questionnaire as a whole and to each of its dimensions. The following values were obtained: total Cronbach's alpha instrument: 0.860; Cronbach's alpha dimension «learning preference»: 0.800; Cronbach's alpha dimension «technical and technological skills»: 0.902; Cronbach's alpha 'social software experience': 0.818; Cronbach's alpha dimension 'social software for learning'»: 0.835.

According to Mateo (2004), these scores can be considered high and show that the instrument is reliable. We also performed the item-total correlation (the results are not published here to avoid making the reading of this paper tedious), but the values obtained clearly indicated that eliminating any of the instrument's items would not increase its reliability.

3. Results of the study

3.1. Dimension 1: Descriptive data

The first thing we highlight is that the vast majority of students who filled in the questionnaire were women (76.76%, versus 23.24% who were men); the proportion was almost identical for the four universities.

In regard to age, the majority was aged between 17 and 20 (58.90%), followed by 21- to 24-year-olds (26.33%). These data are not uniform at the four universities since the survey majority at the Basque Country university was aged 21 to 24 (36.09%). When asked about whether they had received training on the Internet the figures were fairly similar at the four universities, with 54.21% stating they had and 45.79% stating they had not.

Significantly, the vast majority of students indicated that they regularly accessed the Internet for educational purposes (93.54%), a figure that was similar in samples from the four universities. This confirms that the usage of the Internet as an educational tool is now common in higher education institutions.

We also point out that most students are well-equipped, with 41.63% owning an integrated headset and 88.99% a webcam. This equipment facilitates their use of ICT tools in training programs, which incorporate remote videoconferencing.

Table 1. Questions related to learning preferences

	SD	D	N	A	SA
	%	%	%	%	%
Working in a group means getting lower marks.	23.3	48.1	24.8	3.0	0.8
The teacher can help the students when they are working in a group.	2.7	1.3	3.2	51.7	41.1
I prefer to work on my own so I can advance faster.	4.2	21.8	42.8	22.3	9.0
Working in groups is useful for gathering everyone's ideas and taking decisions.	1.5	4.6	5.1	58.1	30.8
When a class or group needs to do something important, it is more useful for me to work in a group than on my own.	1.0	9.7	23.4	52.4	13.5
I am afraid of working in a group.	45.1	41.4	10.0	3.0	0.6
I don't like to work on my own.	13.2	34.4	38.6	11.6	2.3
In a group debate, important decisions are never reached.	19.5	51.7	18.3	7.8	2.7
I like classes to be taught by means of group work.	4.4	13.3	33.3	37.9	5.2
I like to be able to use someone else's ideas together with my own.	0.4	2.7	8.6	71.2	17.2
If I work on my own most of the time, I get lonely and feel sad.	20.2	47.5	22.0	8.6	1.7
Projects are done faster if we all collaborate.	3.1	2.1	9.0	36.9	49.0
My work is of better quality if I do it on my own.	7.1	37.9	44.9	8.0	2.1
When I work in a group, I like to help other people out.	1.2	1.2	10.6	67.2	20.0
If I work on my own, I will be better prepared to be independent in the future.	6.1	32.1	36.5	22.0	3.4
I don't know how to work on my own.	46.7	45.5	6.5	1.2	0.2
I like my work more when I do it alone without any extra help.	5.9	33.7	44.2	14.0	2.3
Other students do not need to know what I do while I'm studying.	4.8	27.3	43.7	21.6	2.7
To work in a group now will help me to work with other people in the future.	1.0	1.1	4.2	50.1	43.2
I like to keep my ideas to myself.	0.8	3.8	24.5	60.7	10.2
The teacher can help each student to select the most adequate topic.	1.2	5.3	19.1	62.2	12.2
Working with other students helps me to learn.	0.2	0.6	2.1	58.2	38.9
I like to work on my own without paying any attention to my partners.	22.6	58.0	15.7	5.2	0.6
I do not like to work with other partners.	32.6	50.1	11.4	3.6	1.5

3.2. Dimension 2: Learning preferences

The second part of the questionnaire was designed to understand the students' learning preferences (table 1).

It is evident that although the vast majority of students surveyed know how to work individually, 92.2% stated that they «strongly agree» or «disagree» with the statement: «I do not know how to work on my own». The study clearly indicates that students prefer to work in groups, since the percentage of «agree» and «strongly agree» clearly exceeds the other options:

• Working in groups is useful for gathering everyone's ideas and taking decisions (88.9%).

• I like to be able to use someone else's ideas together with my own (88.4%).

• Projects are done faster if we all collaborate (85.9%).

• Working with other students helps me to learn (97.1%).

This is also evident in the items which were formulated in a negative way, where the options with higher percentages were those labeled as «totally agree» or «totally disagree»:

• Working in a group means getting lower marks (71.4%).

• I am afraid of working in a group (86.5%).

• I don't like to work on my own (47.6%).

• In a group debate, important decisions are never reached (70.2%).

• I like to work on my own without paying any attention to my partners (80.6%).

• I do not like to work with other partners (82.7%).

It seems significant that when presented with the option «I prefer to work individually in order to move on quickly», the preferred choice of answer (with 42.8%) was «neither agree nor disagree», so the options that referred to favorable and unfavorable attitudes were on a par. It is also revealing that students perceived that the role teachers played in order to set groups in motion was very important, as the high number of positive answers denote (81.3%). The answers also help us to infer that students perceive that one of the most important elements when learning in the 21st century will be collaborative work. One of the items was meant to ascertain the preferences that students had for working with other students in a distance education environment; the results are presented in table 2.

When asked how they would classify their experience of working in groups, a large percentage of the students (60.38%) considered it to be positive, followed by the neutral option (24.23%). We highlight the fact that the sum of the negative ratings did not exceed 3%. These data were similar at the four universities and globally the positive ratings are above 52%. The last question in this part of the questionnaire was designed to determine whether the students were interested in collaborating with other students. In this case, 63.17% said they were very interested, followed by 23.09% who indicated being interested. There are no major differences in regard to students from the four universities in the sample.

3.3. Dimension 3: Technical and technological skills

The third part of the questionnaire is aimed at gathering information about the level of technical skills needed to manage the various technologies the students have at their disposal (table 3).

As we can see, the perceptions that students have of ICT are very positive. In some cases, the sum of the choices «agree» and «completely agree» equals 80% of the distribution, as in the following cases:

• I like to use computers for research and education (87.1%).

• I like to communicate with other people by means of computer-assisted technologies (i.e. email, text messages) as an aid to my learning process (83.2%).

• I feel comfortable working with computers (79.2%).

At the same time, students reveal that they felt qualified to perform different tasks:

• I know how to send and receive messages and attached files through different communication tools (email, instant messaging…) (95.6%).

• I am good at finding what I am searching for when using Internet search engines (Google, Yahoo…) (73.3%).

• I am able to use Word processors to write documents (i.e. using underlying, bold characters, creating tables, etc.) (92.3%).

• I am good at using presentation software (i.e. PowerPoint) (70.6%).

It is worth noting that the students who acknow-

Table 2. Item 31

	F	%
Debates with other students	183	13.89
To study for exams	212	16.09
To write a paper	108	8.19
To do an essay or courses	320	24.28
To work on a project	318	24.13
To share resources on the Internet	343	26.02
To create web pages and other materials for the Net	207	15.71
Other activities	184	13.96

ledged that «I spend a lot of time on the Net» is evident if we add the «agree» and «totally agree» answers to reach a total of 60.2% of the distribution.

Table 3. Dimension 3: Technical and technological skills

	SD	D	N	A	SA
	%	%	%	%	%
I like to use computers for research and education.	1.3	1.3	10.8	60.3	26.9
I like to communicate with other people by means of computer-assisted technologies (i.e. email, text messages) as an aid to my learning process.	0.4	3.3	12.3	56.6	27.6
I spend a lot of time on the Net.	1.5	14.5	23.7	40.3	19.9
I know how to send and receive messages and attached files through different communication tools (email, instant messaging...).	1.7	0.8	1.9	39.6	56.0
My computer is protected against threats that might appear when I connect to the Internet.	2.3	6.1	19.9	52.1	19.5
I am good at finding what I am searching for when using Internet search engines (Google, Yahoo...).	0.0	4.6	22.1	58.5	14.8
When my partners get confused about how to do something with the computer, I am able to look for the information to solve the problems (helping, finding documentation, etc.).	1.5	13.5	43.1	33.7	8.3
I am able to use Word processors to write documents (i.e. using underlying, bold characters, creating tables, etc.).	0.6	0.4	6.7	41.8	50.5
I know how to install software on the computer that helps me in my learning.	4.8	22.8	25.2	31.4	15.9
I feel comfortable working with computers.	0.8	3.6	16.4	50.9	28.3
I can handle the majority of computer-related problems.	5.0	23.6	36.2	27.4	7.9
I have broad experience of computers.	2.1	19.4	36.7	32.7	9.2
I am good at using presentation software (i.e. PowerPoint).	1.0	7.5	21.0	50.0	20.6
I am good at using spreadsheet software (i.e. Excel).	6.4	32.2	32.6	23.5	5.2
I am able to administer file directories and do accounts.	4.8	24.7	35.7	28.6	6.2

3.4. The social software experience dimension

In regard to the experience that students have regarding social software (table 4) we find three levels of training. Firstly, those technologies in which students state they have an «advanced-(A)» level of training: social networks (49.3%), uploading photographs (45.8%) and video sharing (31, 4%); and secondly, the technology level of training in which the majority is «no-(N)» or «beginner-(B)»: wikis (34.1%, «beginner»), social bookmarking (71.8 %, «N»), podcasting (69.8%, «n») and 3D immersive experience software (84.1%, «no»). Finally, we found some cases where the beginner and advanced options have very similar rates: blog (34.1% and 28.8%) and video conferencing via the web (34.7% and 20.7%). We must emphasize the case of social networks because this is the only one in this part of questionnaire where the sum of the options «advanced» and «expert-(E) » reach 50%.

In terms of the social networks, one of the survey questions focused on collecting information on the most actively used social networks, offering four options: Facebook, Twitter, LinkedIn and Hi5. These data showed that 54.1% chose Twitter and 45.3% Facebook, while the other two options, LinkedIn and Hi5, obtained a response rate of less than 1%. However, these results varied depending on the university. In particular, students at the universities of Huelva and the Basque Country prefer to use Facebook, approximately 74% each, and students at Sevilla and Córdoba opt for Twitter, with 70.1% and 53.1% respectively.

3.5. The social software for learning purposes dimension

The last part of the questionnaire was designed to determine the extent to which the students were interested in using social software in their classes. Table 5 shows the results.

The results are somewhat contradictory since the «interested» option was chosen in all the cases but, nevertheless, to two of the question, («How interested are you in using the social markers used on the courses you are taking? (i.e.: De.licio.us, Diigo)» and «How

Table 4. The social software experience dimension

	N	B	I	A	E
	%	%	%	%	%
What has been your experience with blogs?	11.8	34.1	25.4	28.8	1.9
What has been your experience with wikis?	34.1	34.3	24.5	6.9	0.2
What has been your experience with social markers? (i.e.: De.licio, Diigo)?	71.8	16.6	8.9	2.3	0.4
What has been your experience with videoconferences via the web? (i.e.: Elluminate, Adobe Connect, Skype...).	24.0	34.7	15.7	20.7	4.8
What has been your experience with social networks? (i.e.: Facebook, MySpace, Ning...).	2.1	5.2	12.1	49.3	31.3
What has been your experience with publishing pictures? (i.e.: Flickr, PICASA, Facebook...).	4.8	12.3	23.4	45.8	13.8
What has been your experience sharing videos? (i.e.: Youtube, vimedio...)	8.7	18.9	31.6	31.4	9.4
What has been your experience with podcasting?	69.8	17.7	10.0	1.9	0.6
What has been your experience with 3D immersive software? (i.e.: Second Life).	84.1	11.2	4.1	0.0	0.6

(N=None. I don't have any idea about it, B=Beginner. I have some knowledge of it, I=Intermediate. I can do search, tags and comments, A=Advanced: I have my own account and can upload my own materials, files and resources, E=Expert: I know the majority of elements that are associated to this tool).

Table 5. The social software for learning purposes dimension

	NN	NI	I	VI	N
	%	%	%	%	%
How interested are you in using the wikis used on the courses you are taking?	5.6	25.3	49.8	7.9	11.5
How interested are you in using the social markers used on the courses you are taking? (i.e.: De.licio.us, Diigo).	13.7	32.4	34.8	3.5	17.0
How interested are you in having access to the videoconference tools that are employed on the courses you are taking? (i.e.: Elluminate, Adobe Connect, VIA).	7.5	23.4	50.1	9.5	9.5
How interested are you in having access to the social networks used on the courses you are taking? (i.e.: Facebook, MySpace, Ning).	2.7	12.1	51.2	32.1	2.0
How interested are you in having access to the social networks used on the courses you are taking? (i.e.: Facebook, Flicker, Picassa).	2.5	15.6	55.2	21.4	5.2
How interested are you in having access to downloading and video sharing tools used on the courses you are taking? (i.e.: YouTube, Vimedio).	1.0	6.2	56.4	34.6	1.9
How interested are you in having access to the podcasting tools used on the courses you are taking?	8.9	28.1	38.2	5.2	19.7
How interested are you in having access to social networks like Twitter and Facebook used on the courses you are taking?	3.7	11.6	45.5	37.8	1.5
How interested are you in having an e-portfolio like the one employed on the courses you are taking?	4.8	22.5	44.8	9.0	18.9

(NN=Not interested at all, NI=Not very interested, I=Interested, VI=Very interested, N=I don't know).

interested are you in having access to the podcasting tools used on the courses you are taking?»), the response rates for «not very interested» were somewhat higher: 32.4% and 28.1%, respectively, although the percentage for «do not know» was 17.0% and 19.7% respectively. This shows for the fact that there is a certain lack of interest in these technologies.

One of the goals of our study was to find if there were any statistically significant differences between the university students comprising our sample. In order to achieve this objective we considered the four main dimensions that constitute the questionnaire: «learning preference», «technical and technological skills», «social software experience» and «social software for learning purposes». In all cases the hypotheses we formulated were:

• H0 (null hypothesis): there are no significant differences between the students from the different universities, with an alpha risk of 0.005.

• H1 (alternative hypothesis): there are significant differences between students from the different universities, with an alpha risk equal or less than 0.05.

The statistic used for this was the Kruskal-Wallis test (Gibbons & Chakraborti, 2003) for independent samples, carried out using the SPSS program, version 18. Table 6 presents the results.

The results allow us to reject H0 formulated for the «technical and technological skills» and «social software experience» dimensions, and also for «learning preference» and «social software for learning», with an alpha margin of error of 0.05. In the case of rejection, we would accept H1, referring to the existence of differences.

In order to find out which universities presented differences after rejecting H0, we applied the Kruskal-Wallis statistical multiple comparison test, specifically the Dunn test (1964). The results obtained are in table 7.

As we can see, the only significant differences appeared between the students of the University of Sevilla and the Basque Country, with the latter showing a greater preference for work group (average = 3.5646). In the case of social software for learning purposes, the results are presented in Table 8.

In this case, the differences were established between the students of the University of the Basque Country with those of Córdoba and Sevilla. The highest scores occurred in the Basque Country (average = 3.1011), compared to those of Córdoba (average = 3.0666) and Sevilla (average = 2.8672).

4. Conclusions

The study shows that students, regardless of their university of origin, show considerable interest in working together and collaboratively. This is of utmost importance since we are constantly talking about the potential of networked collaborative work and networked collaborative virtual training. But this would not be possible if students held negative attitudes toward teamwork and collaborative work, as our research shows.

As noted by various studies (Holcomb & Beal, 2010; Rollet, Lux & al., 2011), this paper shows that students are not as competent in handling technologies as certain sectors have been saying, and that they show notable shortcomings with regard to digital competen-

Table 6. Kruskal-Wallis statistics (**=meaningful at 0.01)

	N	K-Wallis	Gl	Significance level
Learning preferences	528	27.068	3	0.00 (**)
Technical and technological skills	523	0.947	3	0.814
Social software experience	523	1.736	3	0.629
Social software for learning purposes	523	21.749	3	0.000 (**)

Table 7. Meaningful differences between universities in «learning preferences»				
Samples	Statistical test	Standard Error	Dev. Statistical test	Significance
Sevilla-Basque C	-78.642	15.959	- 4.928	0.000 (**)
Huelva- Basque C	-16.625	30.817	-0.539	1.000
Córdoba- Basque C	31.428	22.112	1.421	0.931
Sevilla-Huelva	62.017	29.237	2.121	0.203
Sevilla-Córdoba	-47.214	19.851	-2.378	0.104
Córdoba-Huelva	-16.625	30.817	-0.539	1.000
(Note: **=meaningful at 0.01).				

ces for the educational management of Web 2.0 tools. This leads us to affirm that those teachers who want to apply these technologies to their classes must first set up training for students to achieve at least an adequate technological-instrumental level of competence in the use of these tools. The teachers would be justified in their decision since the data found in this study indicate that students are certainly interested in learning how to handle and use 'social media' and they are willing to incorporate them into their educational practice.

The stated objectives were to know whether there were significant differences among Primary Education undergraduates in terms of their university of origin. In this regard it can be concluded that the data found, except for certain nuances, are similar in the four universities both in terms of significant insights into teamwork their mastery of Web 2.0.

On the other hand, this work validates the experiences being carried out in order to incorporate the Facebook and Twitter social networks into university education since these are the networks students most commonly use, as is also shown in other studies (Holcomb & Beal, 2010). The preponderance of one network over the other depends on the universities where the students study, possibly as a consequence of their own experiences with the individual network. At the same time we find that the experiences that students have of social networks is far greater than their knowledge of professional networks, which is virtually non-existent. In that case, teachers should make an effort to familiarize students with them.

Table 8. Meaningful differences between universities in Social software for learning purposes»				
Samples	Statistics test	Standard Error	Dev. Statistical test	Significance
Basque C.-Huelva	57.100	30.478	1.873	0.366
Basque C. -Córdoba	-61.477	21.883	-2.809	0.030 (*)
Basque C-Sevilla	73.243	15.848	4.622	0.000 (**)
Sevilla-Huelva	-4.377	32.615	-0.134	1.000
Sevilla-Córdoba	-16.143	28.914	-0.558	1.000
Huelva-Córdoba	11.766	19.646	0.599	1.000
(Note *= meaningful at 0.05; **= meaningful at 0.01).				

We believe that this work provides a useful tool for the diagnosis of students' perceptions of teamwork, collaborative work and the skills that need to be incorporated into Web 2.0 teaching tools.

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Media Literacy for Older People facing the Digital Divide: The e-Inclusion Programmes Design

Diseño de programas de e-inclusión para alfabetización mediática de personas mayores

ABSTRACT

This article is based on the fact that the Spanish population is aging, and is second only to Japan in its total number of senior citizens. Given this situation and the omnipresence of new technologies in everyday life, the use of Internet and ICT for older people is essential. The latest report by IMSERSO shows that only 15.6% of people aged between 65 and 74 connected to the Internet in the 3-month period measured. The data seem to show that there is a generational digital divide to be overcome. The studies that have addressed this issue have focused more on regional and specific aspects of the relationship between age and Internet use intensity, and these studies use age ranges as criteria. Other studies have introduced variables such as seniors' economic situation or educational level. With this in mind, public policies have sought to reduce this generational digital divide through a number of media literacy and e-learning projects but without success due to their poor methodological approach. This paper proposes a number of new methodological approaches to tackle the design of digital literacy programs for older people based on criteria such as degree of autonomy and the possibilities for enjoying everyday life, proposing the development of programs based on contextualism, incrementalism, motivation and absorption processes.

RESUMEN

Tras la japonesa, la población española es la segunda población que más envejece. Ante esta situación y la omnipresencia de las nuevas tecnologías, el uso de Internet y las TIC en la vida cotidiana se hace imprescindible para las personas mayores. El último informe del IMSERSO establecía que solo se habían conectado a Internet en los últimos tres meses un 15,6% de las personas entre 65 y 74 años. Estos datos muestran la existencia de una brecha digital de carácter generacional que debe ser superada. Los estudios que han abordado esta problemática se han centrado más en aspectos regionales, y los específicos sobre la relación entre edad e Internet han abordado solo la intensidad de uso vinculada a intervalos de edades. Otros estudios han introducido variables como el nivel económico o educativo. Frente a esta realidad, las políticas públicas han pretendido disminuir esta brecha digital generacional mediante diferentes proyectos de alfabetización mediática y e-learning, sin lograr su objetivo por el deficiente planteamiento metodológico de los cursos. Este artículo propone una serie de nuevas perspectivas metodológicas a la hora de abordar el diseño de programas de alfabetización digital de las personas mayores basadas en criterios tales como el grado de autonomía o falta de la misma para la vida cotidiana así como el desarrollo de programas basados en el contextualismo, incrementalismo, motivación y proceso de absorción.

KEYWORDS / DESCRIPTORES

Media Literacy, older people, e-inclusion, digital divide, public policies, Internet, ageing, media competence.
Alfabetización mediática, personas mayores, e-inclusión, brecha digital, políticas públicas, Internet, envejecimiento, competencia mediática.

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1. Introduction and state of the art

The demographic change that we have experienced in Spain has been rapid, progressive and profound. In the near future nearly a third of the population will be elderly. This increase is primarily due to increased life expectancy coupled with a decline in birth rates. After Japan, the projections for 2050 place our country among the highest in the world in terms of longevity.

Proof of this is that if we compare the numbers of older people in the early twentieth century with the general population figure for Spain in 2007, which reached 45,200,737, the population by this date had already risen 2.4 times (Barrio & al., 2009). Meanwhile, in 2008 the number of older people had increased 8 times with respect to 1900, going from 5.2% of the total population in the early twentieth century to triple that number for this date (16.7%).

The latest census of 2011 confirms this trend. The total number of people over 65 years of age amounted to 7,914,359, of whom 3,372,808 are men and 4,541,549 women (INE, 2012). Due to the ageing of the population pyramid, long-term projections of the INE for 2009-2049 indicate that the population over 64 will double in 40 years and will represent 31.9% of the total, with negative natural population growth from 2020. Thus, «in Spain for every 10 people of working age, in 2049 there will be nearly nine potentially inactive persons (under 16 or over 64). That is, the dependency ratio would rise to 89.6% from 47.8% at present» (INE, 2011: 3). The forecast is for a population in 2060 of 15,679,878 people aged 65 years and over, and for each child there will be 2.3 elderly people.

From a continental perspective, the European Union in its «Ambient Assisted Living (AAL) Joint Programme» indicates that life expectancy in Europe has increased from 55 in 1920 to 80 today. In 2020 about a quarter of Europe's population will be over 65 and the number of people aged between 65 and 80 will grow to nearly 40% of the European population between 2010 and 2030. An aging population means a change in the economic, social (IMSERSO, 2009) and technological structures for a country. Older people are compelled by circumstances to develop skills in the use of new Information and Communication Technologies (ITC) and thus lessen the digital divide between those who are connected (young people and adults) and those who are not connected (the elderly).

The purpose of this paper is to propose new perspectives to address the media literacy of older people underpinned by qualitative studies on this population group, based more on socio-cultural criteria than on age groups, which has been the majority approach so far. This would allow the design of training programs that are more efficient and suitable for bridging the generational digital divide and thus enabling the e-inclusion of elderly people, concentrating more on operating skills than on mere usability and access.

2. Older people and the use of new technologies

If we analyse the data that refer to the use of new technologies, and specifically the Internet, among older people, we can clearly distinguish between access and usage. We must orientate ourselves towards the need to promote the beneficial use of ICT, valuing not only quantitative aspects on usage linked to Internet access and use of office tools.

The «Elderly people in Spain» report published by IMSERSO in 2008, in which Chapter 6 referred to «Daily life, attitudes, values and emotions in old age» (Barrio & al., 2009), established a series of very illustrative parameters on the use of ICT by the elderly, highlighting with respect to Internet access that only 50.5% of people between 65 and 74 connected to a computer daily, 31.5% weekly, 8.3% monthly and 9.8% not every month. The Internet services used are principally «information searches» (79.9%), «receiving or sending e-mail» (78.7%) and «other» (62.7%). Very much below this are functions that could be considered useful for this social group such as «Finding information about health issues» (37.9%), «Obtaining information from websites on the authorities» (30.1%), «Purchasing goods and services» (20.2%) or «Downloading official forms» (16.8%). If we focus on the methods of acquiring computer skills, we found that 75.5% were self-taught, 60.6% had learned through people in their social environment and 30.9% in adult education learning centre courses. However, according to data published recently by IMSERSO and CSIC in the report entitled «A profile of elderly people in Spain, 2012. Basic statistical indicators» (Abellán & Ayala, 2012), the proportion of people aged 65 to 74 who had used the Internet in the last three months had fallen to 15.6%. This factor of exclusion of elderly people from Internet access is also evident in the «The Networked Society 2010» annual report of the National Observatory of Telecommunications and the Information Society referring to 2010 (Urueña & al, 2011), which states that if we focus the analysis on the age variable, we observe how the use of the Web is clearly differentiated, as the younger the person, the more use of the Internet, and conversely, the older the age, the lower percentage of Internet users.

At the European level, the data referred to the Indicators of the Digital Agenda 2011, in which Pillar 6 was dedicated to digital competence. This showed that while 90% of those between 16 and 24 are regular Internet users, only 46% of people between 55 and 64 are, this proportion decreasing to 25% among people between 65 and 74. This segment is as low as 20% when it comes to people between 55 and 74 with low levels of education.

Based on these data, we can see that there is a generational digital divide, defined as differences in access and use of ICT in different social environments. Linked to the Internet, Castells (2011: 311) defined it as «the disparity between the Internet haves and have-nots». For its part, the Organization for Economic Cooperation and Development (OECD) conceptualized the digital divide as «the gap or divide between individuals, households economic and geographic areas with different socio-economic levels with regard both to their opportunities to access information and communication technology, and the use of the Internet for a wide variety of activities» (OECD, 2011: 5).

In the field of studies on Internet use a significant number of works have focused mainly on aspects related to regional variables and how economic and socio-demographic variables and different service prices by region influence the decision to install Internet in households (Chaudhuri & al., 2005); or in which in 14 European countries the determinants of individual Internet use and its intensity of use are analysed based on individual variables (Demoussis & Giannakopoulos, 2006) or similar work applied to 15 European countries (Vicente & Lopez, 2006). In the Spanish case the primary literature on the subject is linked to studies examining geographical differences in Internet use (Carmona & García, 2007; Jordana & al., 2005). A more complete study includes socio-demographic factors and concludes that as age increases, the probability of Internet use decreases by 1.47% (Lera-Lopez, Gil & Billón, 2009). Another significant piece of research in this area has been conducted by Agudo, Pascual and Fombona restricted to Asturias, which establishes that values such as age, gender, living arrangements or place of residence are not determinant variables of ICT use for leisure purposes, although the level of studies does influence Internet use for information purpose and marital status determines the use of ICT for communicative purposes, highlighting single older women (Agudo, Pascual & Fombona, 2012).

In the field of literature on the relationship between Internet use and age, there are noteworthy works that deal not only with quantitative data on the use of the Internet but also with aspects related to the scope and intensity of Internet use by older people (Loges & Jung, 2001); others which address the differences between metropolitan and non-metropolitan areas (Mills & Whitacre, 2003); where it is seen that the difference between Internet users and non-users is linked to age and income, but not to gender or race (Rice & Katz, 2003); there is an examination of the patterns and determinants of the use of information technology in five countries: the United States, Sweden, Japan, South Korea and Singapore, establishing differences in access to ICTs by gender, age, education and income (Ono & Zavodny, 2007); or that evaluate differences in Internet use among people with high incomes and high educational levels compared to people with low income and low educational levels (Goldfarb & Prince, 2008). One of the important aspects related to the use of the Internet by older people may reflect a combination of different factors such as Internet usage skills, lower in the elderly (Demunter, 2005; Hargittai, 2003); the perceived needs and benefits of use, also lower among older people (OECD, 2007); as well as attitudes and lifestyles associated with different age groups (Chaudhuri & al., 2005). Other studies link age with gender, concluding that belonging to a particular generation is neither the only nor the most important predictor of gender differences in Internet use. The life stage (measured as level of employment and marital status) influences the

One of the objectives for digital literacy of older people and their inclusion in the information society should be to achieve a sufficient quality of life in old age, which may allow older persons to lead a fuller and more participatory life and can serve as essential instruments in promoting their civic participation.

differences between men and women or had an independent effect for most of the activities studied, affecting aspects that we will deal with below (Helsper, 2010).

3. Analysis and results

3.1. Public initiatives for e-inclusion of older people

The concern about the need to include older people in ICT has been taken up by various public authorities and international organizations leading to a significant number of media literacy initiatives for this sector of the population. Among some of the interesting projects we should mention the European Commission-funded intergenerational project called «Grandparents and grandsons» that is aimed at people over 55. It provides for the involvement of young students from vocational colleges and secondary schools with the role of «digital facilitators» who individually assist older people, guiding them in the use of Internet and e-mail[1].

Also noteworthy in the European Community framework is the creation of a specific work area within the Digital Agenda adopted by the European Commission in May 2010 in Pillar 6 (Enhancing digital literacy, skills and inclusion). The Commission proposes a series of measures to promote access to digital technologies by the potentially disadvantaged, including among these older people (European Commission, 2011). As part of the e- Inclusion policies and specifically the «European i2010 initiative on e-inclusion», the Commission has set up a group of measures to improve e-Accessibility for older people. This proposal complements the initiative taken in 2007 called the «Ageing Well in the Information Society Action Plan». Particularly significant is the AAL Program to stimulate and develop technologies to help people to continue living in their home (allocated 600 million euros) or the funding of projects on older people and ICT in the Seventh Framework Programme for Research of the European Commission related to the promotion of independent living and inclusion.

One of the most ambitious studies on the issue is that called the «Social Impact of ICT» conducted under the auspices of the Directorate General for the Information Society of the European Commission, which has involved several European universities (European Commission, 2010). One of the main recommendations arising from this study is precisely that the e- Inclusion should not focus on access to ICT, but especially on operational skills and more advanced forms of digital literacy, offering support to those groups at risk being marginalized in this process, especially the elderly.

> The key to bridging the digital divide for older people is not asking what is the best way to bring ICT to this population group, but rather what is the optimal way for older people to benefit from ICT to enhance their personal and social situation.

In Spain, public policy measures in relation to e- inclusion have been based on the access to web infrastructure, one of the main programs in this regard being the installation of public telecentre networks which according to Red.es are aimed at «facilitating and streamlining citizens´ Internet access in rural and disadvantaged urban areas with difficult access to ICTs through telecentres and networked libraries». In Spain, the promotion of ICT has been pursued in three successive stages: infrastructure, promoting and boosting of the use of ICT and services.

The first phase would be to facilitate citizens' access to the technological equipment and devices necessary for their inclusion with regard to internet under the best technical terms available by means of the state promoting the purchase of equipment and the hiring of Internet connection services with private operators.

Once this is completed, the second would be to seek to encourage the effective use of the same, through the training of potential users in the skills relevant to the handling of ICT and its possible uses. This would be a condition precedent to the third stage in this strategy, the development and promotion of products and services based on the Internet, from trade to electronic administration, via e -learning or other applications for social life (leisure, work, the economy, personal relationships, etc.).

Regarding the relationship of older people with ICT in these three phases, it is appropriate to emphasize the need to assess how far public policies have

focused on the first of these, to some extent on the second without the expected results, which has prevented access to the third. However, there are initiatives such as the «i-Mayores» («i-Age») Program of the Government of La Rioja, the Digital Volunteer Program of the Xunta de Galicia or Seniors in the Web of the Zaragoza Town Council[2], to name a few, which are a good example of public authorities' real intention to work on digital literacy.

3.2. Methodological proposals for the design of e-inclusion programs for the elderly

All the studies cited above show the difficulty of integrating older people into active, advantageous and productive use of ICT. In this regard, the need to bridge the so-called digital divide for this population group without skills and abilities for the efficient use of ICT is essential, leading to the concept of e- inclusion, understood as the ability to access regularly and easily the various services and programs both 'online' and 'off-line' and to be able to use their skills linked to the specific needs of each user. The importance of digital inclusion has been put on record by the various documents of the World Summit on the Information Society held in Geneva in 2003 and Tunis in 2005 sponsored by the International Telecommunication Union, a UN agency, which defined inclusion as the «set of public policies related to the construction, administration, expansion, offering of content and local capacity building in the wired and wireless public digital networks in each country and in the entire region»[3].

As a step towards digital inclusion, digital literacy, defined as «the ability to understand and use information in multiple formats from a wide range of sources when presented via computers, is essential. The concept of literacy goes beyond the simple ability to read; it has always meant the ability to read with meaning and understanding» (Gilster, 1997: 1). Critical thinking rather than technical competence is identified as the central element of digital literacy, and the critical evaluation of what is found on the web is emphasized, rather than the technical skills required to access it. Martin (2006: 19), meanwhile, defines digital literacy as «the awareness, attitude and ability of individuals to make an appropriate use of digital tools and the facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, express it through various media and to communicate with others, in the context of specific life situations, in order to enable constructive social action; and reflect it through this process».

Theoretically there are three levels in the development of digital literacy: 1) digital competence, 2) digital use, and 3) digital transformation. Digital competence involves finding information on the Web, document preparation and processing, electronic communication, creation and manipulation of digital images, using spreadsheets, creating presentations, web publishing, creating and using databases, digital and interactive games, production of multimedia objects and the dominion of digital learning environments. Digital use involves the successful use of digital skills in life situations, the proper application of digital competence in the specific profession or in specific contexts, giving rise to a corpus of specific digital uses for an individual, group or organization. Digital transformation is to be able to make those digital applications that have been developed permit and enable innovation and creativity and encourage significant changes within the professional or knowledge areas, or in the personal or social context.

In this way one must understand the current interest in the usability of the technologies or in the Community initiative of «media literacy», which is not limited to the instrumental learning of the technologies, but rather would cover some of the powers ascribed to what is called «informational capital», which signifies the intellectual ability to filter and evaluate information, but also the motivation to actively search for it and the ability to apply it to social practices (Hamelink, 2000).

To address the media literacy of older people it is necessary to start from the basis of the complexity in dealing with aging as evidenced by several gerontologists (Binstock, Fishman & Johnson, 2006; Settersten, 2006) and the need to take into account the different aging characteristics. The traditional categories of age groups (50-64, 65-74 and 75 +) used for statistics and quantitative approaches are inadequate and according to these authors, it is necessary to employ the following groups when addressing an investigation of this matter: 1) an age more or less close to retirement age (early retirement period); 2) autonomous age as a pensioner (independent life period); 3) age with increasing handicaps (beginning of the period of dependent life); 4) age of dependent older people (dependent life period until the end of life).

Most of the projects on the digital divide, aging and e- inclusion have been linked to E -learning and few studies have focused on the needs of older people regarding new technologies and specifically on the usefulness of the Internet. One of the most comprehensive studies in this regard is that developed by a

team led by Ala - Mutka regarding the potential of ICT in learning by older people to enable them to have an active life. Using this multipolar perspective, they advocate developing improved research tools to predict the future needs of those who are not yet elderly. These start from the need to redesign the content of training courses on the use of ICT to promote media literacy, and the need for financing R & D projects to develop new educational tools aimed at this group, involving the members of such group in their design (Ala-Mutka & al., 2008).

All this leads us to the proposal of a series of methodological approaches that should be considered when designing media literacy programs. The first of them involves moving away from the inconsistency of the existence of training programs for older people on Internet and ICT use without an analysis of the personal and social circumstances of each of them. As Ferrés and Piscitelli indicate, «the in-depth study of a product is of little use if it is not accompanied or preceded by an in-depth study of the reactions of the person who interacts with this product. There is little point in analysing the meaning of a message if it is not accompanied by the analysis of the effect it has on the person facing it. And the in-depth study of what the person thinks about a product is of little use if it is not accompanied by an in-depth study of what he/she feels facing it» (Ferres & Piscitelli, 2012: 79). Especially significant is the proposal for dimensions and indicators of these authors, where they include - as an essential element to evaluate in media competence - transformations derived from neuroscience. Applying this new variable to the process of media literacy in the elderly, we consider that there is a need for a new approach with specific indicators for this sector of the population in accordance with the views expressed in this article.

The second methodological proposal involves the desirability of both public and private policies of media literacy allowing for a smooth transit between competence and digital use, but developing in particular the second of these, which involves use of the technological tools associated with an increased quality of life for older people. This is ultimately to enhance the so-called critical knowledge, which includes the understanding of media content and function, knowledge of the media and their regulation and the use made of it by users (Celot & Pérez - Tornero, 2009), for which it is necessary to know the specifics of this population group. Given this, we believe it necessary to address them, based on the significant differences between older people regarding their economic situation, social ties, personal interests or living environment. It seems clear that «different groups need different forms and levels of support if they want to use the Internet to learn» (Eynon & Helsper, 2010: 548).

The third methodological proposal states that the design of training programs should start with the selection of members of this social group organized according to the criteria specified above and a qualitative approach should be performed in relation to them, which would allow for the establishing of degrees of consensus of the group with respect to what should be, critical to the analysis because these become discourse scenarios regarding which the social and political institutions will take future operational decisions (Callejo, 2002).

4. Discussion and conclusions

The study of the digital divide cannot be limited to the analysis of Internet access (first digital divide), but must go a step further and become involved in the analysis and determination of the uses and intensity of Internet use (second digital divide), where concepts such as digital literacy, digital skills and digital inclusion acquire a greater impact.

The so-called information society measures should be applied, meaning as systems of indicators that allow one to analyse development and obtain an adequate view of the situation, at a particular time and in a specific social environment. We must define new metrics directed not at studying the types of Internet use in older people, but the aspects that affect these uses.

In this connection, a prior qualitative approach is necessary for a better definition of ICT training programs for older people, because this approach «seeks to understand the meaning or nature of the experience of people when exploring substantive areas about which they know little or much, but seeking to obtain a new procedure. It explores the life of the people, the experiences lived, their behaviours, emotions and feelings, as well as organizational functioning, social movements, cultural phenomena» (Strauss & Corbin, 2002: 12). The focus group, understood as a discussion carefully designed to obtain perceptions on a specific area of interest allowing discursive reconstruction of the social group to which the participants belong which in turn distances them from other social groups. This is a group that is constructed and discursively remade in relation to its significant ideas. From these we obtain what must be, i.e. the norm of what is considered is the phenomenon of study to investigate (Callejo, 2002).

Therefore, a preliminary qualitative approach can

influence what was established –for the design of digital literacy policies– by Cochrane and Atherton (1980), applied to the conditions for the putting into practice of actions to bridge the informational gap. Digital literacy programs must be designed by taking as their foundation (a) contextualism that allows one to adjust the materials to the cultural and social environment (with differentiation, in the case of older people, based not on age but on their dependency and economic situation, social relationships, personal interests and living environment), (b) incrementalism, which leads one to decide when to do each phase (linking training programs with the three aforementioned levels of digital literacy: competence, use and transformation), (c) motivation that allows evaluation of the receptiveness of the procedures and the process of absorption that provides criteria on what is the best way to access skills and abilities (for which one requires not just a quantitative analysis based on access rates, but rather the assessment of use as a successful employment of skills).

One of the objectives for digital literacy of older people and their inclusion in the information society should be to achieve a sufficient quality of life in old age, which may allow older persons to lead a fuller and more participatory life and can serve as essential instruments in promoting their civic participation (Culver & Jacobson, 2012). In this connection studies based on the above criteria would seek to develop training proposals that will link use, employment and enjoyment of the ICTs associated with quality of life including: health, functional abilities, economic conditions, social relationships, staying active, access to social services, quality in one's own home and in the immediate environment, satisfaction with one's own life and cultural and learning opportunities (Fernández Ballesteros, 1997). The key to bridging the digital divide for older people is not asking what is the best way to bring ICT to this population group, but rather what is the optimal way for older people to benefit from ICT to enhance their personal and social situation.

Notes

[1] Grandparents & Grandchildren Program (www.geengee.eu/geengee) (13-12-2012).

[2] «i-Mayores» Program developed by La Rioja Government (www.conocimientoytecnologia.org/cibertecas/formacion/i_mayores/index.htm), Voluntariado Dixital Program by Xunta de Galicia (http://voluntariadodixital.xunta.es/es/51/el-proyecto) or Mayores en la Red by Zaragoza City Council (www.zaragoza.es/ciudad/sectores/mayores/mayores_red09.htm) (13-12-2012).

[3] Geneva Declaration of Principles, Geneva Plan of Action, Tunis Commitment and Tunis Agenda for the Information Society (https://www.itu.int/wsis/index-es.html) (16-12-2012).

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College Students' Views about Journalism Education in Spain

Valoración de los estudiantes sobre la enseñanza del Periodismo en España

ABSTRACT
The paper presents the results of a survey of 1,552 journalism students from five public universities in Spain during academic year 2011-12. The research addresses two objectives: how students evaluate journalism as a degree subject and whether they believe they need this qualification to be a journalist. The results indicate that most students believe the journalism courses are adequate, but almost 25% consider them unnecessary. Students acknowledge the quality of the training received at the specialist faculties but the percentage in Spain is lower than in other countries in the study. A multiple linear regression was used to discover the variables that explain this evaluation. The most influential variable is the course enrolled on, followed by the functions the respondents assign to the faculty. The paper has used data from the largest sample on this subject taken so far, which also includes all courses and data on graduates completing their first university course in journalism as part of the European Higher Education Area (EHEA). This study can be a valuable starting point for further research to inform decision-making on the subject. This research is part of the «Journalism Students Project» with participants from seven countries: Australia, Brazil, Chile, Mexico, Spain, Switzerland and the United States.

RESUMEN
El artículo presenta los resultados de una encuesta realizada a una muestra de 1.552 estudiantes de Periodismo de cinco universidades públicas durante el curso 2011-12. La investigación aborda dos objetivos: conocer la valoración de los estudiantes respecto a la titulación y averiguar si consideran necesarios los estudios de Periodismo para ejercer la profesión. Los resultados indican que los estudiantes creen apropiados los estudios de Periodismo, pero casi una cuarta parte los considera innecesarios. Los estudiantes valoran la calidad de la formación recibida en las facultades con un aprobado, por debajo de la opinión de la mayoría de los estudiantes de los otros países del estudio. Se ha realizado una regresión lineal múltiple para encontrar qué variables explican dicha valoración; la más influyente es el curso matriculado, seguida de las funciones que los encuestados otorgan a las facultades. El trabajo presenta la virtud de haber contado con datos a partir de la mayor muestra utilizada hasta el momento, que además incluye todos los cursos y datos para las primeras promociones de alumnos de Grado según el Espacio Europeo de Enseñanza Superior (EEES). Puede ser un punto de partida valioso para posteriores estudios que permitan tomar decisiones a los responsables académicos. El estudio forma parte del «Journalism Students Proyect» con estudiantes de Periodismo de Australia, Brasil, Chile, México, España, Suiza y Estados Unidos.

KEYWORDS / DESCRIPTORES
Students, training, journalism, curriculum, teaching, higher education, evaluation, survey.
Estudiantes, formación, periodismo, plan de estudios, docencia, educación superior, evaluación, encuesta.

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1. Introduction and state of the question

University courses in Journalism have been an integral part of higher education in Spain since the 1940s. At present, some 80% of working journalists in Spain have a qualification in the subject (Farias, 2011). Yet there is still controversy over the educational model and its usage, how long the course should last, the direction and quality of study programs and the end result. Courses have gradually updated to respond to market demands, professional associations and society needs in general. However, it is difficult to evaluate the success of such measures over the past decade, especially those linked to the European Higher Education Area (EHEA), due to the lack of empirical research. This study aims to provide empirical data for an assessment of the suitability of the current course model for Journalism in Spain and the quality of teaching in the faculties, based on the attitudes and perceptions of a sample of students (n>1,500) from five public universities.

1.1. Journalism at universities in Spain

There is overall consensus on the dilemma facing journalism between the type of training proposed by academics and by press corporations. The response has generated five different training options: university, a mixture of professional schools and universities, professional schools, in-house training and university courses, and other media institutions and trade unions (Deuze, 2006: 22). In Spain, Pestano, Rodríguez and Del Ponti (2011) have identified four models: traditional, company-school, totalitarian interventionism and university. The latter is studied in this research.

A ministerial decree in 1971 authorized Journalism to be incorporated as a university degree course. The Information Sciences faculty of the University of Navarra was formally recognized, and faculties in Madrid and Barcelona were established. The return of democracy in the late 1970s saw the creation of a different framework for Journalism which now required a new type of professional. In the 1980s, seven more centers opened, 12 faculties were set up in the 90s and the new millennium brought 16 more. By 2013, 37 faculties (44% private) were teaching Journalism as a degree subject (ANECA, 2013). In 2011, there were around 19,000 Journalism students, with 2,640 new graduates joining the 74,923 who had graduated between 1976 and 2011 (INE, 2013). Although the number of graduates is deemed excessive in terms of demand (Farias & Roses, 2009), it is still one of the most popular courses among undergraduates and the academic entry requirements are high.

1.2. Evolution of the teaching model

Faculties in Spain initially adopted a humanistic teaching model (Cantarero, 2002) rather than the professional approach based on practical experience, as occurs in Anglo-Saxon countries. Since the majority of teachers came from areas such as Sociology, Philology and the Political Sciences, early study plans prioritized theoretical over practical content. In the 90s, with the emergence of new faculties, these study plans were modified partly as a result of criticism from other academics. Galdón (1992: 11) mentions the «educational nonsenses generated by a positivist bureaucratic conception of education».

Later, courses acquired content that was closer to the reality of professional journalism (López-García, 2010), which included practical work experience based on agreements between universities and press corporations, a development which has also been analysed (Lamuedra, 2007). This transition also had to cope with overcrowded lecture halls, low investment and the use of didactic methods that left much to be desired (Ortega & Humanes, 2000). This context only partially improved with the reforms carried out in accordance with the EHEA. A framework was established based on the recognition of professional profiles, as demanded by many academics (Real, 2005), and on learning practical skills instead of accumulating knowledge.

«The White Book on University Degrees in Communication» (2005) set out two important objectives: professional competences for compiling, selecting and transmission of information in different journalistic genres and formats; and, what Reese calls, «habits of mind» (1999: 75), knowledge and the logics of thought that enable a journalist to report, analyze and interpret social and political events to contribute to citizens being well-informed. The combination of these two necessities influenced the development of study plans, which became a mixed model with faculties combining theoretical training in Communication Sciences with a practical orientation. So, current study plans enhance practical training, with the subsequent effect on content and methodologies, and are more tailored to the needs of society (Vadillo, Lazo & Cabrera, 2010; García & García, 2009). Yet, every now and then universities question the evolution of such reforms (Aunión, 2011) and point to the lack of government investment.

1.3. The point of view of students and professionals

There has been some research on the level of satisfaction among journalists regarding the training

they received at communication faculties in Spain. Canel, Sánchez and Rodríguez (2000: 2) reported that 60.3% of journalists believed it was important to get a degree in the subject, yet the perception among graduates of the quality of the teaching was far from positive. The White Book (ANECA, 2005) compiled data from two studies carried out at the University of Santiago de Compostela (USC) and the Autonomous University of Barcelona (UAB). Half the graduates at the USC polled from 1995 to 2002 stated that their education had been «mediocre» although 40% classified it as «good», whereas 64.7% of Journalism graduates at the UAB were moderately satisfied with their course in 2000. Although the samples were small, later studies based on bigger samples corroborated this trend. About 40% of journalists surveyed in subsequent polls (Farias, 2008-2011) classified faculty teaching in the subject as «mediocre». Gómez and Roses (2013) found similar tendencies in journalists' assessment of their training across the generations; graduates in 2011 classified their courses in equal measure as those who left university in 1976. However, the younger journalists were less critical of their practical training than their older colleagues; so, the reform of study plans in the 90s did not improve the general outlook on training but it did reduce concerns over the diminished proportion of time given to practical work in the degree course among younger journalists.

Other studies have examined the assessments made by Journalism students during the course. Academics in Spain tend to ignore this area of empirical research, but when they have ventured to do so, they have only taken small samples or carried out particular case studies that do not allow us to generalize. A 1999 study by Ortega and Humanes found that only 39.2% of students (n=189) stated that their faculties provided them with the best possible training to become a journalist (2000: 162). A later study showed that students (n=137) defined their ideal profile of a journalist as a person with experience, with good sources of information, audacious and with an easy social manner, while the specialist knowledge and formal education provided by the faculties was deemed to be secondary. The White Book (ANECA, 2005) includes a survey of students but the sample size (n=51) (ANECA, 2005: 29) negates the validity of the results as a generalization of student beliefs (ANECA, 2005: 118). Sierra (2010) found that satisfaction with their course among final-year undergraduates in Journalism at the University of San Pablo CEU (n=40) was 6.9 out of 10, similar to another study (Sierra, Sotelo & Cabezuelo, 2010) at the Cardenal Herrera CEU University in Valencia (n=40) which scored 7.4. In the case of on-line undergraduate Journalism students (n=121) at the Rey Juan Carlos University (URJC), 65% rated their educational experience as «positive» (Gómez-Escalonilla, Santín & Mathieu, 2011). Given that previous studies neither provide sufficient nor recent empirical data, this article refers back to two basic questions: whether it is necessary to take a graduate course in Journalism in order to work as a journalist, and the evaluation of the quality of teaching.

> The regression analysis showed that the students who attached greater importance to the development of critical thought and who emphasized the importance of theory stated they were happy with their training, whereas those for whom practical work performed within real journalistic settings was important rated their education poorly. Students who had had previous work experience were the most critical of standards at the faculties.

1.4. Research questions and hypotheses

In line with trends mapped out in previous studies based on small local samples of students (ANECA, 2005; Sierra, 2010; Sierra, Sotelo & Cabezuelo, 2010) and working journalists (Canel, Sánchez & Rodríguez, 2000; Farias, 2011), we set out the following hypotheses:

• H1: Journalism students in Spain will continue the trend to rate the teaching received at the faculty favourably.

As a strategy to better interpret the results of the students' assessments, we also need to consider the following research question:

• RQ1: Compared to other countries, do students rate the university education in Journalism received in Spain better than their foreign counterparts?

• H2: Journalism students will express their need to study Journalism in order to work as journalists.

We also analyzed student evaluation of teaching based on a search for statistical relations with a set of individual variables. No previous study in this area identified the possible individual factors that enable us to predict a positive or negative assessment of the teaching received at the faculty. So, we need to ask:

RQ2: What are the individual variables that predict a negative evaluation of the training imparted at Spanish universities? We wish to clarify if the type of profession chosen, the acquisition of practical work experience and the importance given to theoretical and practical training are factors that predict the outcome of the students' assessment of the training received at Journalism faculties.

The identification of individual predictors is useful in that they enable us to locate the groups that are most critical, and to explain the motives for such concern about the teaching of Journalism at universities.

2. Material and method

This work is part of an investigation that compares Journalism students' opinions in seven countries: Australia, Brazil, Chile, Mexico, Spain, Switzerland and the USA (Mellado & al., 2012). It is a cross-sectional survey, and the questionnaire includes the dependent variable «the evaluation of the teaching received at the faculty», as well as demographic information and other indicators which this study analyzes as independent variables.

The study population consisted of Journalism students in Spain who, in 2012 when the field work was carried out, numbered some 19,000. For convenience, based on our network of academic collaborators around the country, we selected the following five public universities for the survey: the Complutense University of Madrid (UCM), the Rey Juan Carlos University (URJC), the University of Sevilla[1], the University of Málaga and the Jaume I of Castellón University. The characteristics of the survey mean that the results cannot be totally generalized since private universities or universities in other regions of Spain, such as Catalonia with a considerable number of Journalism students, are not represented here. Nevertheless, this is the biggest and most heterogeneous sample used for empirical studies on this topic comparing Spain to other countries (Splichal & Sparks, 1994; Sanders & al., 2008).

In order to get the biggest sample possible, we polled students in each year of the Journalism courses, and the field work was carried out in the early weeks of the first semester in 2011-12. Students were given a printed copy of the questionnaire during a timetabled class. Students who did not complete the questionnaire were either not interested in taking part or were absent on the day the survey was presented. The number of completed questionnaires was 1,552. Table 1 shows the basic characteristics of the sample.

We used descriptive statistical techniques to verify or refute H1 and H2. The dependent variable – Evaluation of teaching received– was activated from a five-point variable (1=Very bad. 5=Very good). RQ1 was resolved via the application of the ANOVA[2] technique to a factor for the comparison of the dependent variable averages. Finally, we used multiple linear regression to answer RQ2. The possible predictors were added to the model in two blocks via the «Introduce» technique.

• Variables included in the first block:

Faculty. Since it was the teaching at each of these universities that was the reference point of the attitudes we studied, it was convenient to control the effect of this variable on the model to be able to examine the effect of the individual factors in an independent way. The original categorical variable came into operation in five dummy[3] variables. SPSS automatically extracted one of the faculties from the equation to avoid collinearity problems.

• Variables included in the second block:

Gender. Dummy variable (1=Man).

Year. This indicates if the participant is studying[4] at the (1) Start, (2) Half-way point or (3) End of the course at the time of the survey. Of those surveyed, 28.1% were at the beginning of the course, 52.5% half-way through and 19.4% were in the final or penultimate year of their studies.

Previous Studies. This dummy variable indicates

Table 1. Sample characteristics

	Jaume I (244)	Málaga (355)	UCM (275)	URJC (209)	Sevilla (469)	Total
Gender (women)	68.6%	63.7%	63.8%	62.1%	62.0%	63.8%
Ideological tendency	46.4% (left)	49.3% (center-left)	48.5% (left)	45.6% (center-left)	45.4% (center-left)	41.8% (center-left)
Mean age	20.21	20.37	20.27	19.56	20.85	20.37
						n=1.552

whether the student had already studied for another qualification (1=Student has already got another qualification). Only 9.2% had studied for another qualification.

Professional experience. The dummy variable indicates those students who have already done paid work as journalists during their course (1=Professional experience). 10.2% had already acquired professional experience.

Reasons for studying Journalism. This categorical variable has 13 response options (1=I could not complete my studies in another subject. 2=I could not get on the degree course I wanted. 3=It is an easy degree. 4=I have journalistic talent / I like to write. 5=I like Journalism as a profession. 6=To change society. 7=For the money I can earn as a journalist. 8=The opportunity to cover scandals. 9=To be famous. 10=Because I like to travel. 11=To meet interesting people. 12=Other. 99=No answer given). This was transformed into 11 dummy variables which included only those variables that represented at least 4% of cases, in order to avoid collinearity problems. A total of 49.6% decided to study Journalism because they liked it as a profession; 24.1% took it up because they believed they had a talent for reporting or because they like to write, and 7.1% said they studied Journalism as a means to change society. The remaining options scored under 5%.

Career paths. This categorical variable has five options: 1) News media; 2) Entertainment news: 3) Teaching and Research; 4) Public relations/Corporate communication; 5) No response. This was transformed into five dummy variables, with 69.9% of students stating they would like to work in news media; 16.9% preferred entertainment news, 7.2% corporate communication and 6% teaching or scientific research. The variable «I would like to work in news media» was extracted from the equation after it was found to cause collinearity problems.

Importance attached to theory in the course. Two variables were used from a set of 20 factors that refer to teaching functions in the communication faculty (Mellado & Subervi. 2012). The first uses a five-point scale (1=Not important. 5=Very important) to indicate how important it is for the student that the faculty prioritizes theoretical training. The mathematical average (M) of the scores shows that students consider theory as no more than quite important (M=3.25. Standard Deviation [SD]=1.054). The second variable demonstrates the importance it has for the student that the faculty helps them to develop critical thought and reflection. The average score reveals that students consider this to be very important (M=4.43. SD=0.850).

Importance attached to work practice on the course. Three variables were used to refer to teaching functions at the communication faculty (Mellado & Subervi. 2012). The first showed how important it was (1=Not important. 5=Very important) for the student that the faculty prioritized practical work experience as a fundamental tool for training them as journalists. The students considered this to be very important (M=4.33. SD=0.892). The second variable referred to the importance attributed to the fact that the faculty develops practical journalistic tasks in real settings (M=4.29. SD=0.861). The third variable indicates the importance the faculty gives to perfecting professional techniques during the course, which the students considered to be very important (M=4.03. SD=0.918).

3. Results

The students do not have a high opinion of the Journalism courses they are studying. The notion that their training is «Mediocre» is widespread in the survey (M=3.23. SD=0.855). And although the number of students who have a positive opinion of their training was almost double those who were highly critical (Table 2), the evaluation was less positive than that in previous studies (Sierra. Sotelo & Cabezuelo. 2010). On the other hand, the evaluation in our study is on a similar level, although somewhat more benevolent, to that made by graduates in the previous decade (M=3.21. SD=0.927. n=221), according to a study by Gómez and Roses (2013). In line with the data collected, we can say that H1, which established that the students would tend to evaluate teaching at the faculty positively, is proven.

This assessment by Spanish students of Journalism can be better interpreted when compared to the evaluations of other Journalism students in foreign countries regarding their training to enter the profession. In response to RQ1, which asked if Journalism training in Spain was rated better or worse than in other countries in the study[5], the ANOVA test revealed some significant differences, Welch's F [F(5. 1244.074)= 83.29.

Table 2. Evaluation of the academic training received

Very bad	4.46%
Bad	10.62%
Mediocre	45.05%
Good	36.39%
Very good	3.48%
	N=1,525

p<0.001] representing the variances between statistically different groups. In addition, post-hoc tests confirmed that the evaluation of Spanish students was significantly more negative (p<0.001) than that in Mexico, Australia and the USA, according to data obtained from the Dunnet T3 test. The highest evaluation came from Australia (M= 3.93) followed by the USA (M=3.78) and Mexico (M=3.52), while the worst assessment was given by students in Chile (M=3.18), then Spain (M=3.23) and Brazil (3.29).

H2 is proved by a large margin, since 81.9% of students polled stated that they believed they needed a qualification in Journalism to work as a journalist.

RQ2 asked about the individual variables that would predict the rating given by Journalism students of the training they received at faculties in Spain. Regression analysis indicated that the model had only a modest predictive capability since the predictors included could explain no more than 22.1% of the variance. The final model is statistically significant in line with the ANOVA F statistic [F(21. 1450)= 20.898. p<0.001], which reveals that the relation between the evaluation of the teaching and the set of predictors tested is statistically significant (see table 3). The analysis clarified that the faculty where the student studies influences the assessment of the training received. Students at the Jaume I University had a more favourable opinion of their course than those at the other four universities in the study. With the organizational level controlled, it was shown that the individual variables included in the final model had a greater influence on the criterion variable than the faculty where Journalism was studied. The regression analysis specifically proved that the most important predictor is the course, showing that the students at the start of the course have a more positive outlook with regard to the training received. The analysis also showed that those who had decided to study Journalism because they are attracted by the profession give a higher rating to the quality of instruction received. However, those who had decided to do this degree in order to cover scandals gave it a lower rating. Another aspect was that the variable in which students expressed a preference for a certain career path also generated a negative evaluation of the training. This refers to those students who want to go into teaching or research, and those who want to develop a career in entertainment news reporting, both of whom were unimpressed by their training. The regression analysis showed that the students who attached greater importance to the development of critical thought and who emphasized the importance of theory stated they were happy with their training, whereas those for whom practical work performed within real journalistic settings was important rated their education poorly. Students who had had previous work experience were the most critical of standards at the faculties.

Table 3. Regression analysis for the evaluation of teaching received in Spain[a]

	Model	
Predictors/ Blocks	I	II
Organizational level		
Studied at Jaume I	0.082*	0.081*
Studied at UCM		
Studied at URJC		
Studied at U Sevilla	-0.066*	
Individual level		
Gender (male)		
Year		-0.385**
Studied other university courses before		
Has work experience		-0.051*
Motives for decision to study Journalism		
Could not get on to preferred course		
Because he / she likes Journalism as a profession		0.077*
Because he / she believes he / she has a talent for Journalism		
To have the opportunity to change society		
To be able to cover scandals		-0.086**
Chosen career path		
Teaching or research		-0.050*
Corporate communication		
Entertainment content		-0.067*
Importance attached to the educational functions at the faculty		
Development of critical thought and reflection		0.116**
Emphasis on theory in the training of journalists		0.070*
Development of practical journalistic work in real settings		-0.084*
Priority given to practical work as fundamental for training		
Importance attached to acquiring professional techniques		
Change in R-squared for each block	0.016	0.217
R-squared corrected total	0.013	0.221
Change in the F value for each block	5.830	24.077
p value for each block	<0.001	<0.001

[a] The columns show the beta standardized coefficients
* Significant to a level of <0.05
**Significant to a level of <0.001

4. Conclusions

The examination and analysis of the study data have provided us with some clear conclusions:

• Although the majority of students state that the quality of their Journalism courses is adequate in terms of preparation for working in the profession, we note that almost a quarter consider it unnecessary to actually finish the course in order to start work as a journalist. These results are consistent with the opinions of a large number of working journalists in Spain who have a degree in the subject.

• Spanish students acknowledged the quality of the training received at Journalism faculties, but by a very small margin. So, although the average evaluation can be classified as a «pass», it is hardly a ringing endorsement. This is more significant when compared with the assessments of students of Journalism in the six other countries in the survey. Spanish faculties are rated second lowest of the seven countries, only slightly better than Chile, which should encourage debate in Spain as to why this evaluation is so low and the changes that could be made to improve study programs and teaching methods.

• The regression analysis revealed the scant explanatory capacity of the center where the student studied, which underlines the generalized nature of the students' evaluation of the study programs they follow. Significant among the individual variables is the increasingly negative assessment given by students the longer they study the course, which had the most relevant coefficient (-.385). Equally significant was the collinearity of this variable when referring to experience gained in the working environment, as it seems that students tend to finish their academic training with a feeling of disappointment that builds up during the course.

In a similar vein, we have the data covering the importance attached to the teaching functions of the faculty. For although those who give more importance to theory and academic input look more favourably on these functions, others who demand that their study plans adapt to the needs of the current professional profile of journalists are not so positive. So, these students see that the difference between the training at university and the realities of professional journalism is still considerable, which affects the evaluation of the education they receive at the faculty. The results for Spain are similar to those in other contexts with models that resemble the Spanish model, and there are also similarities in other models of a more practical orientation (Skinner, Gasher & Compton. 2001; De-Burgh. 2003; Nolan. 2008; Vlad & al., 2013).

It is also significant that those students who want to go into teaching or do research are also negative about the quality of instruction received. Perhaps the study plans of the faculties in the survey do not match the expectations of those who wish to follow this career path.

• Regarding research reach, this is the biggest survey sample taken so far, which also straddles students in each year of the course and uses data for the first graduates in Journalism within the new European Higher Education Area (EHEA). So, this could be a valuable starting point for future studies to help decision-makers in the academic setting. Two factors need to be taken into account for future research: the sample design, so that data is more representative, and the construction of new variables to improve the explanatory capacity of the multiple regression analysis.

Notes

[1] The sample from the University of Sevilla was not used in the corpus of the working data of Mellado and colloborators (2013) but it was added later to the database for use in this analysis of Journalism students in Spain.

[2] The ANOVA variance analysis of a factor is a type of bivariate statistical analysis for contrasting, if there are differences in the average scores in the dependent variable of the groups formed on the basis of an independent variable with more than two categories.

[3] Dummy variables with dichotomic variables with values of 0 and 1, in which 1 represents the presence of a quality. They are useful for multiple regression analysis when the original variable is not dichotomic.

[4] Some universities in the sample offered four-year degree courses, others five, so the course variable was recoded. In the four-year courses, the first two years were coded as «Start», the third year as «Half-way point» and the fourth year as course «End». In the five-year courses, the first two years were classified as «Start», the third and fourth year as «Half-way point» and the fifth year as «End».

[5] The students in Switzerland did not answer the question on the evalation of the quality of the teaching received.

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Critical Analysis of Government vs. Commercial Advertising Discourse on Older Persons in Spain

Análisis crítico del discurso publicitario institucional/comercial sobre las personas mayores en España

ABSTRACT
The elderly population has increased considerably in recent years and it is estimated that by 2050 32% of the Spanish population will be old people. This group is underrepresented in the media and does not attract much research interest. To put this right, we present an analysis of the representation of older persons in advertisements appearing in magazines aimed directly or indirectly at seniors in Spain. A content analysis estimated the frequency of appearance of the images and words that represent the elderly, and a discourse analysis enabled this study to investigate the presence of stereotypes and discourse relations between advertising and theories of ageing. The results show that the older people who appear in the ads are mostly men portrayed as consumers of entertainment products who are at the beginning of their period of old age. A marked gender stereotype is observed. The differentiation between the institutional and commercial advertising discourse is also clear. The study analyses such advertising over three decades, covering the period in which the age distribution of the population has been inverted in Spain. Throughout this period, the frequency of appearance has been very low. Old people are clearly an invisible collective in magazine advertising.

RESUMEN
La población de personas mayores se ha multiplicado en los últimos años. Se estima que en el año 2050, el 32% de la población española estará constituido por personas mayores. Mientras tanto, es fácil observar la infrarrepresentación de este colectivo en los medios de comunicación, pero la cuestión apenas recibe interés investigador. Se presenta aquí un análisis de la representación de las personas mayores en la publicidad de dominicales y revistas dirigidas directa o indirectamente a las personas mayores en España. A través de un análisis de contenido se calcula la frecuencia con que se recurre a la imagen de los y las mayores en la publicidad. Mediante un análisis del discurso se indaga también en la presencia de estereotipos y en las relaciones discursivas entre los mensajes publicitarios y las teorías de la vejez. Los resultados muestran que las personas mayores que aparecen en los anuncios son mayoritariamente varones, que inician su periodo de vejez y consumidores de productos de ocio. Se encuentra un marcado estereotipo de género y una clara diferenciación discursiva entre los mensajes comerciales y los institucionales. El estudio analiza tres décadas, abarcando el periodo en el que se ha producido la inversión poblacional en la distribución por edades en España. En todo este periodo la frecuencia de aparición ha sido muy baja. Se trata de un colectivo de patente invisibilidad en los anuncios publicitarios.

KEYWORDS / DESCRIPTORES
Older persons, social images, advertising, discourse, gender stereotypes, representations, social change.
Mayores, imágenes sociales, publicidad, discurso, estereotipos de género, modos de representación, cambio.

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1. Introduction. Old age will define the 21st century (and its form of communication?)

One of the social changes that best describes our context is progressive population ageing. Global life expectancy has increased to 69.8 years of age, while fertility has dropped to 2.6 children per woman (UN, 2007). The population aged 60 and over is expected to triple, and those over 80 to quadruple by 2050 (UN, 2009). A global demographic transition appears to be underway.

The elderly population is three times larger in developed than in developing countries, and these percentages will continue to grow (Giró, 2004: 30). Europe will soon have the largest population in the world in terms of old age. In Spain, life expectancy at birth has grown progressively from 75 years in 1980 to more than 81 in 2011. (UNDP, 2011) and Spain's National Statistics Institute (INE) estimates that older persons will form at least a third of the population by 2050. By that date, the United Nations projects that Spain will be second only to Japan in the number of old persons (Barrio & Abellán, 2009).

These statistics assume that old age begins at retirement age - 65. Thus, statistical indicators use economic and labor criteria to divide up the age segments. But when old age begins is arbitrary; other criteria (Giró, 2004: 24) put it at 50 or 55, taking into account biological, health economic and social changes, which only goes to show that old age is defined by social conventions: «We know that the problem of old age is not strictly a biological, medical or physical issue but social and cultural; that is to say, old age, its meaning, is a cultural construction» (Giró, 2004: 19). Old age is a social construction (Kehl & Fernández, 2001), a cultural fact (Beauvoir, 1989: 20), a matter of images and attitudes (Iruzubieta, 2004: 77). A specific field of study about the social construction of old age has been the analysis of its images and meanings (Featherstone & Wernick, 1995) and, more specifically, the images transmitted by the media (Santamarina, 2004).

A number of publications have pointed out the importance of the media in this social construction (Kehl & Fernández, 2001: 133) and recently, the analysis of older persons' representation in the Spanish press has attracted particular interest (Polo, 2006; Becerril, 2011).

At the Second World Assembly on Ageing held in Madrid in 2002, the then UN head Kofi Annan said that, since the previous Assembly in 1982, the world had changed so much that it was unrecognizable (UN, 2003: IV). This United Nations strategy called for governments and civil society to reshape the way older persons are perceived, expressly including the media (article 17: 6) as environment makers.

The analysis of older persons' representation in advertising is still not an object of specific study in Spanish scientific literature, though it has been researched in the USA since the 70s (Smith, 1976; Swayne & Greco, 1987). The different analyses show a stereotypical picture, often with negative connotations and underrepresentation in advertisements.

2. Research approach

The present study aims to analyse how advertising discourse, with its particular structures and content strategies, has shaped the image or social role of older persons in recent decades. The objectives are the analysis of the visual and verbal representation of older persons in advertising, and the study of discursive divergences between commercial and institutional advertising.

As a working hypothesis, this study considers the remarkable invisibility of older persons in advertising, one of the most numerous social groups in Spain. The aim is to quantify this visibility/invisibility in advertisements to test the hypothesis and then investigate a possible discursive difference between commercial and institutional advertising. An analysis of the main differences in the representation of men and women is also considered, anticipating a possible gender-based stereotyped treatment in advertising. This was done by means of an analysis of images and text.

As a methodological guide to analyze this set of representations and discourses we used content analysis and critical discourse analysis (CDA), considering the definition by Van-Dijk (1999: 22): «Critical discourse analysis is a kind of analytic investigation on discourse that primarily studies the way in which the abuse of social power, domination and inequality are practiced, reproduced and occasionally combated by texts and speech in the social and political context. Critical discourse analysis, with such a particular investigation, explicitly takes sides, expecting to contribute in a more effective way to the resistance against social inequality».

Critical discourse analysis reveals communication acts that promote social inequality. It also reveals the distance in communication between emitter and audiences. In the advertisements analyzed, it is clear that their creators and decision makers are probably not older persons, so the advertisements' discourse is a speech act about «them» or about «others».

Mass media, including advertising, make it possible to establish a link between plural emitters representing

social and economic powers (the state, corporations and economic agents) and the audience who daily build and validate social concepts and self-concepts. Numerical data as well as relationships between advertising's argumentation of private and public emitters and the models of old age they refer to will be extracted from the application of this mixed modeling.

«Discourses are interpreted as elements with a coherent relationship to the users' mental models about the events or facts they refer to» (Van-Dijk, 2003: 165).

It is known that discourse structures are related to context structures. Hence the usefulness of analysis categories which enable us to find relationships with social structures. This observation in advertising discourse provides a theoretical framework to study the present discursive production that asserts the present social status of older persons. In this study advertising messages are analyzed at micro level, to relate them to the macro level, in the framework of the theories of social gerontology.

> The expectation of an old age rich in possibilities for development and personal growth would not only be culturally but also commercially progress. Only through the construction of a more attractive idea of old age that is plural, diverse and positive will it be possible to impart an experience of senior citizenship that can be appreciated. Hiding and stereotyping images of old age only serves to weaken the bases of the new culture that needs to be built in this century of the old age person.

2.1. Sample design

Considering when a discourse becomes historical, this analysis covers an extended period of time (1980-2010) which can be considered a stage in communication history (Timoteo, 2012), a stage of economic study (Sanchís-Marco, 2011) and as a period of diachronic analysis in the recent history of international development[1]. This period corresponds to a progressive increase in the highest life expectancy rates in history and population ageing. The year 2001 was a turning point in the demographic history of Spain. Since then, the percentage of the population over 65 has exceeded the child population percentage. (Abellán & Ayala, 2012: 6).

This study analyzes advertisements in the non-daily press in Spain. Specific supports aimed at older persons have been selected («Vivir con Júbilo», «Sesenta y más») as well as general supports with a larger readership of older persons (Sunday supplements such as «Blanco y Negro»[2], «EPS: El País Semanal») and a magazine from the pharmaceutical sector (Acófar). All the advertisements that visually or verbally represent older persons have been collected. Non-repeated advertisements appearing within the stated period in all editions, in the case of monthly magazines, have been analyzed. In the case of weeklies, one copy per month has been selected. The total number of advertisements analyzed was 1,691.

According to the AIMC (Spanish Association for the Investigation of the Media), people over 55 constitute 33.2% of the readership of supplements and 25% of the total readership of magazines (2011). This segment is a big consumer of general press media and is also a focus for institutional advertising, as pointed out in the 6th report of the Committee for Institutional Advertising and Communication in 2011.

Advertising images and texts provide useful material for analysis as both projector and viewer of these constructions. It could be said that advertising acts as a converter of these ideas into images and representational conventions. These representations revert back to social imagery and can reshape our mental images.

2.2. Analysis model

When the study interest focuses on the analysis of the role of discourse in the reproduction of ideas about social groups, the forms of meaning must be analyzed. This requires a content analysis (Van Dijk, 2003: 149) that identifies the topics, propositions and elements selected. These three aspects have been identified as relevant for advertising discourse analysis regarding the role of older persons in our society. In terms of advertising's construction of messages, correspondence has

been established that includes topics or fields related to information or consumption, thematic proposals, and words or phrases related to old age. Such elements have been filtered in categories for an interpretative analysis of the observed content. Furthermore, images in which older persons are represented have been analyzed, taking into consideration the gender, age segment and appearance, either alone or living with other people. The type of emitter has also been analysed in order to make a comparative study between institutional and commercial advertising.

3. Results and analysis

The following data have been drawn from the application of the content analysis model designed to facilitate a discourse analysis. These results are then related to the theories of ageing drawn from social gerontology studies, taking into account the remarkably interpretative character of the discourse analysis processes. (Íñiguez, 2006: 121). Several aspects of the context pointed out by Van-Dijk (1996: 30) have been integrated in the analysis model, such as subperiods of age, gender, lexicalization, descriptions of activity, proposition and topics (this last aspect has been incorporated into the present study and applied to advertising as a thematic proposal of the advertisement and area of consumption).

3.1. Invisibilities

A key research finding is the patent invisibility of older persons in advertising, especially if we bear in mind that the supports analyzed are aimed at an elderly audience, in a specific or general way. After reviewing at least 35,000 advertisements, only 1,691 included any representation of older persons.

Invisibility is perhaps the most common exercise of symbolic violence in communication when talking about disadvantaged groups. This is the case with older persons, which is even more unusual if we bear in mind that they are not a minority. In Spain the population pyramid is clearly inverted.

Only 4.8% of the advertisements studied represented older persons[3]. It is also significant that in magazines exclusively aimed at older persons («Vivir con Júbilo», «Sesenta y Más») this percentage only reaches 27 and 40%, respectively.

But we have to take into consideration that so-called old age covers a wide age range. It seems to include at least two or three intermediate age groups. Some studies make a distinction between old age and very old age (Sánchez Vera, 1996) or between «young old» and older old, an age that would begin at 80 («oldest old», in UN terms). This age range has seen the biggest increase in population terms in Spain. People over 80 represented 29% of the population over 65 in 2009, and it is estimated that they will soon be 36.8% of the total elderly population (Imserso, 2010: 32). In contrast, only 4% of the older persons represented in advertisements belonged to the group of the «oldest old». Most images represented the young old (60%), from 60 to 75 years of age approximately. In their study, Bradley and Longino (2001) related this stereotype of young old to the so-called age mask hypothesis, according to which older persons see themselves as younger than they in fact are. This finding reflects the projective intention of advertising's images and messages, and is a starting point for the debate on cognitive and biological age. Stephens (1991) talked about the usefulness and potential of the cognitive age concept for the creation of advertising targets.

Functionalist theories of old age sociology explain that age classification is a structural element to which several functions are assigned. Advertising takes account of this logic in the framework of the age stratification theory, according to which self-esteem at each stage is conditioned by the roles it plays (Belando, 2007). The thematic proposal of advertising messages is fun, relaxation or hope in the case of the young old, and becomes a proposal for assistance in the oldest age range. Self-esteem and autonomy are persuasive arguments aimed mainly at the young old.

The invisibility of persons in the «oldest old» range in commercial advertising as well as its relation to the idea of dependency is a characteristic of «ageism» (Fernández-Ballesteros, 2011: 138), or discrimination towards that social group.

3.2. Lexical study. Old age: an advertising taboo

Invisibility is also apparent in advertising texts. The work of the copy writer seems to be to avoid mentioning old age explicitly. As a consequence, older persons are not mentioned in advertising, and 56.6% of advertisements whose subject is older persons avoid mentioning any words that identify them as such.

In the cases in which it is lexicalized, they use the word «mayores» (seniors), in 8.9% of cases, or the description of the age: elderly, golden age, a man who has aged well, etc. (3.7%). Neither the words «old age» nor words in the same lexical family appear, not even in advertisements aimed at that age group. In contrast, it is easy to check how the words «old age» and others related to an elderly physical appearance such as wrinkles, white hairs and flaccidity are com-

Table 1. Number of main figures represented. Total frequencies by age group and the promise projected in the message					
Thematic proposal (promise)	Age group				
	60-70	70-80	Various	Over 80	Total
Assistance, functional	81	79	13	24	197
Self-esteem	85	13	5	1	104
Autonomy	46	17	4		67
Fun, relaxation, hope	138	43	13		194
Information, awareness	50	38	14	3	105
Total	400	190	49	28	667

mon in adverts for female cosmetics. Old age has become a term used in the advertising model of consumerism in the context of fear of ageing[4]. This paradox shows that the representation of images of older persons in advertising is not linked to the use of the term that identifies them, rather, the word «old age» appears next to images denoting youth.

3.3. Older persons and the representation of their dependency / independence

Institutional advertising tends to represent the older person in the company of others, as was the case with 49% of the institutional advertisements analyzed, while only 30% showed the older person alone. The issue of the social creation of dependency in old age has already been discussed[5], and this is the idea behind the discourse of institutional advertising. One of the theories of the sociology of gerontology arises from symbolic interactionism and goes by the name of labeling theory. From that perspective, one of the labels assigned to older persons is dependency (in the sense that it is a kind of anomaly).

In contrast, the analysis of advertisements made by private and commercial advertisers revealed that 65% represented an older person alone or in a couple. They are the «young old», independent people, a representation far removed from the stereotype that relates old age to dependency. Such occurrences are broadcast mainly in the form of commercial advertising and tend to exclude very old people.

3.4. Gender stereotypes in the representation of older persons

Despite the fact that the increase in life expectancy brings about the feminization of the elderly population, only 23.6% of the advertisements have a woman as the main character, compared to 44% with a man as the protagonist. This percentage is similar in institutional and commercial advertising, the latter featuring a higher percentage of women as the main character (23.7%) with 20.8% in institutional advertising.

In 1979, Susan Sontag discussed double standards in ageing, a social order that seems to persist in images of old age. In the advertising analyzed, the man appears enjoying leisure activities in company whereas the woman is often alone, in need of health assistance services. The profile of the elderly person is also feminized in advertising. Of the 28 advertisements examined in which a very old person appeared, 26 featured a woman rather than a man.

The range of products and services in adverts for older persons is highly differentiated by gender. Almost all the drinks advertisements feature a man, while most health and beauty products have a woman. In relative terms, women have a greater presence in advertisements for assistance and health products[6]. Men are more prominent in advertising for leisure products[7], culture and even for clothes and accessories. This finding can be easily explained in the context of the current model of consumerism which is generally segmented by gender.

However, there is more equality in institutional advertising in quantitative terms with 43% of institutional advertisements representing a man and a woman together, compared to 28% in commercial adverts).

As typically happens in discourses about otherness, older persons are described only in vague terms. The representations we have analyzed tend to generalize

Table 2. Number of main figures represented. Total frequencies by type of advertiser and representation of the older person in relation to others.				
Type of advertiser	Representation of the older person in relation to others			
	In family/others, with people of different ages	Couple	Alone	Total
Political advertiser	1	1	1	3
Private, commercial	163	89	216	468
Institutional	61	26	38	125
Social: NGO, foundation...	28	17	26	71
Total	253	133	281	667

and few of them present the individuality or personality of the old person, and even less so in the case of women. Descriptive images are often file pictures that coldly define the Western type of older person. The representation of celebrities is the only case in which older persons' identity and personality have not been stolen, and the vast majority of the celebrities represented are men.

3.5. Intertextuality. Discussion on the relations between advertising discourse and theoretical models of old age

The findings of this study reveal a link between the discourse of institutional advertising and the functionalist paradigm of the sociology of old age. In this paradigm, the image of old age is a social problem «resulting from mandatory retirement, structural changes in the family and industrialization and urbanization processes, the emphasis on the individual adjustment to ageing» (Giró, 2004: 20). The institutional discourse presents the «official» program of activities suitable for older persons (IMSERSO trips, club cards, programs to learn new technologies, etc.). It can be linked to the functionalist theory that considers retirement as a stage marked by creative leisure: «the theory of activity is based on a very optimistic and in some ways idealistic view, as it hands the elderly population a solution to their problems which actually depends exclusively on the social, economic and political structures».

Public administration advertising has raised the visibility of the oldest. The image of very old persons, with no recognized activity and represented in company or in need of the help of others, reflects a functionalist idea that is economic in nature when associating old age with retirement or lack of activity. It is related to the discursive perspective that promotes the social creation of dependency in old age (Alan Walker's thesis). This has economic implications, as retirement is considered to be «a social death, like the denial of the right to work», and it is also believed to promote an economy of social assistance that represents the «environment» and the idea of welfare in public policies on old age:

The «Action Plan» is based on three pillars: the aged and development, promotion of health and welfare in old age and the creation of a suitable environment. It constitutes the benchmark for policy formulation and calls on governments, NGOs and other interested parties to redirect the way in which citizens perceive the aged, interact with them and assist them» (UN International Plan of Action on Ageing, World Assembly, Madrid, 2003: IV),

For its part, commercial advertising seems to promote the postmodern perspective of ageing and the creation of lifestyles that are not based on productivity but on consumption (Giró, 2004: 23). This approach is closer to the idea of a cultural construction of the aged through consumption, contrary to a place that is institutionally assigned.

After analysing eleven categories of products or services advertised, two categories appear as the most widely publicized: assistance and help products and/or services (17.7%) and leisure products/services (12.2%). The same happens with the thematic proposal of the messages. Of the five categories analyzed, the vast majority of advertisements include a functional proposal[8] such as assistance (29.5%) or a fun or relaxation proposal (29%). This can be summarized as two ideological constructions of old age: one that equates old age with loss of autonomy (increasing dependencies) and the other that associates this age to leisure and relaxation.

Advertising discourse, be it institutional or commercial, actively promotes the idea of assistance for an age range that needs practical, functional support and objects that provide this. Public administrations choose fun and relaxation as a thematic proposal in many of their advertisements (36% of cases). Therefore, the institutional message would connect with the so-called «disengagement» theory that defines retirement as something desirable (Kehl & Fernández, 2001: 147), an idea that was quickly rejected on the theoretical level, but one which makes sense in an idealistic advertising discourse.

4. Conclusions and challenges

The tradition of consumption associated to gender is deeply rooted in advertising aimed at older persons. Hygiene, health and beauty are associated with women, while culture and alcoholic drinks are associated with men. Commercial advertising raises a relational concept of old age and consumption. The advertising idea of old age deepens the gender gap in commercial advertising, following the old age approach pointed out by Sontag (1979).

The relation between the advertising discourse on older persons and the functionalist paradigm is clear, especially in the case of institutional advertising, which is close to the «disengagement» theory. For its part, commercial advertising's proposal shows a young old consumer, which can be linked to postmodernity theories that blur the limits of old age and lifestyles based on consumption not productivity (Giró, 2004: 23). This theory strongly promotes the possibility of empo-

wering older persons in anticipation of their future social role: «The immediate future, with the unstoppable increase in the number of aged persons, is going to have to deal with structural and perspective changes in the social value of ages, to the point of predicting that social and political power will rest in the hands of mature and aged people».

Table 3. Frequencies of advertisements by type of advertiser and promise of the message

Thematic proposal to the reader (promise)	Type of advertiser			
	Commercial advertiser	% of ads	Institutional advertiser	% of ads
Assistance, functional	156	33.3	19	15.2
Self-esteem	92	19.7	6	4.8
Autonomy	50	10.6	13	10.4
Fun, relaxation, hope	133	28.4	45	36
Information, awareness	37	7.9	42	33.6
Total	468	100	125	100

The old age discourse in advertising is a duality and clearly depends on the type of emitter. Institutional advertising increasingly represents old people in couples. The result is clearly contextual. According to INE data, the majority of older persons are married and the rates of widowhood have significantly decreased. However, the most widespread discourse is the one proposed by the commercial emitter, which offers all kinds of functional products to make up for the loss of physical capacity. This model of consumption is probably based on a subjective definition of old age understood as loss of autonomy. Camps (2003: 268) states that old age is characterized, above all, by the loss of autonomy, a fact that has been used by advertising in its discourse. Discursive strategy is now no longer based on the fear of ageing, but on the fear of losing capacity and autonomy. This is the implicit message of commercial advertising aimed at older persons.

Advertising, defined as persuasive discourse, shows its ability to transfer meanings related to the old persons' social role. Not for nothing does Van-Dijk (2003: 166) point out that persuasion, in the broad sense, is defined by control over the terms of social representations.

It can be safely said that old age is the great opportunity for advertising communication and marketing. With an inverted population pyramid whose base is progressively diminishing while the top gets ever wider, the big market in quantitative terms will be older persons. There is also greater media consumption at that age. But one of the questions that arises from these findings is: will the advertising machine continue to publicize an image of older persons as a minority? And more important, will it dare to discard the discourse of fear, of loss of autonomy and embrace a constructive discourse that progressively prepares people in each of life's stages for the arrival and acceptance of old age? The expectation of an old age rich in possibilities for development and personal growth would not only be culturally but also commercially progress. Only through the construction of a more attractive idea of old age that is plural, diverse and positive will it be possible to impart an experience of senior citizenship that can be appreciated. Hiding and stereotyping images of old age only serves to weaken the bases of the new culture that needs to be built in this century of the old age person.

Some communications studies anticipated that the myth of youth widely disseminated by advertising would soon be replaced by «the silver power » (Martínez-Pais, 1999: 73), since the myths spread by the media belong to the economic and sociological market and its various contexts, but this rational prediction has failed to materialize.

Notes

[1] There are several reports on socio-economic analysis, trends and development in this period, such as the UNDP report on Human Development or the CEPAL report.

[2] The Blanco y Negro supplement has been analyzed up to its final edition in December 2001. «EPS» and «Sesenta y más» have been analyzed since their first editions, in 1981 and 1984 respectively.

[3] In Spain, the percentage of older persons ranged from 11.2% in 1980 to 17.9% in 2010. Data from INE (the Spanish National Statistics Institute).

[4] For instance, advertising for the product Revitalift by L'Oréal makes the following promise: «Combat 10 signs of ageing» (www.loreal-paris.es/cuidados-de-la-piel/cuidado-facial/revitalift/revitalift-total-repair-10.aspx) (18-02-2013).

[5] Walker, A. (1980): The Social Creation of Poverty and Dependency in Old Age. Journal of Social Policy, 9 (1), 49-75, quoted by Giró (2004: 22).

[6] 11% of the advertisements that represented a woman as the main character advertised health products, compared to 5.4% of the advertisements with a man as the main character. 31% of the advertisements with a woman as the main character promoted assistance products, compared to 19.5% of the advertisements with a man as the main character.

[7] 91.4% of the advertisements of leisure products presented a man. In the case of advertisements of cultural products there was only one woman as the main character.

[8] Hearing aids, residential centres, telecare services, etc.

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Digital Media in Ecuador – Future Perspectives

Medios digitales en Ecuador: perspectivas de futuro

ABSTRACT
The advances in technology, especially in the field of communication, cause mass media to constantly evolve- and thus not to perish. Indeed, this occurs in situations that are marked by a series of media transformations and changes that have affected journalism as a profession and mass media as a process. The studies that have resulted from these changes have been positive and negative. This paper analyses the digital media panorama in Ecuador, the characteristics of journalism culture and the specific usage of web content. It describes the trends of the main digital media in the country, which have been selected for a case study. The article takes as a core reference 'ten digital trends in media communication' proposed by Cerezo-Gilarranz – a specialist in digital strategies. We then focus on the deficiencies of Ecuadorian mass media, which is mainly due to a lack of control over technological environments and the scarcity of links between business and journalism projects that have technological and innovative support, such as the usage of social networks and others. The final result is a detailed guide to the weaknesses and strengths of each digital medium that has been studied. Furthermore, this work highlights reliable trends so that the selected media can orientate towards digital environments. This is achieved by making use of technological tools for creating business and service opportunities.

RESUMEN
El avance de la tecnología, en especial, en el ámbito de la comunicación, obliga a los medios a evolucionar constantemente para no morir en un escenario marcado por una serie de transformaciones y cambios mediáticos que han afectado al periodismo como profesión y a los medios de comunicación, proceso que ha generado estudios de todo orden. Este trabajo analiza el panorama mediático digital en Ecuador, las características de cultura periodística y el consumo de contenidos en la Red. Describe las tendencias de los principales medios digitales en el país, seleccionados para realizar un estudio de caso. El artículo toma como referencia central el estudio de las diez tendencias digitales en medios de comunicación de Cerezo-Gilarranz, especialista en estrategias digitales. Posteriormente se identifican las deficiencias que tienen los medios en Ecuador; principalmente por la falta de domino de los entornos tecnológicos y la escasa vinculación del proyecto empresarial y periodístico con soportes tecnológicos e innovadores, como el uso de redes sociales... El resultado final es una guía detallada de las debilidades y las fortalezas de cada medio digital en estudio. Asimismo, este trabajo propone tendencias fiables para que los medios estudiados puedan encaminarse firmes en entornos digitales, asumiendo a las herramientas tecnológicas como oportunidad de negocio y de servicio.

KEYWORDS / DESCRIPTORES
Communication, digital media, digital trend, development, access, Internet, journalism.
Comunicación, medios digitales, tendencias digitales, acceso, Internet, periodismo.

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1. Introduction

1.1. Public and private media

The panorama of ownership in mass media in Ecuador is marked by two genres of media control: the first, which has been recently consolidated, is public media with the support of a national bureaucratic apparatus. On the other hand, private media has been weakened by a series of legal reforms and discretional management of the governmental publicity quota. The digital media in this latter group are analyzed in this paper.

Public media, which is controlled by an executive central function, amount to 21 groupings – among which are those «confiscated by the state», those recently created and private media, a total of 1,355 entities (among which are communication companies, publicity companies, public relations firms, cinema and television producers, subscription-based television providers, journals, newspapers and digital media) (Banegas, 2012).

According to the «UNESCO media analysis (2011)» report, the public media are comprised of: Ecuador TV (ECTV), the Public Radio of Ecuador (RPE), two newspapers, El Telégrafo and the government-run El Ciudadano, and the Public News Agency of Ecuador and South America (ANDES). The popular daily «PP El Veradero» also entered into circulation as a tabloid paper in 2010. Later, the other mass media, which have less coverage, were added as a result of state confiscations by the Deposit and Guarantee Agency of Ecuador (AGD). This government agency was created by the state after the economic crisis and the financial crash of 1999.

The private media outlets that have national scope in Ecuador are managed by eight groups that are characteristically «monopolistic» and «family-run». According to the Commission for the Auditing of Radio and Television Frequencies (UNESCO, 20111), these private media group owners are: Grupo Eljuri, Grupo Martínez, Grupo Vivanco, Grupo Egas, Grupo Alvarado, Grupo Mantilla, Grupo Pérez and Grupo Isaías (Martínez, 2009). The structure and business administration of Ecuadorian media is diverse and also faces the ineluctable fact of the transformation of journalism, namely the Internet has become a paradigm of «total» communication (López, 2001).

1.2. Internet and Mass Media

As Serrano (2011), the Colombian Editor of Interactive Media, stated: «Today, the media eco-system is a complex scenario comprised of professionals, users and machines with different languages and forms of narration, which create and exchange contents in digital platforms.» The use of the Internet within the industry of Ecuadorian communication has not been fully explored. As we will explain later, the web does not form part of business strategies. What is more, access to the Internet is no longer a limitation and digital divides are being reduced worldwide. The digital scenario offers a gamut of possibilities for interaction – commencing with images, sound and text (Dezuanni & Monroy, 2011).

In Ecuador, until July 2012, the number of Internet users was established at 7,320,206, which is 50.5% of the population, according to the statistics of the National Corporation of Telecommunications (CNT). Our neighboring country, Colombia, has 4,046,997 subscribers to the Internet – of which 37% corresponds to wireless Internet via mobile phone devices and 63% with a fixed Internet service (data from the Ministry of Information and Communications [2010]). Conversely, in 2010, Peru's Internet access was calculated at 42.8% in urban areas – with a total of 12,412,001 users, according to the National Institute of Statistics and Information (INEI).

1.3. Digital Journalism in Ecuador: the enchantment of the «digital» and the demise of «trans-media»

Negroponte (1995) affirms that «computing» is not about «computers»; it is about «life». We are therefore talking about a fundamental cultural change. The 'digital person' is not merely about being a «luminary», or a person that navigates the Internet, or a child who is gifted at math. It is really about a way of living, which is going to affect absolutely everything we do: the way in which we work; the way in which we study; and the way in which we communicate with friends and with children, etc. This is the reality in Ecuador: access to the Internet is positive and generates an obligation for mass media to act within the context of a web platform.

It has been observed that the rate of Internet subscription (obtaining an Internet connection) and the rate of permanence (keeping an Internet connection) is actually unequal –thus questioning journalism itself. Igarza (2010), for example, affirms that many cities are now suffering from an excess of micro-waves that are constantly overlapping. In this regard, citizens can remain connected 24-7 –and stay connected on the electronic superhighway, and be simultaneously connected to various networks. Hotspots and WiFi networks thus offer connectivity to the Internet in numerous public and private places.

According to the web portal Perint (2011) (Journalism, Research and New Technologies/Funda-

medios), digital media in Ecuador amounted to a total of eight providers, including the Bureau of Analysis and b10- the latter has not been updated since April 2012.

As far as the context of the first digital media is concerned, we can also mention: Ecuador Inmediato and Ciudadanía Informada, both of which commenced in 2004, according to Rivera-Costales (2007) from CIESPAL. The media in Ecuador do not compete with each other in terms of production, i.e. with international media channels. This is not because of an inability to do so, but because the local production is rarely taken into consideration. One cannot therefore talk about media production per se with an international focus except for cinema, which is backed by a law approved in 2006. What is more, film production has now been incorporated into Ibero-American and international film festivals (Mora, 2010).

The Ecuadorian media generally prefer to copy program formats produced abroad rather than create original product. According to two local journalists, Fernando Astudillo and Rubén Buitrón, «One of the greatest drawbacks of Ecuadorian society is the huge inferiority complex we have about developing and discovering a clear identity; we have to admit that the persistent view that all national journalism as mediocre is true» (Astudillo & Buitrón, 2005). The journalistic culture in Ecuador can generally be summed up by three characteristics (Abad, 2011: 136):

1) A way of doing and producing (ownership rights and control norms).

2) A way of thinking and acting (the conditions under which journalists work and also the demands of the profession).

3) A way of saying and narrating things (discourses and informative priorities).

2. Materials and methods

For this article, we have considered digital media as media used as a technological platform (from the Internet). This process is about generating new forms of consumer behavior and news production (Fidler, 1998: Diaz-Noci, 2010).

2.1. Methodology and sampling

The methodology used is observation and takes into account the ten trends proposed by Pepe Crezo (2012), the Director of Analysis and Research at Prisa Digital. The updating of the digital media was measured daily during the 56 days of the study. A comparative analysis was carried out that used as a reference the extensive work on digital media carried out by The Guardian (www.guardian.co.uk), USA Today (www.usatoday.com/), the New York Times (www.nytimes.com) and the BBC (www.bbc.co.uk/mundo), which are journalism references within their native (English-speaking) digital media scenarios. For this study, there was a follow-up of six digital media natives, which were selected based on the methodology of the case study. With this homogenous sample, a comparative analysis was performed of the ten cited trends, which are related to the implementation of technology that offers digital resources, i.e. whose objective is to maintain and to diversify the audiences.

> Digital media should be aware of the fact that they are essentially a company dealing with a product, which is information. They should use marketing and advertising strategies – focusing on and analyzing their public-oriented objectives. The trends presented here are set within a framework of an international study, and it is necessary to highlight the importance of all these factors –since they can be useful tools for improving any digital media– both in the journalistic sense and also in advertising or publicity.

2.2. Periods and variables of our study

Our study and observations were made between October 11th and 6th December, 2012. The quality parameters that were taken into account for the digital media in Ecuador are principally based on the study of the ten previously mentioned trends. The web portals of these digital media provide a different view in comparison with the online media in Ecuador. For example, multi-media usage, hypertext usage, the usage of social networks, interaction with users and web appli-

cations are all present in the digital media discussed in this paper. In addition, they provide solid evidence of the development of digital journalism. This article concludes with a series of recommendations so that Ecuadorian media may quickly and efficiently form part of the enormous and changing digital scenario.

3. Results

3.1. Presence in social networks

According to Rivera (2010) at the International Centre of Higher Studies in Communication for Latin America (CIESPAL), there are eight media outlets in Ecuador that use the Internet to reach their readers under the name of «digital newspapers». The media websites with the greatest number of visitors, followers and fans on the social networks to November 2012 were: «Ecuador Inmediato.com», «La República.ec», «Ecuador en vivo.com», «Confirmado.net», «Ciudadanía Informada.com», «Infórmate and punto.com». The table below shows the analysis of their presence on the social networks:

Digital media are currently of great interest to us as scholars. However, taking on this new initiative often depends on what action needs to be taken. Moreover, thanks to their presence on the web, they can fulfill the functions of the three Cs, namely: communication (core principle); community (communities that are created), and cooperation networks (networks are established by working together) (Orihuela, 2008). With Web 1.0, for instance, there was no real interaction, nor were there Internet platforms. Then, we transitioned to Web 2.0, which facilitated interaction between the communication medium and the receiver. Today, we are presented with Web 3.0, which offers unlimited space for the common man. In the words of Dan-Gillmor (2003), «technology has provided us with communication tools that can enable anyone to become a journalist at a low cost – with an impact on universal theory».

However, as one can see from table 1, only 101,518 people follow digital media via Twitter, and only 8,949 follow them on Facebook. That is to say, in these two important social networks, only 110,467 Internet navigators follow the most important digital media in the country. If we consider, for example, the fact that Ecuador has 7,320,206 people with access to the Internet, only 1.51% use digital media via these two important social networks. The reason for this is the means of communication used. Technology offers us the tools, but it is necessary for digital media to fulfill the three functions proposed by Orihuela. The Internet is thus becoming more and more prevalent in modern society. Within this framework, it is necessary to create quality content that enhances humanity. According to the Spanish researcher, Orihuela, «It is the moral responsibility of communicators nowadays to be informed about its complex nature, as well as the conversion of information into knowledge, the management of knowledge and to respond in a more effective manner to the public. This public, which has almost been submerged in a sea of chaos, has learnt that we can help them stay afloat by navigating in a sea of information» (Orihuela, 2002).

Although it may be certain that there exist various trends in digital journalism in Ecuador, we cannot yet talk about a prosumer. According to Sanzo (2010) in the digital journal Economic Self-Sufficiency, the word prosumer was coined by Toffler (1980) in his book «Third Wave». The term Prosumer refers to a synthesis of the words producer and consumer. In barter networks, prosumers are those who are producers of goods, products or services. The prosumer that we currently have is the Average Joe, who contributes as a creator of active information – helping with the creation of new content in a disinterested manner. It is a process, which, in our case, is contributing to the deprofessionalization of journalism in general.

Ecuadorian digital media in social networks

	Media	Website	City, creation	Fans Facebook	Followers Twitter	Other networks
1.	Ecuadorinmediato.com	**www.ecuadorinmediato.com**	Quito, 2004	1,724	**46,490**	Youtube
2.	LaRepública.ec	**www.larepublica.ec**	Quito, 2011	1,365 (2007)	19,419	Google plus, Youtube
3.	Ecuadorenvivo.com	**www.ecuadorenvivo.com**	Quito/ Guayaquil, 2008	2,055	26,178	RSS/Canal Youtube
4.	Confirmado.net	**www.confirmado.net**	Quito (S.D)	N/A	3,702	RSS
5.	CiudadaníaInformada.com	**www.ciudadaniainformada.com**	Quito, 2004	4,907	3,855	RSS-Blog/ciudadanía informada
6.	Infórmate y Punto.com	**www.informateypunto.com**	Quito, 2009	263	1,874	RSS

An acceptable hypothesis to justify the low number of followers of the digital media on the social networks could be that we do not take into consideration that Internet navigators of both Twitter and Facebook are «prosumers» not consumers of information. Another hypothesis is to analyze the journalistic practices of «Ecuador Inmediato» – as it is the digital media with most influence on the social networks.

	Tendencias 2012	En cifras	Modelos
1	**Estrategia Digital First** Los medios priorizan en su estrategia el canal digital y móvil frente al off line.	**45.7 millones £** reporta el área digital a Guardian NM, lo que representa un incremento del 16,3% como consecuencia de su estrategia digital first	**The Guardian** http://tinyurl.com/95uaqps
2	**Influencia creciente de las tabletas y de los móviles inteligentes** Las tabletas y los móviles modifican los hábitos de acceso a la información. Los medios intentan adaptarse al nuevo ecosistema	**37% de los usuarios** de tabletas leen a diario prensa online	**USA Today, QUARTZ** http://beta.usatoday.com/ http://qz.com/
3	**Modelos de negocio híbridos** Los medios buscan alternativas de ingresos a la publicidad online, insuficiente para mantener las actuales estructuras	**20-25% de los periódicos online** de EEUU desarrollarán algún modelo de pago al finalizar 2012	**NYT, WSJ,** http://tinyurl.com/bm93798
4	**Apps nativas vs aplicaciones HTML5** El Financial Times ha abierto la puerta al desarrollo de apps HTML5 sin necesidad de pasar por la App Store de Apple.	**2.000.000** de usuarios acceden a la aplicación HTML5 del Financial Times.	**FT.com** http://tinyurl.com/cjrmd44
5	**Agregadores inteligentes** Nuevos servicios como Flipboard, Livestand, Pulse, o zite están revolucionando la agregación y recomendaciónón de contenidos.	**20 millones** de usuario de Flipboard en apenas dos años desde su lanzamiento	**ZITE** http://tinyurl.com/d36u8kl
6	**Data Journalism** El análisis de grandes cantidades de datos será cada vez más importante para los medios tanto para generar contenidos como para desarrollar nuevos negocios.	**180.000 expertos en BigData** se demandaran en EEUU durante los próximos 5 años. Medios como Bloomberg demandan cada vez más este tipo de perfiles	**NYT** http://tinyurl.com/c5o52vm
7	**Apuesta por el vídeo** El consumo de vídeo online sigue creciendo. Se espera que el mercado publicitario para este soporte sea el que más crezca durante 2012.	**43.1% crecerá el mercado** publicitario para el video online en los EEUU durante 2012.	**BBC** http://tinyurl.com/dyflw5e
8	**Second screen apps** Los nuevos dispositivos conectados como smartphone, tablets, etc. se están convirtiendo en el complemento perfecto para los nuevos hábitos de consumo de TV.	**50%** utiliza otro dispositivo electrónico mientras ve la televisión.	**GetClue, Shazam** http://tinyurl.com/c29ad6h
9	**Social-local -móvil (SoLoMo)** Los medios han encontrado en el denominado "flujo social" una vía para atraer nuevos usuarios, al tiempo que aumentan la fidelización (engagement), potenciada por la movilidad y la información local.	**20% del tráfico** externo a el Guardian proviene de Facebook, habiéndose superado temporalmente por primera vez al procedente de Google	**The Guardian** http://tinyurl.com/96ppwfl
10	**TV conectadas** Los Juegos Olímpicos y la Eurocopa impulsarán la venta de TV conectadas a Internet. Los medios tienen la oportunidad de transformar sus productos (información) en servicios: tiempo, deportes, etc.	**25%** de las tv vendidas en España durante 2012 tendrán conexión a Internet.	**BBC** http://tinyurl.com/8txm9u3

Table 2: Digital trends in mass media.
(www.rocasalvatella.com/blog/2012/10/tendencias-en-medios).

3.2. Digital media in Ecuador: a defenceless child?

Digital media in Ecuador still offer few applications for mobile phones and other types of portable technological devices. It is here where one should promote, for example, trans-media projects, portable applications for technological devices-with the aim of creating multimedia and facilitating communication via various platforms. We understand this trans-media phenomenon as the usage of multimedia platforms that enable the user to play an active part in history – using their mobile telephone devices. For example, this could be via games, where multimedia is the combination of two or more media within the same platform, i.e. a text and video in a blog. According to Balestrini (2009), «Apps have created a culture and for this reason play an important role in contemporary life». What's more, in Ecuador they have yet to be explored fully.

The current reality of digital media exists because of trends in the business world. It is vital that the media be seen as a business that requires investment. The applications and content that can be implemented are infinite. Notwithstanding, the need has not been created to acquire these trends in media. They are uniquely comprised of the function of informing. However, they do not take into consideration the fact that the reader is more and more demanding. Moreover, the types of errors that appear in Ecuadorian digital media can be verified by their presence in social networks but this culture simply does not exist. On the other hand, there is no active or constant participation. What is more, there is no feedback – as we will explain later on.

In addition, there are no specific studies published that examine the causes of this slow growth. The analyses related to the academic training of social communications in Ecuador reveal scarce and almost negligible training in digital media (Punín, 2011). Therefore, if universities do not instruct journalism students on digital media, these initiatives will probably not be at the core of journalism companies.

The demands of the journalism business are not covered in the curricula of the schools or faculties of communication, despite the fact that both sectors agree on the fact that everything related to digital journalism is no longer considered a trend and thus will not become a major training requirement.

According to Cerezo, director of Analysis and Research from «Digital Prisa», there are ten trends that should define the management of digital media. Among them, we highlight the importance of interactions between the medium and the audience, as well as the implementation of technological and multimedia applications in the media. The following chart presents the ten trends that have been studied here. (This information has been taken from.

In a similar vein, we have analyzed each of the trends – with the aim of understanding importance and usage with regards to Ecuadorian digital media. The following table specifically explains the function of each trend:

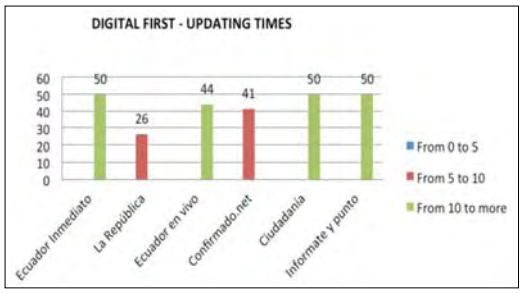
Table 3: Explicative Analysis of Digital Trends in Mass Media

Trends 2012	General Trends	Characteristics
1	Digital First	Digital First: to give priority to 'digital' in media, that is, all the content and work are carried out in an environment that is wholly virtual and is updated constantly.
2	Growing influence of tablets and intelligent phones	Nowadays, access to the Internet via wireless devices, excluding mobile devices, is an important trend. To be able to access (the Internet) via a mobile telephone, tablet or digital media device is a priority strategy for mass media, for example, by means of a Media Shift application (2012).
3	The Hybrid Business Model	It refers to publicity. This is very important and represents a significant source of earnings, which could be positively invested in the chosen media.
4	HTML5 native Apps Applications	This is a medium to help the public access information. HTML facilitates the multimedia work in a digital page; to share videos and images, etc.
5	Intelligent information mulitpliers	Information multipliers – applications that help to receive information according to personal preference. Internationally, there is the Zite application (Google Play 2012).
6	Data journalism	This is the quantity of information that is managed by digital media. Their storage is considered important considering the fact that it may be useful in the future- such as for the constant updating of information and, above all, its correct classification (DJB, 2011).
7	The video option	In any form of digital media, it is videos that stand out. For this type of information, it is a priority. Multimedia are very important. It is now very easy to create an account in You Tube – and to link videos to a digital medium, thus complementing the information that is offered.
8	Second screen apps	Users that watch TV can utilize this function by means of a second screen (Tablet, Smartphone). It is an electronic device that enables you to interact with the content that you visit online, which also leads to the selection of audiences.
9	Social-local-mobile	To be involved in social networks is of immense importance. The interaction that we can generate with our audience via common social networks (Facebook, Twitter and You Tube) is primordial. This does not have a price. To create an environment of feedback guarantees that our audience is loyal not only to publish content, but also to ensure that the audience participates and that they are heard by means of the chosen media.
10	Connected TV	Currently, it is possible to link television and the Internet. However, this «smart TV» device has not reached Ecuador (at least not in the mass market).

On the other hand, Ecuador is becoming a digital country. The rise of the web is something that is seen as very positive. We are now all digital consumers, even though the creation of one's own content is occurring at a slow pace within Ecuadorian media. In the world context, «The Guardian News and Media» is an example of how to prioritize what is considered «digital». In fact, in this case it is achieved by using a market study that analyzes potential digital consumers and determines the group objective in this technological environment (LNR, 2012). In this sense, it is essential to take the initiative. Indeed, we could add that no one is born with this pre-knowledge. «Digital natives are not born previously literate in digital culture» (Orihuela, 2012). With respect to the focus of the first trend, «Digital First», is based on the results found during the follow-up and critical observation». It is logical to assume, then, that they (digital natives) achieve this 'trend'.

In graphic 1, there are three categories of evaluation: from 0-5 hours; from 5-10 hours, and 10+ hours of updating news- i.e. as a valid means to calculate the level and speed of content and services on the web. Constant updating is a characteristic of digital journalism in Ecuador, especially in focusing journalism work on daily events which can then be converted into future news items.

The table reflects the average daily updates made by the digital media studied. As can be seen, they all register updating levels that surpass 40 per day, which indicates an average of two updates per hour. In the case of the second trend, which is related to the growing influence of tablets and smart phones, all the



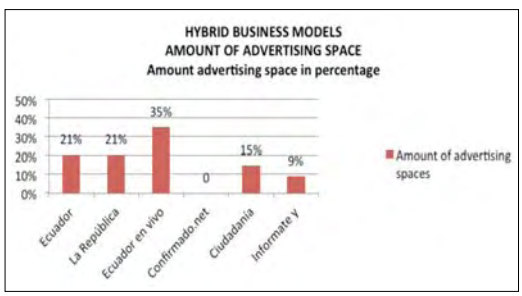
Graphic 1: Digital Trends: Digital First.

digital media have an Internet configuration for their web pages, which enables users to access their web portals via any mobile device. Within this trend, one may refer to a «media-shift», which is the way in which one manages information via different devices and platforms. In the case of Ecuadorian media, their web pages can be visited using mobile devices that have access to the Internet. However, they should promote the «media-shift» which, apart from being dynamic, provides certain mobility within the content- a characteristic that most digital media have.

3.3. Intelligent devices vs. the Media and Sloppy Advertisers

A vast number of people have access to the Internet via a mobile device, tablet or PC. In data obtained from the Superintendence of Telecommunications (Supertel) from January to June 2011, web access figures reached 1.3 million users in Ecuador – that is to say, 17.76% of Ecuadorian web surfers navigate from their mobile devices. The following graph is related to publicity: models of hybrid businesses. The third trend analyses the financing of the media used.

Graphic 2 shows the number of adverstising spaces in the portals studied. As a result of the observation process, we find a very limited number of independent and famous brands: Nestlé Ecuador, Claro, Movistar, Produbanco, Toyota, Master Card, Noos Clínica Psiquiátrica, Schullo and San Martín-Verdesoto Abogados Asociados, among others. The rest of the publicity is state advertising, which are mainly digital media owned by the government.



Graphic 5: Digital Trends: The influence of digital devices and hybrid businesses.

Although this is based on trends in advertising, it can be interpreted in many different ways. For example, «The New York Times» uses annual payment models. In addition, there is a «pay-per-click» option. Therefore, any of these payment models can be considered a strategy to finance the media used, which, interestingly, has not been fully explored in Ecuador.

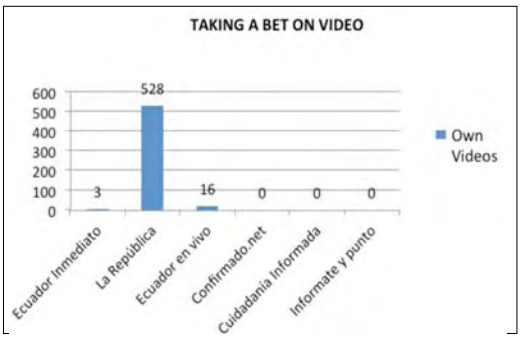
As seen here, the type of media with the most advertising space and, consequently, the one with the best chance of survival, is «Ecuador en Vivo», despite the fact it is not related to the number of followers on the social networks («Ecuador Inmediato» has almost twice as many followers on Twitter). Nor is it related to the frequency the portal is updated. In this case, «Ecuador Inmediato» has higher figures. This yields another hypothesis: that advertisers have not found an efficient way to measure audiences and the level of digital media updating.

3.4. Other trends in our digital media

In as far as the fourth trend is concerned, the HTML5 application (Hyper Text Markup Language, version 5) has an important function in digital media as it can be used to develop web pages. HTML5 is a web application that is totally free. Nowadays, however, it is better to go for web applications that contain a simple method of executing applications that are apt for various platforms. In this case, the communication media in this article may opt for the usage of this tool. We should remember, however, that the aesthetics of a web page is one way to innovate and contribute to its overall look. For this reason, digital media should not be strictly considered «linear».

Intelligent multipliers, which is the fifth trend analyzed, explain the importance of promoting the journalistic content of their platforms, for example, via the usage of applications such as Flipboard, Livestand, Pulse or Zite. All these applications form the basis of a digital repository using a digital magazine style consisting of articles, reportage, photographs, videos and audio. Moreover, this repository receives additional information. It is a service that is similar to RSS, which could also include «Ecuador en Vivo», «Confirmado.net», «Ciudadanía Informada» and «Infórmate y Punto».

The sixth trend, which is data journalism, is the correct classification of information within digital media. This facilitates the search for specific themes. This phenomenon is gaining ground as it has led to



Graphic 3: Digital Trends: the Video Option.

more job hires for people who classify information. As it is optional for the digital media studied here, one cannot quantify it or put it into graphs. In the case of well-established media in Ecuador such as «Ecuador Inmediato», which has existed since 2004, it would be useful to help to organize and facilitate the search for information.

The video option is the seventh trend. Videos are a necessary resource for digital media; their usage generates variety to meet audience demand. The following table focuses on the quantity of videos (per front page of digital media). Of the six forms of media analyzed, only three publish their own videos via You Tube, «La República» – with 528 videos. It is the medium that most uses this multimedia resource, followed by «Ecuador en Vivo» – with 16 videos and «Ecuador Inmediato», with only 3 audio-visual products. The rest of the portals share and link videos from other web pages.

The eighth trend is Second Screen Apps. It concerns the 'consumption' of television via new technological devices. There are applications for mobile phones that are fused with television. Without doubt, they can be converted in a profitable business for any digital media. They are software applications that enable users to interact with content such as films, music or videos. However, none of the media analyzed convincingly follow this 'trend'. This can be easily proved by visualizing their technological environments.

The ninth trend is Social-Local-Mobile. As Orihuela (2012) has pointed out, social media are not bothersome, but a cultural habitat for students. This expresses the importance of social networks and of creating loyal consumers that help to maximize the potential of digital media and their usage. With respect to this trend, it is convenient to highlight how social networks are managed. This is shown in more detail in table 1, which shows how social networks indicate the number of 'fans' and 'followers' of the media types studied in this paper. Finally, the tenth trend is «Connected TVs». Here, there is a conversion of information into services which financially support the media, for example, advertising. This HTML application made specifically for TVs, referred to as Smart TVs are mostly made by Samsung (Panoramaaudiovisual.com, 2011).

4. Final analysis

4.1. Trends that impact on the route of digital journalism in Ecuador

«Ecuador Inmediato, «Ecuador en Vivo», «La República», «Ciudadanía informada» and «Infórmate y punto» are the digital media best placed to succeed in Ecuador. However, their progress has been slow despite the fact that they are adapting to these digital trends. The previously mentioned forms of mass media have the following characteristics: Digital First: the growing influence of tablets; smart phones; data journalism; the video option and social-local-mobile. The photo press only grows when their off-line and on-line versions are added (Segado, 2011). What is more, the key evening news programs compete with new online media – all of which are multimedia (Igarza, 2008). Among the gaps revealed by the case studies, we can see that «Confirmado.net», «Buró de análisis» and «b10» are digital media that have «neglected» their technological platforms. In the case of «Confirmado.net», no applications for intelligent mobile phones have been developed yet. Neither has there been a multimedia initiative. Furthermore, the structure of this digital media is very «flat».

It seems that all the digital meaning in Ecuador have deficiencies in bi-directional communication. There is no interaction between the media and the audience. Could this be a reason, as we mentioned earlier, for the low number of followers on the social networks – compared to the number of people who have access to the Internet?

4.2. Recommendations: keys for making dynamic progress

One form of mass media that regularly updates its digital platform and is apt to offer a product that meets the needs of the public could be reflected in a sustainable business model. The scarce presence of media on the social networks discussed in this article reveals the need for a more detailed study of the levels of interaction between the media and the audience. This study shows that only 17.76% of Ecuadorian Internet users navigate from mobile devices.

Digital media should be aware of the fact that they

are essentially a company dealing with a product, which is information. They should use marketing and advertising strategies – focusing on and analyzing their public-oriented objectives. The trends presented here are set within a framework of an international study, and it is necessary to highlight the importance of all these factors –since they can be useful tools for improving any digital media– both in the journalistic sense and also in advertising or publicity. They should at least take into consideration seven of the «Ten trends» mentioned in this study. Advertising fees bear no relation to the number of followers on the social networks – something that would be a new and interesting topic for future research.

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