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# Orchestrating Communities, Ubiquities, Time and Space: International Experiences in the Use of Educational Technology

Iván M. Jorrín-Abellán[1] & José Miguel Correa[2]

1) Bagwell College of Education, Kennesaw State University, United State of America
2) Elkarrikertuz Research Group IT563-13, University of The Basque Country EPV/EHU, Spain

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# Orchestrating Communities, Ubiquities, Time and Space: International Experiences in the Use of Educational Technology

Iván M. Jorrín-Abellán
*Kennesaw State University*

José Miguel Correa
*University of The Basque Country UPV/EHU*

**Abstract**

In this brief introduction we frame the special issue on "Orchestrating communities, ubicuity, time and space: International experiences in the use of educational technology." It constitutes the result of the "International experiences in the use of Educational Technology" panel session celebrated within the XXI University Conference on Educational Technology (XXI Jornadas Universitarias de Tecnología Educativa) (JUTE) in Valladolid, Spain in 2013. Every article has gone through a double-blind peer review process with the aim of ensuring not only the quality of the issue but also the adaptation of the initial presentations given in the aforementioned panel session to the rules of scientific publications. This issue brings together five of the works presented in the panel to address a number of relevant challenges in the field of Educational Technology. The topics accomplished by the articles spin around the (mis-)uses of technology in the national accreditation process of teachers in the United States; the tensions derived from the use, re-use and sharing of Open Educational Resources (OER´s) in Europe; an interpretive proposal to orchestrate the evaluation of complex technology-enhanced learning settings, and finally; a experience in the collective generation of documentaries at the Galiano Islands (Canada).

**Keywords:** (mis-)uses of technology, orchestration, evaluation, open educational resources, arts-based research


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# Orquestando Comunidades, Ubicuidades, Tiempos y Espacios: Experiencias Internacionales en el Uso de Tecnología Educativa

Iván M. Jorrín-Abellán
*Kennesaw State University*

José Miguel Correa
*University of the Basque Country UPV/EHU*

**Resumen**

En esta breve introducción enmarcamos el número especial titulado "*Orquestando comunidades, ubicuidades, tiempos y espacio:*experiencias internacionales en el uso de tecnología educativa*."* Constituye el resultado de la mesa de comunicaciones titulada "International experiences in the use of Educational Technology", que se celebró en junio de 2013, dentro de las XXI Jornadas Universitarias de Tecnología Educativa (JUTE), en Valladolid, España. Cada artículo se ha sometido a un proceso de revisión doble ciego no solo con la intención de garantizar la calidad de este número, sino con la de velar por la adaptación de las presentaciones realizadas en las JUTE a las características de los artículos científicos. Este número especial aglutina cinco de los trabajos presentados en la mencionada mesa, con la intención de abordar algunos de los retos a los que se enfrenta actualmente el campo de la Tecnología Educativa. Los temas planteados van desde los (ab)usos de la tecnología dentro del proceso de acreditación de maestros en USA y las tensiones derivadas de la utilización de recursos educativos abiertos en europa, hasta una propuesta interpretativa para favorecer la orquestación de la evaluación de escenarios educativos complejos mediados por TIC, pasando por una experiencia creativa de elaboración colectiva de documentales en las Islas Galiano (Canadá).

**Palabras clave:** (ab)usos de la tecnología, orquestación, evaluación, recursos educativos abiertos, investigación basada en las artes


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On the 27th and 28th of June, 2013 we celebrated at the *Facultad de Educación y Trabajo Social, Universidad de Valladolid* (Spain) the XXI University Conference on Educational Technology (XXI Jornadas Universitarias de Tecnología Educativa) (JUTE), under the following motto: Inno-research challenges in Educational Technology: Orchestrating communities, ubicuity, time and space. The conference is yearly organized by the *Red Universitaria de Tecnología Educativa*[1] (RUTE) who is trying to internationalize its scope. This was the main reason for the local organizers of JUTE to include in the program a panel session on "International experiences in the use of Educational Technology" for the first time ever. The aim of the panel was to bring together the research work accomplished by participants on a collaborative international level.

The present special issue of *Qualitative Research in Education* has been configured around a selection of five of the works presented in the aforementioned panel session. All of them address particular challenges of high relevance within the field of Educational Technology. The main issues accomplished by the articles spin around the (mis-)uses of technology in the national accreditation process of teachers in the United States; the tensions derived from the use, re-use and sharing of Open Educational Resources (OER´s) in Europe; an interpretive proposal to orchestrate the evaluation of complex technology-enhanced learning, and finally; a experience in the collective generation of documentaries at the Galiano Islands (Canada).

We summarize below the main contents the reader will find in each of the selected works:

The first article, elaborated by **April Munson** (Kennesaw State University, USA), entitled ***"The (mis)use of technology in the national accreditation process"*** underscores the issues derived from the undiscriminated use of technology in the United States National Accreditation System. Dr. Munson offers a continuous dialogue with the reader through a careful narrative, raising the tensions, losses, errors and misuses of technology as the backbone of the accreditation processes of young teachers.

This work does not address ideological or moral questions on the appropriateness of professional accreditation processes, but emphasizes the changes that are currently taking place in accreditation procedures. Evaluators have moved from *in situ* data collection of teacher´s

performance, to highly virtualized standard-based procedures that have almost nullified face to face visits from evaluators assessing the work of future teachers. Dr. Munson alerts us about some uses, (ab)uses and approaches that could affect traditionally standardized-free countries regarding the use of technology in accreditation processes.

The second article, **"Bones of the Earth"**, has been proposed by **Mikel Correa Gorospe** (University of the Basque Country). It recounts his experience in the Gulf Island Film and TV School (GIFTS) (Galiano Islands, Canada) during the elaboration of the documentary "Bones of the Earth". Mikel does it from an Arts-based research approach where his perpetual quest for learning is based on the social use of Information and Communication Technologies (ICT) and in knowledge and creativity generation as well. He provides a delicately elaborated text strongly commited with collective processes of transformation and social change.

The third article **"Orchestrating evaluation of complex educational technologies: a case study of a CSCL system"** elaborated by **Luis P. Prieto** (École Polytechnique Fédérale de Lausanne)**, Yannis Dimitriadis** (Universidad de Valladolid) **and Juan I. Asensio** (Universidad de Valladolid), proposes an interpretative framework for the orchestration of the evaluation of complex educational scenarios that are mediated by ICT. The increased complexity of these settings constitute not only a challenge for educators, who have to orchestrate a vast number of pedagogical issues in a daily basis, but also a pitfall for researchers eager to analyze their educational advantages. The author´s proposal relies on an internationally-evaluated conceptual framework of "orchestration aspects" (design, management, adaptation, pragmatism, etc.) which helps the evolution of the case study narrative used to illustrate the tensions between "front office accounts" of research publications and the "shop floor practice" of evaluation of technology-enhanced educational settings.

The following article, **"Sharing Resources in Open Educational Communities"** has been proposed by **Paolo Tosato** (Ca' Foscari University of Venice), **Beatriz Carramolino** (Universidad de Valladolid) and **Bartolomé Rubia Avi** (Universidad de Valladolid). It addresses the need of leaving aside current content-oriented research on the use of Open Educational Resources (OER) towards a research more focussed on the needs teachers, learners and institutions have when using OER. Their work calls for the systematic search for interconnections between current uses of

Open Educational Resources and the functioning of mainstream Open Educational Communities (OEC´s). All with the aim of clarifying the complex rules governing the sharing of resources between teachers when promoting innovative teaching and learning practices.

The closing article, ***"ORIOLE, in the search for evidence of OER into teaching. Experiences in use, re-use and sharing and influence of repositories"*** has been elaborated by **Gema Santos-Hermosa** (Universitat Oberta de Catalunya). It presents the main findings around a survey generated within the ORIOLE project (Open Resources: Influence on Learners and Educators project) with the aim of evaluating the use, re-use and sharing of Open Educational Resources by European teachers. This work might be of particular relevance for individuals, departments and institutions responsible for delivering online training, since it gives insight on the different motivations to engage with OER and the shifts in experience and expectations across Anglo-saxon and Mediterranean contexts.

The pervasiveness of information and communication technologies in our lives is creating new habits, particular forms of social organization, and what is most relevant in our field, drastic changes in the ways we teach and learn. Despite not being an easy task, it is our duty as teachers and researchers to identify these challenges and propose ways to overcome unexpected drawbacks.

A formula that will certainly facilitate our work is the strengthening of international cooperation through the enhancement of research networks. This will help the collectively address of common issues found along the way.

This special issue highlights the excellent health of international collaboration networks promoted by associations such as RUTE. This aspect is illustrated by the participation of nine researchers from six institutions of higher education (Universidad de Valladolid, Kennesaw State University, Universitat Oberta de Catalunya, École Polytechnique Fédérale de Lausanne, Ca' Foscari University of Venice, and Universidad del País Vasco) who share their interests, concerns and proposals for helping the change to more contextualized and reflective uses of ICT.

## Notes

[1]http://www.rute.edu.es

**Iván M. Jorrín Abellán**, Ph.D is Associate Professor of Qualitative Research Methods at Kennesaw State University (USA), and former director and founder of the Center for Transdisciplinary Research in Education (CETIE-UVa) at the University of Valladolid (Spain). ORCID id: 0000-0002-8549-5924

**Jose Miguel Correa** is Assistant Professor in Education Faculty of San Sebastian, University of Basque Country UPV/EHU, Spain. ORCID id: 0000-0002-6570-9905

**Contact Address:** Bagwell College of Education, Kennesaw State University, 1000 Chastain Road, Kennesaw, GA 30144. United States of America. Email: ijorrina@kennesaw.edu

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# The (Mis)use of Technology in the National Accreditation System

April Munson[1]

1) School of Art and Desing, Kennesaw State University, United States of America

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# The (Mis)use of Technology in the National Accreditation System

April Munson
*Kennesaw State University*

*(Received: 9 March 2014; Accepted: 6 June 2014; Published; 28 June 2014)*

**Abstract**

The use of technology in the evaluation of higher education programs is a mainstay. Physical evidence rooms, face-to-face interviews, and reviewing of documentation on site have become obsolete. Relying on the heavy use of technology in the evaluation process has allowed what some believe to be a more cohesive, streamlined approach to the presentation of data, however, many face serious concerns with the reliance on technology; what is lost? Missed? nappreciated? How much is the understanding of technology and ability to present the "show" digitally impressing the reviewers verses actual quality of programs and institution?

**Keywords:** technology, national accreditation system, higher education, evaluation

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# Los (Ab)usos de la Tecnología en el Sistema Nacional de Acreditación

April Munson
*Kennesaw State University*

*(Recibido: 9 de marzo de 2014; Aceptado: 6 de junio de 2014; Publicado: 28 de junio de 2014)*

**Resumen**

La tecnología constituye un pilar básico de la evaluación de programas de educación superior. Prácticas evaluativas como la recogida de evidencias en las aulas, las entrevistas cara a cara y la revisión de documentación en el lugar en que se evalúa, han quedado obsoletas. Actualmente el uso intensivo de la tecnología en los procesos de evaluación está contrubuyendo a lo que algunos creen que es un enfoque más coherente y simplificado para la presentación de los datos de evaluación. Sin embargo esto hace que nos enfrentemos a graves problemas derivados de la dependencia que genera el uso de la tecnología. ¿Qué se pierde en el proceso? ¿Qué se echa en falta? ¿Qué cuestiones se minusvaloran? ¿Cuánto influye el dominio tecnológico que uno tenga y la capacidad para presentar el "show de resultados" e impresionar digitalmente a los revisores frente a la calidad real de los programas y de la institución?

**Palabras clave:** tecnología, sistema nacional de acreditación, educación superior, evaluación


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I have just been on the market for a car. Buying a car is a grueling process for me. There are so many uncertainties. What type of car should I buy? Does the car I select really say something about who I am to others? Where should I buy it? How can I trust the person who is working to sell me the car? Should I really buy a car, or wait for mine to continue it's own slow, painful death?

I decided it was time to buy. My stale-french-fry-high-school-wrestling-team odor-laden, brakes failing, no-heat-at-stops, ten year old minivan had crossed the 180,000 mile mark. It wanted to rest.

I began the car buying process doing what the majority of us now do when we want information: I googled. I googled and googled. Some of us would say, "I did the research." Even in the research process, I only gave attention to "trustworthy" sites. If a site was not functioning well, or had a poor look and feel, they were off the list. Many vehicles, and many more dealerships, fell by the wayside because of a poor virtual experience.

I was overwhelmed with data. The actual workings of various cars had many terms that were foreign to me. The rankings and ratings of various dealerships were laden with extreme variation. I gave up questioning what type of vehicle said, "woman-wife-mother of three sons-professor-artist" and searched for what served my purpose: safety and able to transport multiple children and pets for long periods of time in at least a moderately comfortable fashion, though I did read many opinions on what type of car said what about who.

I ultimately decided to purchase a vehicle that was ranked high in all terms. Raters and reviewers had gone to great lengths to provide experiential information. I sought out a dealership that also had been deemed "reliable and friendly." I "experienced" the vehicle dozens of times, taking virtual tours that multiple sites offered. I knew I had chosen wisely, and though a bit apprehensive about the buying experience, felt positive about my choice. The dealership site was sleek. It promised me what I did not know I wanted it to promise me, packaged with an accessible tone and user ease.

The day came when I was ready to confront the negotiation process. I was working hard to pretend to be confident and knowledgeable about all components. The salesman was friendly

and the vehicle drove well. It was everything others had said it would be. Except, it did not "feel" right.

I drove across the street to a dealership that was closed, selling a type of car I had not previously considered. I peered inside the locked cars, and knew it would be the car I would buy.

I did return to research mode. The car had top reviews, as well. I sought out a reputable dealer and went for the test drive. The dealership was clean, with wonderful plastic balls that sat on top of stiff wires, pretending to be balloons and doing a convincing job. The salesman was new, and fumbled with words. He forgot to ask me my name. He did not make a copy of my license before handing me the keys and sending me off for a test-drive without him. My immediate evaluative reaction was that his professionalism was lacking.

My drive, however, was not lacking. As the seat warmed my backside, I fell in love with the inner design, as well as the bells and whistles. But I bought the car because of the clock: a very small clock on the dash. At first look, I did not even recognize it to be a clock, but had a strong reaction to appreciating the shape and design.

I bought the car from the gentleman who was lacking professionalism. It turned out, that with more time, I found him to be the best car salesman I have ever had the opportunity to be with in the process. He talked more as we spent the time it took to do the paperwork. His mannerism was not what I expected from the dealership; his "rough" edges and quiet tone did not resonate with my understanding of car salesman. His wife has served as a special education teacher for many years. It may have been his strategy, and it may have been genuine. Either way, those moments of interaction left me knowing I will recommend him to others, and seek him out when I have to revisit the car buying experience.[1]

The national accreditation process is a specific evaluation of a program, unit, area, college, or university. Government agencies, politicians, and experts in the field create standards. It is an expensive, labor-intense process. The evaluand seeks to be accredited for a variety of reasons. Accreditation impacts rankings, finances, and prestige and all elements a "seal of approval" might offer.

> America's accreditation system emerged in the late 19th century as a voluntary system for serious educational institutions to differentiate themselves from institutions that were "colleges" in name only. There was a competition among the private accrediting organizations that enabled market forces to maintain a necessary level of quality. The knowledge that institutions could drop accreditation kept associations from becoming dictatorial or attempting inappropriately to influence the content of education (American, 2007, p. 12).

The nature of accreditation, itself, has become an issue of increasing contention in the last decade. With shifts in learning, access to higher education, cost involved in degrees, a shifting understanding of learning and what constitutes quality learning, and advances in technology, many arguments continue to ensue over the practicality of this once highly regarded practice, or, "stamp of approval" for institutes of higher education (Yorke, 2003). At the same time, many in higher education express the need and desire for the continued practice of national accreditation (Yorke, 2003, Burke and Butler, 2012).

The focus of this paper is not the issue of worth of the accreditation process, though the issue is so deeply a part of the culture surrounding the evaluation that it does color the movement in the last decade of the practice. The accreditation process has shifted from focusing primarily on site-driven data gathering experiences to measure achievement of standards to a largely virtual "experience" of the evaluand with minimal live visits. This shift is critical in understanding the impact of change this creates in who and what are being evaluated in the process. This paper focuses on that shift and explores the question of how the use of technology impacts the understanding of quality in a national accreditation process. Are we measuring virtual input or holistic outcome? The issue is approached from the perspective of evaluator, evaluand and stakeholder.

## The Study

This research began as a case study with action research overtones. My own university was preparing for and undergoing the process of national accreditation and I felt it important to document my understanding as well

as the experience. It seemed as though when the term "accreditation" was mentioned, it held a noble weight. I studied the accrediting agency extensively, including the history, conception, supporters and the opposition. The agency gave a thorough checklist of requirements; in fact, the checklists contained checklists (Appendix A).

The established criteria seemed reasonable. Many hours, individuals, and countless meetings were focused on the criteria; questioning and directing the path of gathering evidence that would meet specific components. In-depth study and explanation of specific terms identified in the standards were explored. I quickly understood the cost and efforts involved in obtaining this badge of honor. I watched as administrators and brilliant colleagues worked the equivalent of an additional job to be active participants in the process.

A system was utilized as the tool to manage data. Chalk and Wire (C&W) became a four-letter word to some, a nuisance to others, and a sense of control to more. The system is markets itself as a " powerful and effective tool to manage…curriculum, assessment, data gathering, analysis and reporting." It promises to "work with you to create a culture that feeds successful accreditation" (Chalk, 2014).

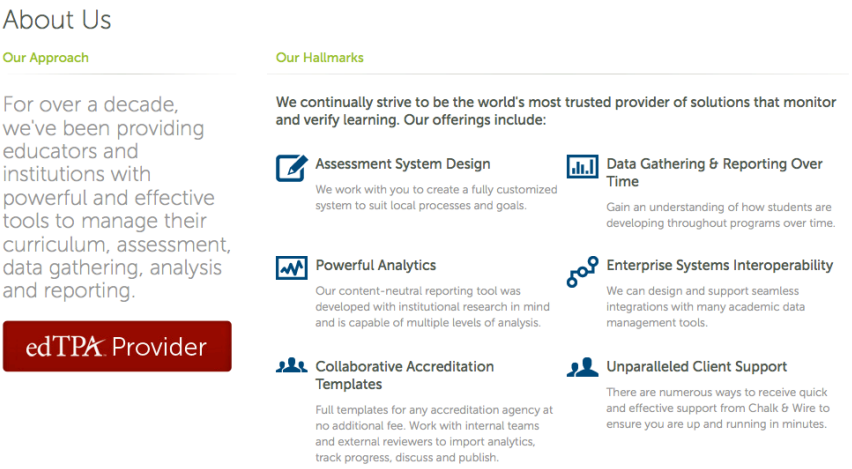


*Figure 1*. Screen shot from http://www.chalkandwire.com/

Students, most not knowing so, participated in the chaos, expense, and efforts of providing evidence that our unit was up to par. They were required to purchase C&W accounts. They received instructions on specific assignments that would be completed in certain courses. These assignments were submitted through C&W and assessed within the system.

Faculty members and students expressed frustration with the cumbersome-ness of the process as well as the system. Faculty and students were trained repeatedly and offered support as to how to use the system. All students in the unit, despite area of focus or discipline, all completed the same assignment using a standardized framework and rubric.

It was in the midst of this process that I realized that an outside reviewer might see many results when "knowing" our unit through a virtual experience. They may see clean quantitative data, where numbers align with little or no supporting qualitative data. They may see rich qualitative data that does little to utilize the report generating functions of C&W. They may see rich aspects of our unit. And, they may see frustrations of those inputting data, lack of investment in both system of accreditation as well as tool of data management, and nothing of the actual quality of the work that emerges from the programs.

This realization led to my understanding that the use of technology is not an issue isolated to a single accreditation process or a single evaluand. The use or misuse of technology penetrates the experience of most seeking the blue ribbon. My narrow focus on specific agencies and processes grew to a broad-scale attempt at engaging in practice and theory that can be utilized for meta-understanding of national accreditations as multi-level experiences relying on technology.

## The Evaluator

As evaluators, we constantly negotiate. No two programs are the same, though on some levels they may be very similar. We are tasked with exploring the new terrain. Variations include disciplines, locations, missions, stakeholder interests, working philosophies, data collection processes and much more. At times the terrain is quite unfamiliar, but we gather what we need to inform us as best we can for the journey. Our tools are varied and we work to be responsive to the program we seek to

understand; to know (Bresler, 1996; Greene & Abma, 2001; Kushner, 2000; Stake, 1982, 2004).

Similar to variations in programs, there are variations in evaluators. Some are quite content to remain discipline-specific in their efforts. Others prefer to stay close to their homes. Still others will only use a specific methodology or philosophical framework to guide the evaluation protocol.

Evaluators and programs are equally challenged to change and evolve. In order to understand quality, we also consider what constitutes quality within a specific time, context, and climate. The current climate we brave is technology. How do we, as evaluators, use best practice in relying on technology to make sense of what it is we seek to know?

Cost efficiency and time management are critical variables in the evaluation process. The time, travel, and expense of both have been greatly reduced by the information that can be gained through virtual experience and resources made available for study through various forms of technology. While the saving of resources is appealing, does reliance of the heavy use of data collection through technological vehicles serve the purpose of knowing a program?

While the appeal of cost-saving means remains, as the evaluator, what challenge does it present? And, is it the same to determine quality in this manner versus the manner requiring more reserve?

Evaluators that are trained as a part of a national accreditation team theoretically support the same approach to understanding quality of a program. They agree on the "benchmarks" and undergo inner rater reliability to ensure a common platform of the varying degrees of worth. But, these evaluators remain individuals who "see" the landscape of a program from a different perspective. Prior to the braving of technology-driven evaluation practice, these evaluators worked exhaustively with individuals involved in the programs. They spent many nights away from home, often stepping outside of specific discipline of training, equipped with understanding of quality, and caught the small details that can often offer such incredible insight.

These evaluators now spend more nights at home, but are "seeing" a program through a very specific construct; one created through digital means. They work to not only maintain integrity and ethics as evaluators, they become trainees to systems determined to create the best picture of programs they explore. Because of the massive undertaking of the nature

of this process, the evaluands are often directed in which system they will or should choose. The consistency in systems is more convenient for most, but after repeated use, it may become a tendency to see the system, and the user input, as a key focus of understanding the program worth. Brief site visits that (for now) remain included in many accreditation reviews, leave little time to catch the details that can say so much.

As evaluators we are charged to change and grow; and, in that change and growth retain understanding that the primary responsibility is to *understand the quality of a program and help to make that program better.* While we may encounter frustration in a program's use or misuse of technology, our "seal of approval" is not contingent upon that use; rather, the outcomes of the program. If the chosen technology does not offer us that understanding, we may make note that the technology component should change; however, we may not determine the value of that program because of poor user input or understanding of the technology they are commanded to use.

## The Evaluand

> The eight hour meeting was focused on continually valuing students...beyond class, race, test score...and when it was mentioned my colleagues nodded, whispered words of approval, glanced at one another with a look to say, "that's right." (Munson, 2014).

Programs change. As programs change, those involved change. For all of us in higher education, technology is changing us daily. It's changing how we teach, how our students learn, and how we develop professionally. Our pedagogy is challenged, shifted, and reshaped as we navigate the terrain of technology. We seek shortcuts, and attempt to move into the virtual world the practice and pedagogy of our face-to-face experiences, and fail. We regroup, evolve, and explore alternative approaches. The same is true for all facets of our teaching: objectives, motivation practices, procedures, materials, closures, assessments, and connections to students' lived experiences. As we evolve with these elements, we are also tasked to evolve with how we showcase the greatness of the associated outcomes.

This is a heavy obstacle for those who most value the face-to-face learning experiences. Many brilliant members of higher education approach learning with a great appreciation of the "ebb and flow" (Sheridan & Byrne, 2002; Bresler, 2005) They depend on nuances, observations, conversations and questions, and even body language to gauge student understanding and growth. Committed to quality educational experiences, these practitioners have what some describe as "holistic" or "student-oriented" approaches (Sheridan & Byrne, 2002; Bresler, 2005).

Weaving the demands for use of technology to showcase quality with the strong ties to experiential learning is a challenge, and for some, seen as impossible.

> The accreditation process is always a little tortuous.... but it's changed so much. We start working on the process as soon as a round is finished. That means that this last time we began working on it 8 years ago.
>
> When review teams used to come to do the evaluation, there was so much personal interaction. Of course we knew well in advance what documents we needed to show. We had time to gather our artifacts and evidence and arrange them to look a certain way. And, there was a lot of interaction as they asked questions about our program. Not any more.
>
> For this last round, we had to have all of our evidence in the Chalk and Wire system 6 weeks before the teams' arrival. The focus became so much about how our evidence looked within C&W, that the actual content seemed to have lost value. It felt as though all we were offering was a superficial, tiny, strategic sample of what our program actually is...the whole process felt so prescribed...maybe that's evaluation nowadays.
>
> Before the team came we were asked for our cell phone numbers. I've never been asked for my personal number to use for work... but on top of it, we were told to be "on call" for the weekend. Why? In case a reviewer had questions about our program? No! In case they needed to add or change something in the glorious C&W system." Sue, a teacher of more than 20 years, who regularly infuses new

> technology her teacher training, addressing issues she faced in the accreditation process.

In my conversation with Sue, it was evident she was not opposed to the accreditation process, though not fond of it. She was not resisting relying on technology for best practice. The source of Sue's contention of was the imposition of a particular approach to data input that seemed to rely on a generic template to share predetermined evidence following a standard protocol. Sue felt limited in her opportunity to showcase the outcomes of her program. When asked, she expressed a desire to independently choose the best technology to showcase the highest quality exemplars, not a prescribed one-size-fits-all solution.

> We have just really gone through, within the whole College of Ed., and identified for every class at least one artifact that would fit and meet one of the standards—whether they're professional ones or under INTASC, that would actually fit.

> And so, when the students get a copy of the syllabus, they will see the breakdown and what objectives meet what standard. And then there will be at least one key artifact, and possibly up to three that they know goes with what standard.

## The Stakeholder

Stakeholders place considerable investment in the accreditation process. The outcome of the process has significant financial impact, and can impact the livelihood of a program.

Those invested in the program including administration, faculty and students, rely on the prestige associated with the accreditation for funding, affluence, marketability, and program continuation. All members work to succeed in the process in order to support and sustain.

The outcome of the process is a text-based distribution. Stakeholders can see the "blue ribbon"; this standardized process of both data collection and results distribution are consistent and deemed "best practice."

Regardless of the culture of critique surrounding the accreditation process, it is one that universities, units, and programs continue to rely upon

to declare their excellence. Stakeholders, however, share the same responsibility as evaluators and evaluands: the growth and change that are the response to a living system.

Figure 2 is a design of how we come to "know" or "see" what we investigate.

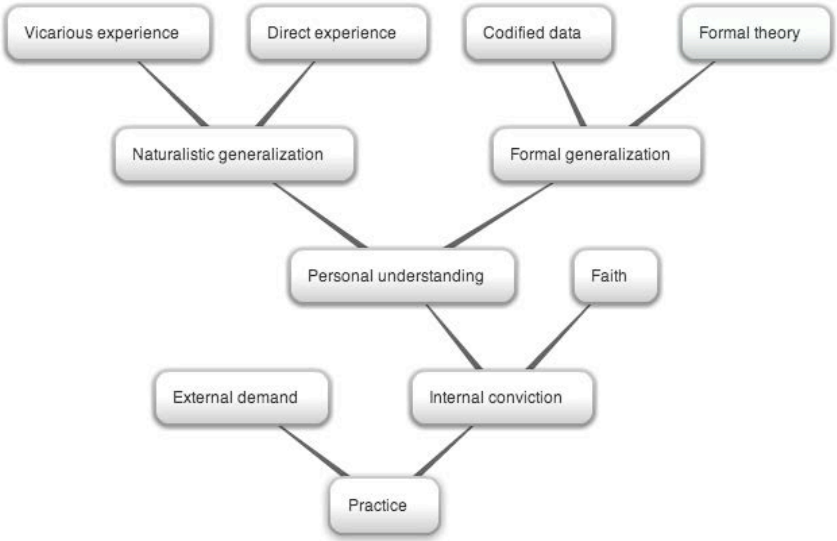


*Figure 2.* "Represents a rough sketch of the lineage of pedagogic action, probably any action. It is of course simplistic but attempts to identify the ideas and feelings involved. It does not name all the influences on practice nor all the pathways by which practice can be affected. It may, however, help to present the way in which we see experience as influencing practice." (Stake, 1982, p.4)

Closely examining the components Stake includes, it is evidence that each is personalized, alive, and subject to change depending on the individual. This simple sketch may encourage stakeholders to reexamine not necessarily the notion of the value of accreditation, but encourage

careful selection of who is ultimately responsible for choosing a single technology that will nationally serve an entire system.

### Final thoughts

As we enter the second decade of virtual evaluation, it is imperative that we acknowledge how and where technology can be of use or blind those seeking understanding of quality in programs.

Technology is beautiful and awful and continuing to grow and become more and more a substantive element in the equation of life. The awfulness and beauty impacts the evaluation, and all involved. We are challenged to consider at multiple levels the impact of that on our identities as an evaluator, evaluand, and stakeholder. We work to identify and acknowledge what is gained and what is lost in the heavy technological use in understanding programs, their quality and, ultimately of most importance, the individuals and their experiences.

The mere presence of national standards and objectives is not the issue. The selection of who determines those, how they will be evidenced, and how they will be showcased is one that demands rigorous research and continual thoughtful negotiation. Awareness of this understanding, coupled with close examination of the core values in both methodology and program mission, are imperative in moving forward as evaluators and those involved in the evaluation process.

*I would have never seen the small clock on the dash had I not sat in the actual vehicle…and yet I wonder, if someone had chosen to showcase that clock for me to discover during my research, how my journey may have changed.*

## Notes

[1] Field notes from my recent car purchasing experience. The tension of virtual experience versus live experience in both evaluation and life living was constantly on my mind throughout the process.

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**April Munson** is Assistant Professor of Art Education in School of Art and Desing at Kennesaw State University, United States of America.

**Contact Address:** Visual Arts Faculty Hall, Rm 22, Kennesaw State University, 1000 Chastain Road, Kennesaw GA 30144, United States of america. Email: amunson1@kennesaw.edu

## Appendix A
## Exhibits for NCATE Offsite Reviews and Onsite Visits: Continuous Improvement Pathway
## National Council for Accreditation of Teacher Education
## August 2012

The exhibits below are critical for determining that NCATE unit standards continue to be met. The BOE Team will use them during the offsite review of the institutional report (IR) and the onsite visit. The quality of these exhibits will determine their degree of utility for teams. In most cases, this list of exhibits, the information available in NCATE's Accreditation Information Management System (AIMS), and tables in the IR represent all of the evidence required to demonstrate that an institution meets the NCATE unit standards. If the exhibits presented do not provide evidence that a standard is met, the Offsite BOE Team will inform the institution in its feedback report so that the institution will have the opportunity to provide additional evidence for the onsite visit.

Exhibits should be organized by standard and available electronically to BOE team members. The institutional report should include a list of the electronic exhibits with links to them. In some instances, one exhibit may be related to more than one standard; the link should be referenced for each standard. Please check each link to ensure that it takes the user to the intended documents or pages in a long document.

Assigned BOE team members will have access in AIMS to the unit's third-party testimony, annual reports, program reports submitted for national review, national recognition reports, program reports for state reviews and state findings, reports from the previous NCATE visit, and other relevant reports that have been submitted to NCATE. The faculty chart submitted for national program review in AIMS will also be available to the team. The institution should not duplicate these materials in its exhibits. The exhibits that should be available to the Offsite BOE Team and the Onsite BOE Team are listed in the tables that follow.

Table 1.
*Overview and Conceptual Framework*

| | |
|---|---|
| I.5.a | Links to unit catalogs and other printed documents describing general education, specialty/content studies, and professional studies |
| I.5.b | Syllabi for professional education courses |
| I.5.c | Conceptual framework(s) |
| I.5.d | Findings of other national accreditation associations related to the preparation of education professionals (e.g., ASHA, NASM, APA, CACREP) |
| I.5.e | Updated institutional, program, and faculty information under institutional work space in AIMS |

**Standard 1. Candidate Knowledge, Skills, and Professional Dispositions**

Candidates preparing to work in schools as teachers or other school professionals know and demonstrate the content knowledge, pedagogical content knowledge and skills, pedagogical and professional knowledge and skills, and professional dispositions necessary to help all students learn. Assessments indicate that candidates meet professional, state, and institutional standards.

Table 2.
*Candidate Knowledge, Skills, and Professional Dispositions*

| | |
|---|---|
| 1.3.a | State program review documents and state findings (Some of these documents may be available in AIMS.) |
| 1.3.b | Title II reports submitted to the state for the previous three years |
| 1.3.c | Key assessments and scoring guides used for assessing candidate learning against professional and state standards as well as proficiencies identified in the unit's conceptual framework (Some of this information may be accessible for nationally recognized programs in AIMS. Cross reference as appropriate.) |
| 1.3.d | Aggregate data on key assessments, including proficiencies identified in the unit's conceptual framework (Data should be disaggregated by program, and for off-campus, distance learning, and alternative route programs.) |
| 1.3.e | Key assessments and scoring guides used for assessing professional dispositions, including fairness and the belief that all students can learn |
| 1.3.f | Aggregate data on key assessments of candidates' professional dispositions (Data should be disaggregated by program, and for off-campus, distance learning, and alternative route programs.) |
| 1.3.g | Examples of candidates' assessment and analysis of P-12 student learning |
| 1.3.h | Samples of candidates' work (e.g., portfolios at different proficiency levels) from programs across the unit |
| 1.3.i | Aggregate data on follow-up studies of graduates |
| 1.3.j | Aggregate data on employer feedback on graduates |
| 1.3.k | Data collected by state and/or national agencies on performance of educator preparation programs and the effectiveness of their graduates in classrooms and schools, including student achievement data, when available |

## Standard 2. Assessment System and Unit Evaluation

The unit has an assessment system that collects and analyzes data on applicant qualifications, candidate and graduate performance, and unit operations to evaluate and improve the performance of candidates, the unit, and its programs.

Table 3.
*Assessment System and Unit Evaluation*

| | |
|---|---|
| 2.3.a | Description of the unit's assessment system including the requirements and key assessments used at transition points |
| 2.3.b | Admission criteria and data from key assessments used for entry to programs |
| 2.3.c | Policies, procedures, and practices for ensuring that key assessments of candidate performance and evaluations of program quality and unit operations are fair, accurate, consistent, and free of bias |
| 2.3.d | Policies, procedures, and practices for ensuring that data are regularly collected, compiled, aggregated, summarized, analyzed, and used for continuous improvement |
| 2.3.e | Policies, procedures and practices for managing candidate complaints |
| 2.3.f | File of candidate complaints and the unit's responses and resolutions (This information should be available during the onsite visit) |
| 2.3.g | Examples of significant changes made to courses, programs, and the unit in response to data gathered from the assessment system |

**Standard 3. Field Experiences and Clinical Practice**

The unit and its school partners design, implement, and evaluate field experiences and clinical practice so that teacher candidates and other school professionals develop and demonstrate the knowledge, skills, and professional dispositions necessary to help all students learn.

Table 4.
*Field Experiences and Clinical Practice*

| | |
|---|---|
| 3.3.a | Examples across programs of collaborative activities between unit and P-12 schools to support the design, implementation, and evaluation of field experiences and clinical practice, including memoranda of understanding |
| 3.3.b | Aggregate data on candidate placement in field experiences and clinical practice (Data should be disaggregated by program, and for off-campus, distance learning, and alternative route programs.) |
| 3.3.c | Criteria for the selection of clinical faculty, which includes both higher education and P–12 school faculty |
| 3.3.d | Examples of support and evaluation of clinical faculty across programs |
| 3.3.e | Guidelines/ handbooks on field experiences and clinical practice for candidates, and clinical faculty, including support provided by the unit and opportunities for feedback and reflection |
| 3.3.f | Assessment instruments and scoring guides used for and data collected from field experiences and clinical practice for all programs, including use of technology for teaching and learning (These assessments may be included in program review documents or the exhibits for Standard 1. Cross reference as appropriate.) |
| 3.3.g | Aggregate data on candidates entering and exiting from clinical practice for all programs (These assessments may be included in program review documents or the exhibits for Standard 1. Cross reference as appropriate.) |

**Standard 4. Diversity**

The unit designs, implements, and evaluates curriculum and provides experiences for candidates to acquire and demonstrate the knowledge, skills, and professional dispositions necessary to help all students learn. Assessments indicate that candidates can demonstrate and apply proficiencies related to diversity. Experiences provided for candidates include working with diverse populations, including higher education and P–12 school faculty, candidates, and students in P–12 schools.

Table 5.
*Standart Diversity*

| | |
|---|---|
| 4.3.a | Aggregate data on proficiencies related to diversity that candidates are expected to demonstrate through working with students from diverse groups in classrooms and schools, including impact on student learning |
| 4.3.b | Curriculum components and experiences that address diversity proficiencies (This might be a matrix that shows diversity components in required courses.) |
| 4.3.c | Assessment instruments, scoring guides, and data related to candidates meeting diversity proficiencies (These assessments may be included in program review documents or the exhibits for Standard 1. Cross reference as appropriate.) |
| 4.3.d | Data table on faculty demographics (see Appendix A for an example) |
| 4.3.e | Data table on candidates demographics (see Appendix B for an example) |
| 4.3.f | Data table on demographics of P-12 students in schools used for clinical practice (see Appendix C for an example) |
| 4.3.g | Policies and practices, including good faith efforts, for recruiting and retaining diverse faculty |
| 4.3.h | Policies and practices, including good faith efforts, for recruiting and retaining diverse candidates |
| 4.3.i | Policies, procedures, and practices that support candidates working with P-12 students from diverse groups |

**Standard 5. Faculty Qualifications, Performance, and Development**

Faculty are qualified and model best professional practices in scholarship, service, and teaching, including the assessment of their own effectiveness as related to candidate performance; they also collaborate with colleagues in the disciplines and schools. The unit systematically evaluates faculty performance and facilitates professional development.

Table 6.
*Faculty Qualifications, Performance, and Development*

| | |
|---|---|
| 5.3.a | Data table on qualifications of professional education faculty (This table can be compiled in the online template from data submitted for national program reviews or compiled in Excel, Word, or another format and uploaded as an exhibit. See Appendix D for an example.) |
| 5.3.b | Data table on qualifications of clinical faculty (i.e., P–12 school professionals and professional education faculty responsible for instruction, supervision, and/or assessment of candidates during field experiences and clinical practice) |
| 5.3.c | Policies and practices to assure clinical faculty meet unit expectations |
| 5.3.d | Policies and samples of faculty scholarly activities |
| 5.3.e | Summary of faculty service and collaborative activities in schools (e.g., collaborative project with school faculty, teacher professional development, and addressing the needs of low performing schools) and with the professional community (e.g., grants, evaluations, task force participation, provision of professional development, offering courses, etc.) |
| 5.3.f | Policies, procedures, and practices for faculty evaluation (including promotion and tenure) and summaries of the results in areas of teaching, scholarship and service |
| 5.3.g | Policies, procedures, and practices for professional development and summaries of the results |

### Standard 6. Unit Governance and Resources

The unit has the leadership, authority, budget, personnel, facilities, and resources, including information technology resources, for the preparation of candidates to meet professional, state, and institutional standards.

Table 7.
*Unit Governance and Resources*

| | |
|---|---|
| 6.3.a | Policies, procedures, and practices for governance and operations of the unit |
| 6.3.b | Organizational chart and/or description of the unit governance structure and its relationship to institutional governance structure |
| 6.3.c | Policies, procedures, and practices for candidate services such as counseling and advising |
| 6.3.d | Policies, procedures, and practices for candidate recruitment and admission, and accessibility to candidates and the education community |
| 6.3.e | Academic calendars, catalogs, unit publications, grading policies, and unit advertising |
| 6.3.f | Unit budget, with provisions for assessment, technology, professional development, and support for off-campus, distance learning , and alternative route programs when applicable |
| 6.3.g | Budgets of comparable units with clinical components on campus or similar units at other campuses |
| 6.3.h | Policies, procedures, and practices for faculty workload and summary of faculty workload |
| 6.3.i | Policies, procedures, and practices to ensure that all candidates have access to physical and/or virtual classrooms, computer labs, curriculum resources, and library resources that support teaching and learning |
| 6.3.j | Policies, procedures, and practices to ensure that all candidates access have to distance learning including support services and resources, if applicable |

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# Bones of the Earth

Jose Miguel Correa[1]

1) Elkarrikertuz Research Group IT563-13, University of the Basque Country UPV/EHU, Spain

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# Bones of the Earth

Jose Miguel Correa
*University of the Basque Country UPV/EHU*

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**Abstract**

The film Bones of the Earth (Riglin, Cunninham & Correa, 2014) is an experience in collective inquiry and visual creation based on arts-based research. Starting from the meeting of different subjectivities and through dialogue, planning, shooting and editing, an audiovisual text that reconstructs a reflexive process of collective creation is built. A sense of community, on-going inquiry, connections and social commitment inform the creative process. As a result, the video's nearly five intense minutes are a metaphor for the search for personal meaning, connection with nature and intersubjective positioning in a world that undergoes constant change.

**Keywords:** identity, learning by doing, inquiry, a/r/tography, video art, filmmaker

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# Los Huesos de la Tierra

Jose Miguel Correa
*University of the Basque Country UPV/EHU*

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**Resumen**

La película Bones of the Earth (Riglin, Cunninham & Correa, 2014) constituye una experiencia de investigación colectiva y creación visual fundamentada en la investigación basada en las artes. El trabajo que presentamos elabora, a partir de la reunión de diferentes subjetividades, a través del diálogo, planificación, rodaje y montaje, un texto audiovisual que reconstruye un proceso reflexivo de creación colectiva. La sensación de comunidad, la investigación en curso, las conexiones y el compromiso social constituyen las claves que informan el proceso creativo desarrollado. Como resultado, los casi cinco intensos minutos que dura el vídeo constituyen una metáfora de la búsqueda de significados personales, la conexión con la naturaleza y el posicionamiento intersubjetivo en un mundo que experimenta un cambio constante.

**Palabras clave:** identidad, aprender haciendo, indagación, a/r/tografía, video arte, cineasta


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This article comes out of my experience at GIFTS (Gulf Island Film and TV School), Galiano Island, British Columbia (http://www.giftsfilms.com/). Writing an autobiographical text that recreates a journey to an ill-defined part of ourselves holds risks. Risk is inevitable when we undertake a journey that tries to account for an aspect of our life history in a reflective way; risk is also inherent when we take up the challenge to speak not so much about ourselves but from within ourselves, testing the traditional dualism that scientific narrative has always insisted upon.

Inquiry is the means of transport chosen for this trip, which is itself narrative, metaphor and reality. On this personal journey I wanted to experience learning based on information and communication technologies, and at the same time I wanted to continue my own personal process of inquiry, a process of inquiry in which knowledge, learning and creation are not incompatible and where there is an interest in the collective processes of transformation and social change. Such a methodology is based on inquiry that generates creative commitments to the processes of social change. Indeed, as an academic and a professor, I argue that information and communication technologies, far from materializing new ways of relating knowledge and its representation, have failed in the attempt by reproducing old methodological strategies that are more suited to a model of universities as institutions that transmit and reproduce rather than create and liberate. This structural weakness, along with the practices of evaluating and reproducing knowledge, means that information and communication technologies perpetuate the traditional strategies of hegemonic colonization in universities.

As a process of inquiry, *Bones of the Earth* is a creative challenge more than a mere documentary video. It is an a/r/tographic product, something more than the sum of individual initiatives or creative coincidences. This type of audiovisual work becomes a dialogue between subjectivities that need to express their personal and committed position in seeing the world through video creation. Pearse (2004) suggests that a/r/tography is a construction that is woven from multiple identities, voices and positions that move through a multiplicity of marginal spaces and social contexts. All of this suggests that the positioning of our identity is always shifting and transforming, re-creating and rearranging itself. For Winters, Belliveau and Sherritt-Fleming (2009), the responsibility of the a/r/tographer is to extend,

investigate and create opportunities for new insights and perceptions about the understanding of reality. Springgay and Irwin (2007) suggest that identity is continuously constructed and negotiated through encounters with others. This means that with each new positioning, we get new interpretations and understandings about our own identity. For this reason, *Bones of the Earth* is a project that is connected to my own identity as a teacher, a researcher and a visual artist. It is a relational, metaphorical and liminal experience (Leggo *et al.*, 2011).

## A Promised Land

My interest in going through an experience[1] like this comes from my work as a professor and researcher in educational technology in teacher training. Given that I am involved in a process of on-going change and methodological innovation, it is not easy to find experiences that contribute to my professional development and that can be applied to our teaching practice. In this sense, GIFTS (Gulf Islands Film and Television School) offers a valuable model that is based on learning by doing, where you use the lens of inquiry to try to convert the process of learning your subject into a process that is politically committed, more democratic and cooperative (Correa & Aberasturi, 2013).

Taking the story of my experience as a base, my aim in this text is to reconstruct and interpret the experience I had producing *Bones of the Earth*. In this type of investigative experience, documenting becomes a narration strategy, one based on evidence. It is a space, as Hernández (2013) suggests, in which the methods of narration that are related to arts-based educational research and research with and of images allow processes to be unveiled and open processes of inquiry that convert pedagogical relations into meeting spaces and the shared construction of experiences of discovery. This text is a reflexive and interpretive exploration of my pedagogic experience from various positionings. I start from the premise—which is methodologically linked to the ethnographic tradition, to (auto)biographical and narrative study in education and to participatory action research—that narrating pedagogic practice and experiences reveals the decisions, knowledge, beliefs, subjective intentions and reflections that shape the professional duties of teachers, in this case from various positionings: learner, researcher, foreigner, migrant and peer.

Stories are a medium for sharing the knowledge that is constructed through educational experiences. They are also a way to understand what occurs when practice is carried out in certain institutional and cultural contexts. In order to gather evidence, provide support for my narrative reflection and document my experience, I used an iPhone 4 and two apps and their accompanying web sites (Ethos and Portfolio Up for Mahara). These tools allowed me to document my experiences with video, photography and audio, and they gave me access to a space where I could write my blog.

Moreover, as Lin, Grauer and Castro (2011) suggest, a community-based media arts program that exists outside the traditional academic channels offers opportunities for self-introspection and communication with others. Community-based initiatives strive to foster shared commitment from the creative, social and moral capacities of individuals and communities, and they try to facilitate representations of their commitment to teaching through multimedia art forms and digital tools. It is precisely this orientation towards art-based inquiry that encouraged me to explore this training model that is based on learning by doing.

The learning experience at GIFTS is divided into four phases. In the first phase participants are welcomed and the outline of the course and the community rules are presented. The second phase focuses on the development of individual ideas and ends with the selection of group projects. In the third phase the selected projects are planned, shot and edited, and then the completed projects are shared.

The first phase is made up of moments of exploration, where we meet the various participants and discuss the personal motivations that have brought us here, our previous experience and the professional background that each of us has in this field of documentary video and media production. The GIFTS courses attract all kinds of people, from television directors to young people who are eager to enter the audiovisual industry. Among the various groups who attend this school, the teachers from all levels of education stand out, and for them there are special training and improvement courses. There are adolescents, young people who want to try their hand at audiovisual creation at this school, which is noted for promoting learning by doing and distances itself from scholastic practices by instead reproducing the real work environment of filmmakers. The objective of this learning experience is to provide students with an

opportunity to create works of art that speak about and are situated in the world in which they live. It is an alternative to the traditional class found in schools. By gearing the training towards the formal world of short films and video, adolescents and adults are fully capable of producing stimulating works of art that span a broad spectrum of genres and deal with a wide range of content. These workshops and courses are also attended by professionals who are looking to share experiences, foster relationships among professionals in the audiovisual industry and search for partners or try to find collaborators for work projects. Another group of people that attend GIFTS are the First Nation People. The group is notable in that the school organizes courses exclusively for this group and provides mentors from the same ethnic background.

During my experience at GIFTS, I overlapped with various professionals in video production whose motivation and objectives were more in line with meeting other professionals than learning the craft of making documentary videos. In all its years of operation, one of the things that stands out about GIFTS is its collaboration with experienced Canadian video production professionals. This context is enriched through dialogue, which lends a special appeal to the creation and development of projects. I agree with Castro and Grauer (2010), who analyzed the GIFTS learning experience with adolescents, that the methodological weight of the activity and the project development is based on the agency of the participant, who first exercises her agency by choosing to experience learning in a setting like the one provided by this school, where participants are encouraged to contribute their ideas and to work actively on creating a documentary video, and continues to exercise her agency through her choices in terms of subject or topics, how the work groups are organized, and how the production time is managed.

The second phase of this learning experience is closely related to the motivations behind participants' desire to attend GIFTS and develop their own video documentary projects, when all participants are encouraged to propose their own ideas for documentaries. The idea is for them to develop their own project and to attest to the filmic possibilities of their idea. GIFTS asks them to bring their own proposals, in order to share and validate them. This experience requires that participants have some technical knowledge of what video production is. It requires special motivation to develop their project by mobilizing personal ideas and thematic preferences and at the

same time by looking for benefits that are not solely the realization of a good audiovisual product, but more related to experiencing professional encounters with others. There is an intangible value in exchanging ideas and sensibilities about what it is like to work in the audiovisual market, in developing creative, artistic and professional skills. GIFTS's curriculum is intensive ("movie boot camp"), practical (without lessons), and self-directed (with mentors that help you to make the film). The course includes highly structured and loosely structured activities. There are large group activities such as the nightly video forum or the two workshops that are held during the first three days on media literacy and the technological resources that are available for producing and editing films. This is a meeting place for gaining mutual knowledge and creating teams. The nightly video forum serves as a teaching context that promotes group dialogue about the films shown. This opportunity allows them to analyze the resources used in the productions and the intentionality of the creators. I feel very identified with Gaztambide-Fernandez (2007), who analyzed the role of the artist in society, the gamble of making a commitment and of being an activist of social awareness. Viewing as a group *Hearts of Darkness: A Filmmaker's Apocalypse*, which was about Coppola's journey, *An Inconvenient Truth* or *Exit Though the Gift Shop* by Banksy was part of a vindication of the transcendent and committed social role of filmmakers in our society and of the need to experience film making as an artist, with passion and a dedication to social commitment.

Having chosen the various filming projects, the third phase is the most crucial. In this phase, planning what is needed for the film (people, content and dialogue) alternates with scouting locations for filming. The work environment is created in a collaborative and creative setting that tries to reflect the world of professional audiovisual production. Participants tackle the creation of the video as a team. Together they select ideas and shoot and edit the film using the professional recording and editing tools that are available to them.

The environment of the school, the need to contextualize the filming and being immersed in the community of Galiano Island, allows participants to focus their production goals in the community context, though not exclusively. This community-based sense of creation is reinforced in courses like documentary production, where the community is a source of inspiration. Attention is paid to the people living on Galiano Island, to their

social, personal and everyday issues and provides a good opportunity for analysis and reflection. The initial collaborative workshops give way to the activities of creating, shooting and editing the project, where each group has to manage their time. In this way, the only things that is structured are the fixed times for breakfast, lunch and dinner. The mentor is always present to advise and assist the groups with their tasks of planning, shooting and editing of the film.

Finally, the last phase is the screening of the films, a moment that is greatly anticipated and is the culmination of the learning cycle. At this stage the different projects made by the participants are shown.

I think that the value of the experience at GIFTS lies, in part, in its being an alternative to the traditional model of learning. I think the sense of community that this experience engenders and the fact that it reproduces the actual working conditions of the professional context situate learning in a real context, enhancing other motivations, collaborative relationships and responsibilities that, coupled with the agency that is fostered by the school itself, build a learning space that is stimulating and that puts both young people and adults in a position where they can find channels that allow them to experience the participation and exchange they need to develop their projects.

Therefore, the methodological identity of this school is based on certain criteria that can be characterized as:

- a situated learning experience, based on real and collaborative projects.
- a break with the traditional organization according to instructional timetables, where learning is divided into classes, hours and sessions.
- a break with traditional learning spaces: we learn in a variety of places, not necessarily in a traditional classroom.
- a break with the traditional hierarchical channels of communication. Everybody teaches each other. We can all teach and learn from everybody. Traditional classes are replaced by communication with mentors.

It is also worth mentioning that

- tasks are loosely structured; participants are expected to organize themselves, which creates working conditions that require continual collaboration in making decisions.

- the conditions and objectives of the professional world and the film industry are reproduced; for example, participants feel the pressure of deadlines that are involved in the creation of a video.
- there is an interest in developing critical thinking skills through dialogue and by focusing on the community.
- emphasis is placed on reflecting on audiovisual language
- the participation of people who are socially disadvantaged is promoted by providing financial assistance and offering them opportunities to participate and to receive support in making their voices heard.

This *break with the traditional organization of time and space* in schools is one of the keys to understanding the satisfaction of the participants. The years that this school has put into the creation and maintenance of a community of practice of filmmakers is, I believe, a vital concept. This is where people go to share their experience rather than learn in a traditional way. Wenger and Lave (1991) distinguish between the teaching curriculum and the learning curriculum. The *teaching curriculum* is knowledge about the profession that is usually presented during training at university. The *learning curriculum* is learning set within real contexts, which offers many opportunities for learning, some of which are not necessarily predictable. By reproducing the context of a professional work environment and by developing projects based on collaborative relationships, GIFTS becomes a context for learning which enhances the learning curriculum rather than teaching curriculum, functioning as a *real community of practice.* George, the director of GIFTS, believes that *"in one course at GIFTS you can learn things that you won't learn in four years at university"*. Reproducing the natural conditions of work is very important for the adults who are participating. The respect, credibility, and appeal of the real experience hook many adults.

Lin, Grauer and Castro (2010) highlight the *importance of the mentor* in the learning experience at GIFTS. The mentor figure aims to foster learning by moving away from the traditional representation of what a teacher is. It is important to keep in mind that many of the mentors who participate have attended the school as students. Once they begin working professionally in the film industry, they continue to expand their work experience by developing various projects for the audiovisual field so they can later return to the school as mentors. This aspect is important when considering GIFTS

as a community of practice. Mentors, themselves former apprentices, become an important part of this community of filmmakers, which makes them feel involved with the activities and courses that are organized at GIFTS, following a path that took them from the periphery of the community into being full-fledged members (Lave & Wenger 1991; Wenger 1998). This was the case with our mentor, who had attended GIFTS ten years prior and later started a career that led him to directing his first short film with funding from the of the Audiovisual Resources Centre of Montreal. It should be noted that the function of a mentor is not only to communicate with the participants but to also share with students his or her expertise in the audiovisual industry and experience in developing audiovisual projects.

The type of filming project that is developed at the core of the learning experience facilitates the natural communication of knowledge between mentor and participants. This situated model allows for the transfer of knowledge that is directly related to the problems that students must solve. In addition to transmitting technical information, the mentor also gives advice to participants about the main professional aspects of working in the audiovisual industry.

The significant features that constitute the experience at GIFTS make it *closer to an informal learning context* than to that of the traditional, formal school context. These features are: 1) the objectives that are geared toward the development and implementation of the project, 2) the agency of the participants, 3) the strengthening of collaborative relationships, 4) communication between participants based on dialogue, 5) being community-oriented, and 6) the promotion of social responsibility. Another characteristic is the development of critical thinking skills and breaking with certain traditional scholastic strategies, like subjects or theoretical classes, and replacing them with practical workshops that focus on the undertaking of projects and peer exchange, which enhances horizontal communication.

Research (Adams et al, 2008; Page, 2012) shows that art programs that are grounded in the community and are developed outside the formal organization of the classroom provide a multitude of different spaces that encourage young people to reflect on their experiences in relation to the complex world in which they live. These community-based initiatives strive to promote and share the individual's and the community's commitment to

creativity, society and the community, and to facilitate learners' artistic representations of knowledge in time and space through their knowledge of digital arts. Evidence suggests that the teaching and learning that occur in the community are effective mechanisms for building a set of individual skills that promote community ties and provide greater social benefits.

## Bones of the Earth

During the days that made up the experience, everything happened quickly and in an immersive way. The meetings with the other group members alternated between fleeting moments and long and intense sessions. These meetings allowed us to exchange smiles and talk about the outcomes of our productions and our intense moments, going over participants' personal and cinematic positionings. This allowed us to learn and discover as we went along; with each new dialog, we forged new relationships. In this way, all the characters and their commitments to the experience made their appearance; a parade of characters that could be in many film scripts. Marc, who had been a television director, had come to GIFTS for both personal and professional purposes, looking to connect with the audiovisual market. Then there was Nick, perhaps the most adventurous person in the course, who had found in the GIFTS setting a way of living, like Jill or Tunique. George was also there. He had been the director of GIFTS for nearly twenty years, and now he wanted to reorient himself and work with indigenous communities, the First Nations People. The significance he saw in GIFTS was the ability to empower these communities, to hear their voices and develop their cultural creativity. In the talks I had with him, I found the model of education that GIFTS offered—"something that can never be offered by a university"—to be one that made a great deal of sense. It was also "a fluid place for meetings and exchanges between professionals in the audiovisual market."

## The filmmaker

A good starting point for talking about my experience as a video documentary maker is to start by trying to contextualize who I am and what I'm doing by having embarked on an experience like this. Let me introduce myself. I'm not a professional filmmaker; I am a teacher. It's true that the

audiovisual world appeals to me and I am a regular consumer of audiovisual culture, but I don't feel any special attraction to the world of audiovisual production despite being familiar with the planning and audiovisual production process and recognizing the influence of audiovisual media in our culture. When I decided to go to Galiano Island, my interest was to undertake a learning experience that is backed by the publications of scholars in the study of the production and visual culture. Moreover, I was interested in learning from the experience and reflecting on its possible application to the field of initial teacher training for teachers, the field in which I work. In other words, I was interested in exploring the possibilities that video documentary could provide for inquiry. More particularly, I wanted to explore what it would mean to incorporate the visual arts into my work as a teacher and a researcher.

The incorporation of the visual arts into teacher inquiry, as Hernandez (2012) points out, has not only served to question the hegemonic forms of knowledge, the classic and scholastic disciplines of knowledge, and the very conception we have of science and scientist. It has also allowed what is present but not expressed to be uncovered and it has promoted another type of narrative, one that is not exclusively text-based. In recognizing other languages and contexts in which artistic activity has a research goal, we authorize other types of messages and break certain exclusive academic orthodoxies. The visual arts allow us to explore other positions and communicative languages and to make other messages and authors visible (Herne et al, 2013).

The audiovisual project *Bones of the Earth* was an opportunity to tell a story that could help me explore and evolve my own personal and professional identity (Leggo, 2008). This project has been a creative way to share images and stories that encourage public awareness and are able to stimulate our critical capacity (Winters, Belliveau & Sherritt-Fleming, 2009). The project has promoted various forms of narration and heightened our reflective and critical awareness, both individual and collective. Through my participation I was able to help visualize narratives old and new, thus promoting new strategies for thinking, seeing and communicating.

## The Film

What is *Bones of the Earth*? It is a personal and collective inquiry about my own process of personal and professional and individual and relational transformation, about a world in permanent flux. It is a game of reconciling opposites, the stable and the permanent (Leggo et al, 2011). It is more than a micro-story about a world that is continuously changing; it is a story that seeks the opposite of constructing objectivity. It is a gamble that has allowed me to reconcile opposites, the stable and the permanent. The inert and the living. It is a fractal metaphor about stones and the passing of time. It is about nature, about how light changes the reality that we perceive and what seems fixed and immutable. And it is about ourselves. It is about the search for meaning in the world around us, something we human beings do not stop doing. It is also an experience of not just individual but also collective inquiry. It is a metaphor for narrative research itself and my own role as a researcher. It wants to touch the viewer, evoke emotions and provide alternative perspectives to seeing the world. These creations are strong enough to allow readers to place themselves within the experience. As an evocative narrative, the validity of *Bones of the Earth* is determined by what it elicits in the reader, and in what the reader can consider to be a genuine, credible or possible experience. In this way, *Bones of the Earth* accounts for the multiplicity of relationships, both for the one who investigates, who inquires through the camera and her visual perspective, and for the one who is being investigated. In this multiplicity we show the multiple stories, words, times and frames that the opportunity of a creative meeting brings forth. *Bones of the Earth* is a personal inquiry into our own process of transformation. It is about stones and the passing of time. It is about nature, about how light changes the reality that we perceive; it's about us, about our search for meaning in the world that surrounds us, the search that we human beings continue to engage in. This micro-story, far from hiding the voice of the person who inquires, seeks to enable the participants' dialogue, without obscuring the contradictions of the many voices at play. As Nicole said: "nature is part of the way I see the world; everything is a question of learning to position yourself. Of learning to look and inquire. It's paradoxical that the rocks, which are impenetrable, anchored and solid, inspire a permanent change in us, and we associate this with our own personal journey."

In contrast, Jill, the youngest member of the work group, undermined the significance that we wanted to give to our project. Smiling, she challenged the idea of "personal journeys, where people ended up finding themselves. It's only about finding a balance within oneself."

Agreement came quickly given our connection and eagerness; the spark ignited. When Nicole began talking about Stoneworld, we realized that we had a topic that had many possibilities for creative interpretation. Stoneworld, a landscape with stones like Carnac. Stoneworld, a sanctuary for menhirs, a tribute to stone. We organized our own search for information so we could start designing our creation: settings and characters. Some of us made phone calls, and we began to write down our ideas. This is how we met Craig, the magician who is able to balance the stones, and Barbara in the Stoneworld setting. This is how me met Larry Foden, the painter.

After analyzing the different recording options and the human resources that were available to us, we chose our team and filming locations and wrote up the interview script that would explore Barbara's commitment and Larry Foden's philosophy. We wanted to use these interviews to explore the two points of interest behind our artistic experience: the process of inquiry and the collaborative creation of the documentary.

We became immersed in the task; everything became an obsession, a collective, diffracted creation of reality, halfway between the metaphorical and real. And we started thinking about stones, about rocks, about the earth itself, but turning our gaze towards ourselves and exploring the meaning they had for us when we looked at them, these stones, rocks, sculptures and paintings, and exploring what our relationship with all of them told us. But suddenly we were in another moment, no longer looking at the stones but instead reflecting on how life changes. We dwelled on the things that change, and everything remained. We also noted how the light changed the stones themselves. And we understood the paradox: the inert, in remaining unalterable, is in constant change and transformation. From this we created *Bones of the Earth*, filming and creating, talking and reflecting and looking for creative forms of representation that sought to produce diffractions.

Many months have passed since we made *Bones of the Earth*, and I haven't been able to get Larry Foden's penetrating voice or the conversation we had with him out my head. He talked to us about his tastes, what was behind his paintings, the attraction he felt for nature, his continual reflective

search for himself, and the magnetic effect that he felt towards what is solid, towards rocks and how in painting them he was searching for and questioning the divine and the mundane. He was exploring the meaning of life, talking with the elements of nature such as the sea, light, shadows, figures, fire and with his paintings, colors, time, slowness, rushing, etc.

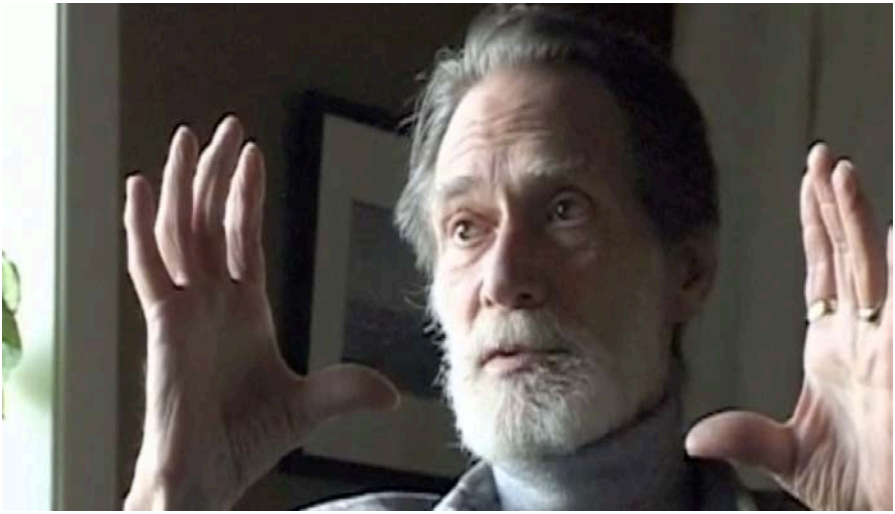

*Figure 1*

> I'm Larry Foden (Figure 1), I live here on Galiano. I have been here eighteen years, nineteen years. I'm from Ontario. I started painting rocks in water in Ontario and Whitewater in Cambridge Shield, in granite, and when I moved out here the rocks fascinated me. The same kind of idea, water and rock, only in this case the water very visibly erodes the sandstone into shapes so for me there's a certain mythology attached to the rocks out here, like a history. Not necessarily the island but in my head they represent a mythology, that as a culture we've accumulated so my titles and my themes go a little towards myth base. Icarus and the Sphinx….you know, animals, creatures… They're fascinating, and as a painter, it's an amazing subject for its textures and sculptural lines. Well I don't try and replicate, I just try and get a sense of

who they are. Once they get into my head on camera they become quite different. Not different, synthesized perhaps, they changed. Whatever it is I'm seeing. They occur and sometimes it's the light, where you are, that time of day they look different as they would in the morning and you know they change. And that's when the mythology comes forward and makes them more real. So, I'm a painter and you know, it's what grabs me. What stimulates me. And I've been staying with the rocks exclusively 18 years and I very rarely do anything else, which it may be time for a change but I'm discovering them more and more each time I see them. I discover more about them and now I'm moving into the rocks more or into the sky more because the sky here, you see I live here on a very big sky and it's affected by the water and if I lived on the Prairies it'd be a very different sky because it's not affected by water it's affected by land. Reflections are different. Different colors, different, it's amazing. It's like watching a private television, it's always changing, it's always shifting. It's great. So that's what I paint. I'm curious about the water and the sky and the rock. The rock is very solid. It's so substantial. It can't be touched and the water is very in ephemeral. It moves and it's instantly gone. But the one thing that causes the rock to change is this water, so these two amazing forces back and forth create these wonderful formations and it's only 5 or 6 places in the world that this type of thing exists, this type of rock. It requires certain conditions. I don't work at night because artificial lights affect the colors I use, the techniques I use are layers and layers of very transparent color. So artificial light often causes a shift in certain good colors. Greys and greens shift down or up so they don't read as clearly so I tend to not work at night except if I'm working on a black and white piece. Once in a while I like to work in black and white and grey. It forces me to think very differently. All of a sudden, red and green are the only things that separate each other in a colored picture but in black and white you only have certain shades of grey that they eye perceives, so you have to look at what the shapes are, what they tell you. It's an interesting challenge. So I like to work mid morn to mid noon. That's when I'm ready to paint. That's when I'm awake enough. Oh I use acrylic mostly sometimes pastel, sometimes water color. I haven't used oil a lot since I've discovered acrylic in a way that I like to work, same way I worked in oils. Transparent places. My favorite stone is sandstone. The sandstone out here really

intrigues me. In Ontario it's granite. Here it's sandstone. One of my favorite places is Coon Bay. Very north, on the tip of the islands. Very interesting formations along the north end of the island. Once again it's affected differently by the tides than the east side or the west side. But sometimes there's a spot over here that I love that I see everyday. It's always changing, you can't see from where you're sitting. But it's a wonderful spot and in the summer days I'll go sit out there. In Ontario the shield is mostly made out of granite. It's very hard so you don't see the carving on the rock. You see it being split by ice and freezing and shifting and the water moves it and it causes it to move slowly over times and it doesn't happen in days, it happens in years. Whereas here the action of the tide the wind and the small grains of sand in the stone can cause it to carve much more quickly. And that's what fascinates me and the difference is mostly in the action itself. It creates the images out here in stone. Depending on what filter we have to look at the stone, they're either just stone or my filter just happens to be a myth based filter. I see them that way. When I'm with them…I'm a happy guy, I'm a happy guy out here. I'm with them all the time either in the studio or in location. I'm touching them, I have small examples in my yard. It's called Tafomi, by the way. T-A-F-O-M-I. It means little crater in Italian, and you can get small examples of it. It's amazing what lives in and around these rocks. The old woods, you know, we're seeing old forests sometimes in the stone, petrified in the stone. It is beautiful and that's what attracts me. Other painters, we're all attracted to something new and unique and that's what attracts me. They have a lot of power because they're layers and layers of history and I do sense out in the islands where there's so little urban movement on the islands and you feel it more when on the ground and if you go out on the ground in your bare feet there's more of a sense of history there. You're more aware of it there but maybe that's just in my head but yeah. Uhm, I collected rocks and skulls and bones and you'll see scattered around the house whenever I've found a skull I save it and bones I love. My work in the east a title I call- Bones of the Earth and I came out here and it's simply more of that, the Bones of the Earth.

I haven't been able to forget those phrases: it's always changing, it's always shifting. This, for me, sums up this creative experience. And his voice, so calm and interesting, plays over and over again in

> my head, it's always changing, it's always shifting... it's always changing... it's always changing...

**The End**

Irwin (2008) says that to interweave theory and practice in arts-based research we create cases or stories that simultaneously and sequentially reveal multiple perspectives about a topic. Arts-based research has the ability to evoke deep insights through an image, a set of movements, a series of sounds, moving images or a few well-chosen words.

As we were saying goodbye, Jill talked about the feeling of excitement she had in embarking on such an intense project: “Finishing a project like this gives me great satisfaction. You learn a lot of things that surprise you. It’s not just the technical resources; it’s also the privilege of living the experience and getting to know the people that are involved in it with you. What I’ve learned from people like Craig, Barbara and Larry Foden is to seek our balance. To not lose sight of the important questions about how we got here and where we want to go. I’ve known about this experience for a long time, and making the effort to attend this course never disappoints me. It puts me in touch with myself. Partly it’s because of the effort you have to make to work with people you don’t know, but it’s also because of the personal demands that the process of artistic creation puts on you.” Nicole, who is closest to Barbara and most identifies with her, added a more professional dimension to the experience: “I came here looking for ways to continue developing my career as a filmmaker, at a time when I needed a transformative push. I’m leaving with a lot of energy, feeling refreshed and enthusiastic about the possibilities that are open to me. I like rocks, their texture, their silence. They present us with many ways to sculpt them and shape them. In a similar way, when you embark on very intense experiences like these, you know that even though the cost of being here is high and you have to give up some of the comforts of living in the city, it’s worth it because it moves us creatively.”

Arts-based research invites us to question what we are as researchers, academics, educators and citizens, and how we have come to understand our own position and responsibilities (Lea, Belliveau, Wager, & Beck, 2011). This must also allow us to question and reflect on the traditional methodologies of teaching and learning, and encourage us to interrupt,

break, create and meaningfully participate in alternatives to the traditional academic ways by looking to offer new ways of understanding and committing so our students, our teachers and our communities participate differently and more actively in educational design.

I agree with Springgay, Irwin and Kind (2005) when they point out that the same images of reality cannot be literal or identical. Visual narratives should include, at least, some sort of displacement that is able to problematize certainties and natural identifications in viewers. In *Bones of the Earth*, the dialogue with different persons, places, and activities allowed us to diffract our collective inquiry. Emotions played an important role in our creation because they allowed us to establish changes in positions and roles, which are twists and opportunities for knowledge that are generated in conjunction with the people with whom we work.

Creative inquiry (Birrell, 2008) means to relate with a topic and enter into dialogue with it from different places, with different people, objects, etc. In considering creative artistic inquiry as a performative act and in diffracting it (meaning we interpose ourselves in order to produce something different), we generate new situated understandings of the phenomenon. This diffraction involves the development of a new perspective that is based on the creation of a position that was already established based on a particular ethical-political position.

In the text I aimed to unveil the assumptions, concepts and references that guide the creative inquiry and the joint construction of a narrative in dialogic terms. It is a process of negotiation in terms of the choices me make, who we make them for and for what purposes and with what consequences, the utility our results will have, which voice is speaking, and what ethical-political aspects are related to our creation. I've tried to explain the what and the how of decisions that go into the construction of the narrative. I wanted to explain the relationships and decisions that are established in the process of joint creation, employing a strategy that demands reflexivity as a way of validating the decisions made. I've done all this without losing sight of the purpose of the narrative/inquiry in order to develop forms of representation that allow us visualize processes, journeys and contributions. To build a realistic narrative that allows readers to share the experience as if they too had been present.

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**Jose Miguel Correa** is Assistant Professor in Education Faculty of San Sebastian, University of Basque Country UPV/EHU, Spain. ORCID id: 0000-0002-6570-9905

**Contact Address:** University of Basque Country, Oñati Plaza, 3, 20018, San Sebastián/Donostia, Spain. Email: jm.correagorospe@.ehu.es

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# An Orchestrating Evaluation of Complex Educational Technologies: a Case Study of a CSCL System

Luis P. Prieto[1]; Yannis Dimitriadis[2] & Juan I. Asensio-Pérez[2]

1) CHILI Lab, École Polytechnique Fédérale de Lausanne, Switzerland
2) Department of Signal Theory, Universidad de Valladolid, Spain

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# Orchestrating Evaluation of Complex Educational Technologies: a Case Study of a CSCL System

*Luis P. Prieto*
*École Polytechnique Fédérale de Lausanne*

Yannis Dimitriadis
*Universidad de Valladolid*

Juan I. Asensio -Pérez
*Universidad de Valladolid*

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## Abstract

As digital technologies permeate every aspect of our lives, the complexity of the educational settings, and of the technological support we use within them, unceasingly rises. This increased complexity, along with the need for educational practitioners to apply such technologies within multi-constraint authentic settings, has given rise to the notion of technology-enhanced learning practice as "orchestration of learning". However, at the same time, the complexity involved in evaluating the benefits of such educational technologies has also increased, prompting questions about the way evaluators can cope with the different places, technologies, informants and issues involved in their evaluation activity. By proposing the notion of "orchestrating evaluation", this paper tries to reconcile the often disparate "front office accounts" of research publications and the "shop floor practice" of evaluation of educational technology, through the case study of evaluating a system to help teachers in coordinating computer-supported collaborative learning (CSCL) scenarios. We reuse an internationally-evaluated conceptual framework of "orchestration aspects" (design, management, adaptation, pragmatism, etc.) to structure the case's narrative, showing how the original evaluation questions and methods were modulated in the face of the multiple (authentic) evaluation setting constraints.

**Keywords:** evaluation, mixed methods, hybrid methodologies, educational technology, orchestration.


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# Orquestando la Evaluación de Tecnologías Educativas Complejas: Estudio de Caso de un Sistema CSCL

*Luis P. Prieto*
*École Polytechnique Fédérale de Lausanne*

Yannis Dimitriadis
*Universidad de Valladolid*

Juan I. Asensio -Pérez
*Universidad de Valladolid*

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**Resumen**

A medida que las tecnologías digitales penetran en nuestra vida diaria, la complejidad de los entornos educativos, y del soporte tecnológico que usamos en ellos, aumenta. Esta mayor complejidad, y la necesidad de los educadores de aplicar nuevas tecnologías en entornos auténticos (con sus múltiples restricciones), han dado lugar a la noción de la práctica educativa con tecnología como una "orquestación del aprendizaje". Por otro lado, paralelamente, la complejidad de evaluar los beneficios de estas tecnologías educativas también ha aumentado, y no está claro cómo los investigadores-evaluadores pueden hacer frente a la multiplicidad de lugares, tecnologías, informantes y cuestiones que conlleva esta actividad evaluadora. Mediante la proposición de la noción de "orquestación de la evaluación", este artículo intenta reconciliar las "descripciones de cara al público" que se dan en las publicaciones científicas y la "práctica a pie de planta" de la evaluación de tecnologías educativas, a través del estudio de un caso en el que los autores evaluaron un sistema para ayudar a profesores a coordinar escenarios colaborativos soportados por ordenador (CSCL). En este artículo se reutiliza un marco conceptual sobre "aspectos de orquestación", evaluado internacionalmente, para estructurar la narrativa del caso, mostrando, por ejemplo, cómo las preguntas de evaluación y métodos planeados originalmente fueron modulados para hacer frente a las múltiples restricciones que planteó la evaluación en entornos educativos auténticos.

**Palabras clave:** evaluación, métodos mixtos, metodologías híbridas, tecnologías educativas, orquestación


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As in every other aspect of our lives, information and communication technologies (ICT) are slowly permeating educational practice. Our classrooms (no longer restricted to a physical space and face-to-face, synchronous interaction) are becoming messy, complex socio-technical ecosystems of resources (Luckin, 2008).

This increased complexity of technology-enhanced learning innovations, and the difficulties of implementing them while complying with the multiple constraints of authentic formal educational practice (curriculum, time available, etc.) have lately come into the foreground of attention in educational research, through the notion of "orchestrating learning" (Dillenbourg, Järvelä, & Fischer, 2009; Prieto, Holenko-Dlab, Abdulwahed, Gutiérrez, & Balid, 2011; Sutherland & Joubert, 2009). Although the international research community interested in this topic does not unanimously agree on its exact nature or its definition (see, for example, the special section of Computers & Education, 69, 2013 for a recent compilation of contrasting perspectives on the subject of orchestrating learning), there seems to be a common emphasis on proposing innovations that take into account the multiple restrictions of authentic educational settings, as opposed to, e.g., experiments in controlled conditions (Roschelle, Dimitriadis, & Hoppe, 2013).

In parallel with authentic educational settings' growing technological complexity, the research evaluation of such technological innovations is also becoming more intricate (Jorrín-Abellán, Stake, & Martínez-Monés, 2009; Treleaven, 2004). These evaluations made by researchers or teacher-researchers (e.g., involved in action-research) have to consider pedagogical and technological issues, the effects and interactions of multiple technological and legacy learning tools, and the point of view of multiple actors and informants (e.g., teachers, students, parents, other staff). Moreover, since learning itself may happen in different times and physical contexts (in the classroom, at home, in a field trip, on the way home), very often evaluation of the learning technologies has to follow the learning process across these contexts as well.

However, most evaluations of technological innovations for learning, including those that occur in authentic settings, still follow the same evaluation approaches and ways of presenting research that we used when that complexity was absent. If practice of evaluation is becoming increasingly complex, but such complexity is not reflected in how research

is presented, we might be facing a "shop floor problem" (Garfinkel, 2002), in which real field practice (what evaluators do as they go about their research) and the "front office accounts" of such practice (how such research is reported, e.g., in articles or in project reports) are increasingly disconnected.

In this paper we propose the notion of "orchestrating evaluation", a transposition of the concept of "orchestrating learning" explained above to the practice of evaluating educational technologies. Thus, in this context, orchestrating evaluation can be defined as the *coordination of the* (increasingly complex) *practice of evaluating learning technologies, within the multiple constraints of authentic educational settings*. In order to explore this notion, we apply a conceptual framework on orchestrating learning (proposed and evaluated at the level of the international research community on technology-enhanced learning, see (Prieto, Holenko-Dlab, et al., 2011; Prieto, 2012)) to organize the "shop floor account" of the evaluation of one concrete educational technology. This technology (GLUE!-PS) is a system to help teachers coordinate computer-supported collaborative learning (CSCL) situations (Prieto et al., 2013, 2014). We hope that this kind of account helps future evaluation practitioners (e.g., researchers, teacher-researchers) in articulating their evaluation practice (especially for those less experienced researcher-evaluators - as opposed to external/specialist evaluators), sparking up the debate of what evaluation practices are methodologically sound, but at the same time feasible within today's authentic educational settings.

The structure of the paper is as follows: in the next section, we briefly review basic notions of evaluation, especially in the field of educational technologies; then, the notion of "orchestrating learning" is explained, along with an existing conceptual framework to understand orchestration, and how it could be transposed to the practice of evaluation. Afterwards, we describe the context and methodology of the case study that will illustrate such transposition. The results of analyzing the evaluation of GLUE!-PS from an orchestration perspective are detailed in the following section. Finally, a brief discussion is included and conclusions are drawn for further research along this line of work.

## Evaluation of Educational Technology

The field of evaluation in educational research has a long and rich history. (Oliver, 2000) defines evaluation as "the process by which people make value judgments about things". (R. E. Stake, 2004) rather sees it as improving understanding of the quality of what we want to evaluate in its particular setting. Along its history, several "paradigms" (quantitative, qualitative, pragmatic…, see (Oliver, 2000)) and "generations" (measurement, description, judgment, response – see (Guba & Lincoln, 1989)) have been proposed, and are still hotly debated within the evaluation community, with no unanimous answers to how evaluation should be done.

In this paper, we focus on the evaluation of learning technologies, in the context of educational innovation projects, carried out by researchers or teachers acting as such (like in action-research). In this narrower context, evaluation judgments "concern the educational value of innovations, or the pragmatics of introducing novel teaching techniques and resources" (Oliver, 2000). As in the wider field of evaluation in general, in learning technologies this paradigms' and generations' debate remains unresolved, and some authors conclude that there is no "silver bullet" in evaluation (Oliver, 2000). This has led to a proliferation of methods and frameworks for evaluating learning technologies (examples of this proliferation can be seen in the Journal of Educational Technology & Society, 3(4) and 5(3)), ranging from more traditional professional/external evaluation to education practitioners' action-research (Schön, 1983).

One important issue identified by researchers on learning technologies evaluation is that of authenticity, that is, the notion of how closely an evaluation captures the context of an existing course (Oliver & Conole, 2004). This issue is closely related with the well-known problems of conducting evaluation through controlled experiments (Draper, 1997). Although the issue of authenticity is not at all new, there has been a recent revival of the interest in it from different voices within the technology-enhanced learning research community (McKenney, 2013; Roschelle et al., 2013). This increased interest in proposing technological innovations that address authentic educational settings will undoubtedly lead to a greater need of evaluations that occur in authentic contexts - our focus in this paper.

When introducing this article, we have argued that the increasing (technological as well as pedagogical) complexity of current educational settings necessarily implies a more complex evaluation process. In order to illustrate this, and to frame our evaluation case study later on, let us look at one concrete field within educational technologies: computer-supported collaborative learning (CSCL).

(Stahl, Koschmann, & Suthers, 2006) define CSCL as the branch of research that studies "how people can learn together with the help of computers". Indeed, these authors already anticipate that "the interplay of learning with technology turns out to be quite intricate". In evaluating CSCL, the social component of collaboration adds new difficulties to those typical of learning technologies evaluation (Treleaven, 2004).

As in the general learning technologies field, in CSCL we can also find a proliferation of approaches and frameworks to evaluation: (Economides, 2005; Ewing & Miller, 2002; Jorrín-Abellán et al., 2009; Martínez, Dimitriadis, Rubia, Gómez, & de la Fuente, 2003; Pozzi, Manca, Persico, & Sarti, 2007; Tsiatsos, Andreas, & Pomportsis, 2010; Vatrapu, Suthers, & Medina, 2008). More recently, (Lonchamp, 2012) highlighted the inherent difficulty of analyzing and evaluating CSCL systems, using Rabardel's instrumental theory to explain the different moments that have to be taken into account (preparation phase vs. use phase of the system) when analyzing them. Moreover, certain authors have suggested that recent horizontal trends in computer-supported learning, such as the possibility of having "ubiquitous learning" (Bruce, 2008) may further complicate the evaluation of learning scenarios and technologies across different moments and settings (Jorrín-Abellán & Stake, 2009).

However, for the evaluation practitioner (e.g., a researcher aiming at evaluating a CSCL innovation), most of these approaches and frameworks pose a common problem: they are very often expressed in general, rather abstract terms. Although this is completely understandable (since they are purposefully de-contextualized as they aim to be useful in multiple TEL/CSCL contexts), it nonetheless poses an "abstraction gap" that is not easy to bridge for the unexperienced evaluator. This gap could be compared to the one facing teachers when they have to apply de-contextualized researcher-proposed principles in the concrete context of their own classrooms (Prieto, Villagrá-Sobrino, et al., 2011). Although there exist efforts that try to guide non-expert evaluators with question itineraries,

graphical representations and illustrative examples (e.g., (Jorrín-Abellán et al., 2009)), for most evaluation approaches only a few reported research examples are available. However, similar to (Garfinkel, 2002)'s "front-office accounts", these research reports often center on showing the effectiveness of one innovation/technology for learning, and not in the practice of evaluation itself (in Garfinkel's terms, the "shop floor practice" of evaluation).

In order to help TEL and CSCL researcher-evaluators bridge this "abstraction gap", in the following section we will posit the notion of "orchestrating evaluation". This notion highlights aspects of the evaluation process which often are not described in enough detail in reported research, and which can help evaluators (especially non-experts) understand how the evaluators of learning technologies go about their practice (especially when operating inside the constraints of authentic educational settings).

## Practice within the Multiple Constraints of an Authentic Setting: Orchestrating Learning and Orchestrating Evaluation

In an English dictionary, 'orchestrate' is defined as "to arrange or combine so as to achieve a desired or maximum effect". In educational research literature, the word orchestration has been frequently used as a metaphor for teacher practice (e.g., (Kovalainen, Kumpulainen, & Satu, 2001)), given the fact that teachers often have to arrange different elements to achieve a maximum learning effect. However, in learning technologies research this term has gained special relevance in the past few years (Sutherland & Joubert, 2009).

Particularly in the field of CSCL, (Fischer & Dillenbourg, 2006) defined orchestration as the process of "productively coordinating supportive interventions across multiple learning activities occurring at multiple social levels" (cited in (Dillenbourg et al., 2009)). However, as noted by (Prieto, Holenko-Dlab, et al., 2011), there is a disparity of opinions and emphases around this term in the research community. Trying to synthesize these differing points of view, (Roschelle et al., 2013) highlight the common emphasis on paying attention, when proposing learning technology innovations, to the multiple constraints (curriculum, time, discipline,… i.e., not only the learning process) that characterize educational practice in authentic settings. (Dillenbourg, 2013) posits that orchestration can be

brought into attention by looking at the different activities that conform the educational practice with technologies in an authentic classroom, even if they are not directly related to the learning process itself (e.g., the time taken to log into the system that students will use for learning). (Perrotta & Evans, 2013), on the other hand, remind us of the implicit assumptions of these notions of orchestration (teaching as neutral, rational practice towards maximizing learning), and highlight the complex interplay of social pressures and expectations that surround the use of technology in the classroom.

After a literature review on the use of the term 'orchestration' in the field of technology-enhanced learning, (Prieto, Holenko-Dlab, et al., 2011) propose eight different aspects that make up the complex notion of orchestration. Five of these aspects are descriptive of the orchestration process itself: *Design* (the preparation, planning of the learning activities), *Management* (including multiple aspects of the coordination during the activities: time management, group management, maintaining discipline, etc.), *Awareness* (the perceptual processes involved in the coordination, assessment of the learning progress, etc.), *Adaptation* (planned or unplanned modifications to the learning activities, to address unexpected events or learning opportunities), and the respective *Roles of the actors* involved in this process (who performs the aforementioned processes: the teacher, a researcher team, technical staff, students themselves, etc.). They also propose three additional aspects that relate with the reasons upon which the coordination is performed: *Theories* (the explicit or implicit models upon which actors construct the coordination), *Pragmatism* (the contextual constraints that define what is possible or mandatory in the authentic setting, e.g., the adherence to a curriculum or the fixed time duration of a session) and *Alignment* (the combination of different contextual features, tools and elements into synergies to achieve an effective learning experience). This framework tries to reflect the points of view of a multi-disciplinary international research community, and has been indeed evaluated by a considerable portion of such international community (see (Prieto, 2012)). This consensus-based validation highlights the completeness of the framework to address (often conflicting) perspectives on the subject, as well as its value for novice researchers, to help them frame and place their research within this field.

In this paper, we posit the notion of "orchestrating evaluation" as *the process of coordinating the practice of evaluating learning technologies, within the multiple constraints of an authentic educational setting*. By similitude with the notion of orchestrating learning, we can think of the abstract term "practice" as standing for *the processes and tools (often used in multiple contexts)* that evaluators use to achieve such evaluation. As in Garfinkel's "shop floor problem", we propose that a detailed account of the multi-constrained, complex process followed (beyond the methodology and results often provided when reporting research) can help in understanding evaluation practice (especially for novice evaluation practitioners). In order to operationalize this "orchestrating evaluation" concept, we "transpose" Prieto et al.'s framework presented above (which tries to characterize the complexity of educational practice in authentic settings) to the activity of evaluating learning technologies in authentic educational settings (a related but different complex practice). We hypothesize that this framework can be especially suited for this purpose, as it was developed in trying to widen researchers' focus of attention on a complex practice while encompassing conflicting schools of thought and perspectives (as often happens in the field of evaluation), and because of its pedagogical value for novice researchers (one of our main target audiences in this paper). In this new context of evaluating educational technologies within the multiple constraints of authentic settings, the framework aspects can be interpreted in the following way:

- **Design**: Encompasses the original planning of the evaluation (evaluation design), including the selection of techniques, informants, etc. This is the aspect that most evaluation frameworks (e.g., the CSCL-EREM described in (Jorrín-Abellán et al., 2009)) focus on.
- **Management**: The multiple activities involved in the evaluation enactment, both explicit in the evaluation design (data gathering events, data analysis, etc.) and implicit/logistical (entering the field, social coordination of informants, setup of physical/virtual infrastructures for evaluation, data conversions/pre-processing, etc.).
- **Awareness**: The ongoing perceptual processes (i.e., monitoring) of the evaluation process, normally aimed at assessing whether the evaluation objectives will be met. This includes meetings of the

evaluation team, journals or reflections during the evaluation process, pre-assessment of the gathered data, etc.

- **Adaptation**: Includes any modifications to the original evaluation design, as evaluators try to meet the evaluation objectives within the setting constraints (as perceived through the awareness mechanisms above). These adaptations can be either due to unexpected occurrences, unacknowledged constraints, failures to get data in the quantity/quality needed, etc.
- **Role of actors**: Covers who is involved in the evaluation, including the evaluator team, who/what is the evaluand (the object of evaluation), who are the main stakeholders, their respective roles, how it affects the labor of evaluation, and how the evaluation will be reported to each of them.
- **Theory**: Describing what are the theories and models that shape the evaluation, at the different levels – from evaluator's ontological stance (positivist, interpretive, pragmatic) to concrete theories of learning and evaluation, evaluation frameworks, etc. that will shape how the evaluation is conducted.
- **Pragmatism**: The myriad of authentic setting constraints that have to be respected during the evaluation (curriculum, time restrictions, available resources), as well as unexpected opportunities that may rise in the authentic context during evaluation (e.g., for gathering further data, etc.).
- **Alignment**: The efforts of evaluators in trying to find new opportunities and avenues of exploration as the different elements above interact with each other (e.g., incorporating unexpected evaluation adaptations as designed features in further research iterations, using unexpected but available actors as new sources of information, using uncovered setting constraints as emerging or future research challenges).

In the following section, we illustrate the application of this framework to analyze one case of evaluation of an educational technology (thus, in a sense, we perform a meta-evaluation): a CSCL system to support teachers in orchestrating CSCL scenarios. Please note that the word "orchestration" is also part of the research goal of the evaluated technology. To avoid confusion, we will refer to "orchestrating learning" (the goal of the

technology evaluated) and "orchestrating evaluation" (the goal of the meta-evaluation performed in this article) throughout the text.

## Context (and Methodology): a Technological System for Teachers Doing CSCL

The evaluation that we analyze in this study took place in the context of the GSIC-EMIC research group at the University of Valladolid (Spain). For over a decade, this multi-disciplinary group has been doing research in the field of CSCL (after years of research in the fields of artificial intelligence and cooperative work - CSCW). The group, formed by engineers, computer scientists and pedagogists, has made great emphasis in supporting the labor of teachers that wish to put CSCL scenarios in practice, both through innovative technologies (e.g., (Bote-Lorenzo et al., 2008; Villasclaras-Fernández, Hernández-Leo, Asensio-Pérez, & Dimitriadis, 2013)) and conceptual tools (Gómez-Sánchez et al., 2009; Hernández-Leo, Asensio-Pérez, & Dimitriadis, 2005). Methodologically, the group has employed a variety of approaches, both quantitative and qualitative, with an emphasis in interpretive perspectives (e.g., (Martínez-Monés et al., 2005)) and mixed-method approaches (see, e.g., (Martínez et al., 2003)).

More concretely, the technological innovation whose evaluation we will be studying is a system called GLUE!-PS. This system is mainly composed by a software architecture and an associated data model (first presented in (Prieto, Asensio-Pérez, Dimitriadis, Gómez-Sánchez, & Muñoz-Cristóbal, 2011)), which aim at helping teachers manage CSCL scenarios that use distributed (web) learning environments (DLEs) as their main technological support. DLEs are learning environments composed by a heterogeneous array of web 2.0 tools (blogs, wikis, shared office applications, etc.) and Virtual Learning Environments (VLEs, e.g., Moodle), as coined by (MacNeill & Kraan, 2010).

As reported in (Prieto et al., 2013), this kind of environments is difficult to manage for non-technology experts, and it is not trivial to create a technological support composed of such an heterogeneous array of web applications, that is coherent with the teacher's pedagogical intentions. The GSIC-EMIC research team developed a prototype implementing the GLUE!-PS proposal (available at http://gsic.uva.es/glueps, last visit: January 2014). This prototype currently supports deploying teachers'

activity ideas (expressed in one of three learning design formats), transforming them into multiple different DLEs made up of combinations of the Moodle and MediaWiki learning environments, as well as more than 15 other "Web 2.0" tools. The user interface of GLUE!-PS, as the teacher would see it, is shown in Figure 1. Although initially conceived as an aid for the teacher in the process of preparation of the learning activities' technological support, further features were added in the process of trying the system in authentic CSCL situations (e.g. the ability to perform run-time changes in the DLE according to unexpected events). This led the research team to conceive GLUE!-PS as supporting the teachers' practice in a wider sense, within the constraints of authentic CSCL settings, i.e., as a tool supporting teachers' "orchestration of learning". However, such "orchestration learning" support had to be validated empirically, by its use in real courses, and by a wide variety of teachers from different disciplines. Such validation, and especially its results, are described in (Prieto, 2012; Prieto et al., 2014). In the following section, we rather focus on describing how the *process* of evaluating GLUE!-PS was performed, how we "orchestrated the evaluation".

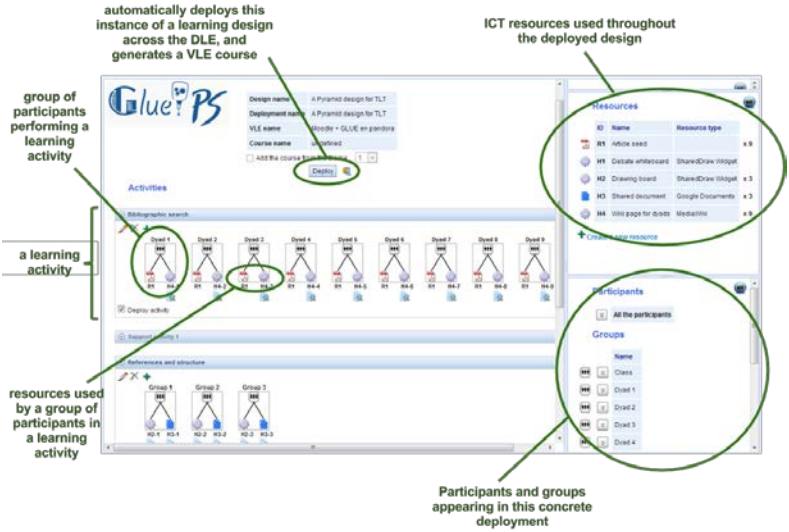



*Figure 1*. Graphical user interface of the GLUE!-PS prototype. Taken from (Prieto et al., 2014)

For this meta-evaluation study, we have followed (R. E. Stake, 1983)'s responsive approach to evaluation (or meta-evaluation in this case), paying close attention to the activity of evaluating the system, and trying to respond to the information needs of the "people on site", that is, the researcher team that is evaluating the technological system. In this case study, the main research question (and the main meta-evaluative issue used to explore it) has been: 'How did researchers orchestrate the evaluation of GLUE!-PS?'. In order to focus our analysis, we have used an anticipatory data reduction to illuminate this main issue, through eight topics that follow the eight aspects of "orchestrating evaluation" framework presented in the previous section. The data sources used for the study include publications related to the evaluation of GLUE!-PS (including the main proponent of the system's Ph.D. thesis, Prieto, 2012), internal research reports, personal research notebook/notes, team emails and other internal documentation generated during the evaluation.

## Orchestrating the Evaluation of GLUE!-PS

As discussed in ((Prieto, 2012) - Chapter 5) and (Prieto et al., 2014), the GLUE!-PS system was evaluated with regard to the orchestration support it provided to teachers in their CSCL practice. This evaluation was done through several studies, in real university courses and in teacher workshops with non-technical teachers from a variety of disciplines. The evidence gathered supports a number of findings, which are summarized graphically in Figure 2:

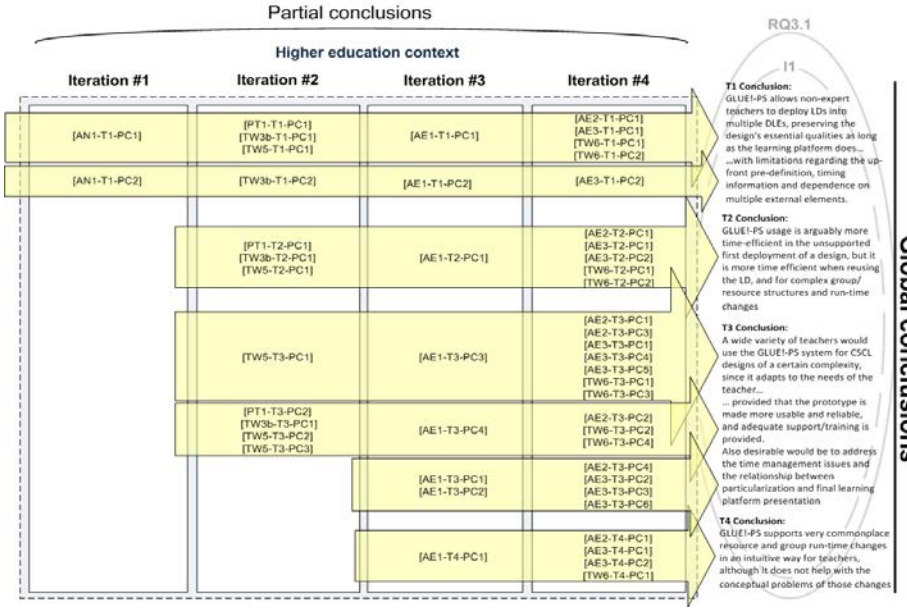



*Figure 2*. Representation of the results of the evaluation of the orchestration support provided by GLUE!-PS, taken from (Prieto, 2012). The labels between brackets represent partial conclusions extracted from different evaluation happenings (e.g. TW5 for a teacher workshop, AE1 for an authentic course experience, etc.)

These are the *results* of the evaluation of GLUE!-PS. But, how were those evaluation results achieved? What was the *evaluation process* that led to these findings? In the following paragraphs we summarize this meta-evaluation following the "orchestrating evaluation" framework proposed above. The order chosen for the portrayal of each topic (different from the one used in the framework description above) intends to provide a more understandable argument line (as the "orchestrating evaluation" framework does not mandate a concrete order in the analysis of the eight aspects).

## Theory

From the point of view of the "paradigm debate" of evaluation, our stance is more in line with a *pragmatic*, post-modern approach that "acknowledges that different underpinnings exist, and adopts each when required" (Oliver, 2000). Within this general worldview, our research team chose an "engineering method" approach (typical in software engineering, see (Glass, 1995; Orlikowski & Baroudi, 1991)) to the research around GLUE!-PS. This method, like many others, contemplates an "evaluative" phase, without prescription of a concrete evaluation method. However, it is important to acknowledge that this kind of methods by definition see the evaluation as an *iterative* endeavor, with our findings and understanding of the learning technology and its impact on the authentic setting being expanded and triangulated with every new evaluation iteration.

Aside from this iterativeness, our evaluation approach was mediated by the CSCL-EREM framework (Jorrín-Abellán et al., 2009), an instrument aimed at helping researchers design their evaluations, following a *responsive* approach to it (see the 'Design' section below for further details). Following the recommendations of this framework, our aforementioned pragmatic stance, and the recommendations of many CSCL researchers (Stahl et al., 2006; Strijbos & Fischer, 2007), mixed methods (Creswell, 2009) were considered the best option for data gathering and analysis within our evaluations. Since the phenomenon of "orchestrating (technology-enhanced) learning" is relatively new and still ill-defined, with little or no clear research constructs/instruments that can be used in a deductive or quantitative way, we considered the evaluation of GLUE!-PS as rather exploratory, thus slanting our methods and techniques more to the qualitative side. Finally, it is interesting to note that the "orchestrating learning" framework by (Prieto, Holenko-Dlab, et al., 2011) was elaborated in parallel by a partially-overlapping researcher team, during the course of this evaluation. This lead to the inclusion of such a framework to operationalize the evaluation rather late within the evaluation process (see the 'Adaptation' section below).

## Role of the Actors

As it has been mentioned, the evaluation of GLUE!-PS was performed by a researcher team from the same GSIC-EMIC research group that proposed the system (as opposed to having an external evaluation team). As mentioned earlier, the system proposed and its evaluation were part of a Ph.D. thesis, whose central theme was the support of "orchestration of learning" in CSCL scenarios using DLEs (Prieto, 2012). This implied that the main evaluator was a relatively inexperienced researcher with engineering background, even if supported closely by a core team of two very experienced CSCL researchers (the Ph.D. advisors). The evaluation process was also supported by a varying, multi-disciplinary set of researchers from the same group (up to four researchers, including both Ph.D. students and doctors from pedagogy or engineering), who performed different roles throughout the process, as needed: methodology and engineering consultancy, aiding in data gathering and analysis, etc.

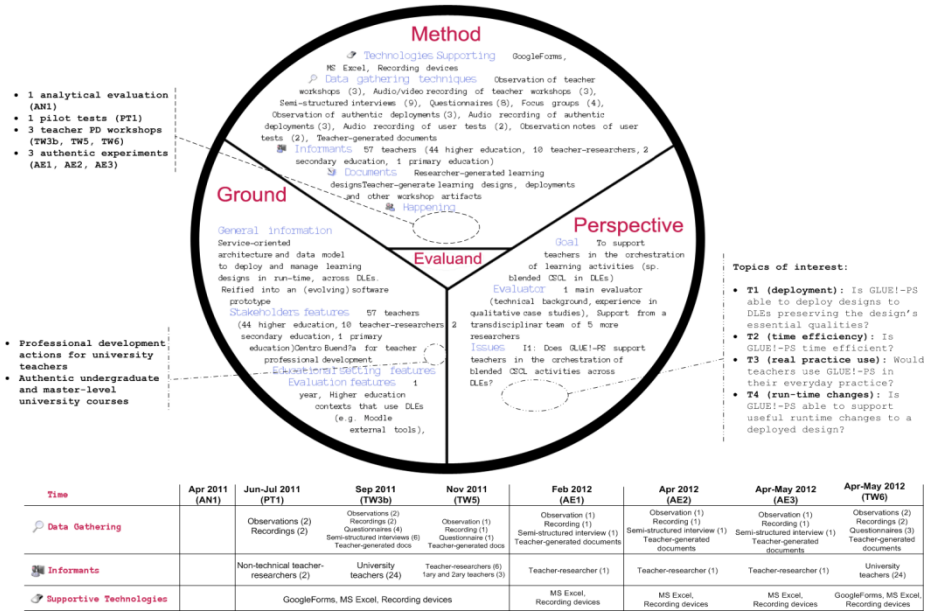
Other important stakeholders in the evaluation process were the informants, most of them university teachers. In this regard, two main groups of teachers can be distinguished: a) teachers who used the GLUE!-PS system to orchestrate CSCL activities in authentic university courses; and b) teachers who used and assessed GLUE!-PS in semi-authentic professional development workshops. The first group of teachers was formed by teacher-researchers (with varying degrees of teaching experience, but who knew about CSCL principles) from the same research group that proposed the system, while the second group was formed by a wider group of university teachers from the same University of Valladolid, with little or no prior knowledge about CSCL. These two sets of informants (especially the first one) can introduce different biases in the data gathered from the evaluation, and cannot be considered (statistically) representative of the teacher population to whom the GLUE!-PS system was aimed. However, the decision of structuring the evaluation around these two groups was taken in trying to find a balance between informants that could afford for *deeper data gathering* (teachers that trusted the innovation enough to dedicate the time needed for learning and using the system in authentic conditions, and to provide extensive data to be gathered by evaluators), and less biased informants with a *wider variety of perspectives*,

backgrounds and attitudes towards ICT and CSCL (but with the common trait of wanting to know more about CSCL).

Finally, although the technological tools used for the different aspects of the evaluation could be considered a non-human actor of the evaluation, in this description we have chosen to mention those within its closest related aspect, for increased clarity.

## Design

In order to plan and organize the evaluation, the research team used the CSCL-EREM framework (Jorrín-Abellán et al., 2009). This framework was considered especially adequate for this purpose, as it specifically addresses innovations (technological or otherwise) in the field of CSCL, and it was especially devised with an "inexperienced evaluator" in mind. The framework is structured along different "question paths" (depending on the nature of the 'evaluand', the thing to be evaluated), that help define the evaluation's contextual information (Ground), the goals, important issues and evaluator team (Perspective), as well as the techniques, tools, informants that can help evaluators reach those goals (Method). The framework also provides other aids to the evaluation design, such as graphical representations of the design (see Figure 3) and recommendations about writing the research report. It is interesting to note that such graphical representations and the different question paths have also been implemented technologically through a web application that, e.g., generates automatically CSCL-EREM's graphical representations and research reports (see http://pandora.tel.uva.es/cscl-erem/, last visit: January 2014).




| Time | Apr 2011 (AN1) | Jun-Jul 2011 (PT1) | Sep 2011 (TW3b) | Nov 2011 (TW5) | Feb 2012 (AE1) | Apr 2012 (AE2) | Apr-May 2012 (AE3) | Apr-May 2012 (TW6) |
|---|---|---|---|---|---|---|---|---|
| Data Gathering | | Observations (2) Recordings (2) | Observations (2) Recordings (2) Questionnaires (4) Semi-structured interviews (6) Teacher-generated docs | Observation (1) Recording (1) Questionnaire (1) Teacher-generated docs | Observation (1) Recording (1) Semi-structured interview (1) Teacher-generated documents | Observation (1) Recording (1) Semi-structured interview (1) Teacher-generated documents | Observation (1) Recording (1) Semi-structured interview (1) Teacher-generated documents | Observations (2) Recordings (2) Questionnaires (3) Teacher-generated documents |
| Informants | | Non-technical teacher-researchers (2) | University teachers (24) | Teacher-researchers (6) 1ary and 2ary teachers (3) | Teacher-researcher (1) | Teacher-researcher (1) | Teacher-researcher (1) | University teachers (24) |
| Supportive Technologies | | GoogleForms, MS Excel, Recording devices | | | MS Excel, Recording devices | MS Excel, Recording devices | MS Excel, Recording devices | GoogleForms, MS Excel, Recording devices |

*Figure 3*. Graphical representation of the GLUE!-PS evaluation design, based on the CSCL-EREM framework. Taken from (Prieto, 2012).

However, this "evaluation design" was not a punctual process that happened only at the beginning of the evaluation process. As we have mentioned, the research around GLUE!-PS, and its evaluation, were done in an iterative fashion. Indeed, the evaluation design as it appears on Figure 3 is only the final state of the evaluation design, after several re-conceptualizations (see 'Adaptation' below). For instance, in this last incarnation of the evaluation design, the conceptual framework for "orchestrating learning" (Prieto, Holenko-Dlab, et al., 2011) was used to operationalize the issues and topics that the evaluation should focus on, within the complex and multifarious notion of "orchestration" (thus complementing well CSCL-EREM's advice, which does not go into the specifics of how to choose the issues and topics to focus a concrete evaluation effort). In this case, the four topics of interest in the right hand side of Figure 3 represent the four aspects of orchestration that GLUE!-PS was designed to support.

## Management

The activity of managing the evaluation activity, aside from the general methodological guidelines outlined above (which often appear in the reporting of results, such as (Prieto, 2012; Prieto et al., 2014)), is seldom described in learning technology evaluations. Due to the pragmatic stance of the researcher team (see 'Theory' above), the *multiplicity of 'happenings'* (data gathering events, such as the intervention in a real course or a teacher workshop) and of data gathering techniques within each happening (recordings, interviews, observations, document analyses, … as suggested by the CSCL-EREM framework), were essential features in the evaluation of GLUE!-PS.

This multiplicity required a considerable management effort, which implied the *coordination of data gathering* (e.g., by having one or more preparatory meetings with the 'data gathering team', preparing the necessary infrastructure like recording devices or gathering of logs from involved systems, etc.), the *preparation and running of the events* themselves (preparing the workshop materials for a workshop, ensuring that the ICT infrastructures work as expected, preparation of questionnaires, interview guides and other instruments, etc.), and the coordination of the *data analysis and synthesis process* (e.g., transcription of audio and video sources, meetings among the evaluation team to review available evidence, etc.). It is seldom acknowledged (but it is our experience after these and other evaluation efforts) that this myriad of activities, and the multitude of little *logistic details* that they imply (having every member of the team briefed on the goals of the happening, reviewing and piloting the research instruments beforehand, testing the technologies involved in the happening just before the happening itself, having contingency plans for the failure of the different human and technological elements involved), can have a critical impact on the quality of the data gathered and the findings to be extracted from them. In this sense, having the support of a numerous and varied researcher team proved invaluable.

Indeed, even with this support, the evaluation process entailed a considerable effort, which called for *pragmatic compromises* between the available data and the analyses performed on them (e.g., semi-transcribing the audio for an interview and coding that semi-transcription, instead of doing a full transcription and coding of that data source). The timing of the

different happenings, which was often dictated by extrinsic contextual constraints (see 'Pragmatism' below), and included several overlapping or simultaneous happenings, also contributed to this need of calibrating evaluation efforts. Despite the negative impact that these compromises in data gathering and analysis may have in the studies' credibility, we consider the value of the multiplicity of informants and data gathering techniques (given their potential for triangulation of findings and detection of emergent issues, i.e., for learning about the impact of the learning technology under study) as outweighing the differential added value of a more exhaustive analysis.

## Awareness

Following directly from the multiplicity and complexity of the evaluation activities mentioned above, it was crucial during the evaluation to have a clear awareness of how the process was unfolding and whether the evaluation goals were being achieved. Although (Prieto, 2012) portrays the research and evaluation of GLUE!-PS as happening in four clearly-marked iterations (which seem to imply a phase of reflection on the findings and planning for the next iteration), the process was in reality much less linear and compartmentalized, with evaluation happenings following (or overlapping) one another in rapid succession.

In this context, different awareness mechanisms were implemented by the evaluation team, at different levels: a) several "evaluation reports" were produced by the main researcher, detailing (at a certain point in time) the overall evaluation approach and proposed evaluation happenings along with their more detailed design; b) periodic "core researcher team" (normally, the main researcher and his two advisors) meetings in which the goals of the research and the needed evaluation strategy were reviewed; c) for each happening, "extended researcher team" meetings (including the core researcher team plus other members involved in the happening at hand), held before, during and after a happening, in which the tactical details and findings of the happening were discussed, and adaptation measures were discussed; d) the (often collaborative) preparation of happening materials, data gathering instruments, etc. was performed using collaborative tools (such as Google Docs, see https://drive.google.com, last visit: January

2014), which enabled agile and fast preparation and reviewing of materials, coordination of pending tasks, etc.

## Adaptation

The awareness processes mentioned above allowed the researcher team to rapidly adapt the evaluation strategy in the face of recently-acquired findings, or to modify the concrete data gathering of a happening in the face of unexpected events of a happening. To illustrate these adaptations, let us look at a few examples which occurred during the evaluation of GLUE!-PS:

- In several of the evaluation's happenings, especially in teacher workshops, the technology under study (or other technologies upon which the happening relied - e.g. the network access in the room) failed unexpectedly (an event that is nevertheless quite common when dealing with prototypes developed for research purposes). These events often decreased the amount and quality of the data gathered, as participants could not experience in full the support that the GLUE!-PS system provided. This, in turn, led to the happening providing insufficient findings about the evaluation issues, and prompted for the realization of further happenings to gather more data.
- Another common adaptation was derived from the fact that teacher workshops often did not follow too closely its original plan (e.g., if participant teachers, or if facilitators spent more time than expected explaining a crucial part of the workshop). The consequent adjustments in the schedule often had an impact in the evaluation's data gathering (e.g., a questionnaire could not be answered, or had to be answered online after the workshop, etc.). In these cases, the dual nature of the teacher workshops as evaluation happenings and as authentic professional development actions forced the researcher team to strike a careful balance between addressing the learning needs of participants, and collecting data for the evaluation (with the former taking precedence over the latter, for ethical reasons).
- Opportunities for emergent happenings (not originally planned in the overall evaluation design) also occurred during the evaluation process, and served to offset the negative impact of the unexpected adaptations mentioned above (see also Figure 4). In this regard,

having a numerous and varied number of teachers as members of the research group, as well as having a track record of professional development actions within the university, proved invaluable for the researcher team. The fact that the GLUE!-PS system was intended to solve existing problems of the teacher community also helped, as it potentially transformed the participation in the evaluation into a win-win situation for participants.

- Another important adaptation that occurred during the evaluation was the modification (or rather, the increased focus) of the different notions that guided the evaluation. As we can see in Figure 4, the research question behind the evaluation was adapted as the features of the GLUE!-PS system evolved (prompted in part by the findings of the different evaluation happenings). The way in which the research question was explored (e.g., through evaluative topics in an anticipatory data reduction method, see (Miles & Huberman, 1994)) also evolved as the researcher team gained an understanding of what the notion of orchestration entailed (prompted in turn by the development of the conceptual framework in (Prieto, Holenko-Dlab, et al., 2011)). The number and nature of happenings, as it has been mentioned, also evolved: as initial evaluations turned out insufficient evidence, new ones were planned, and additional ones emerged as new opportunities to provide further evidence about new system features, or to explore recently-added evaluation topics.

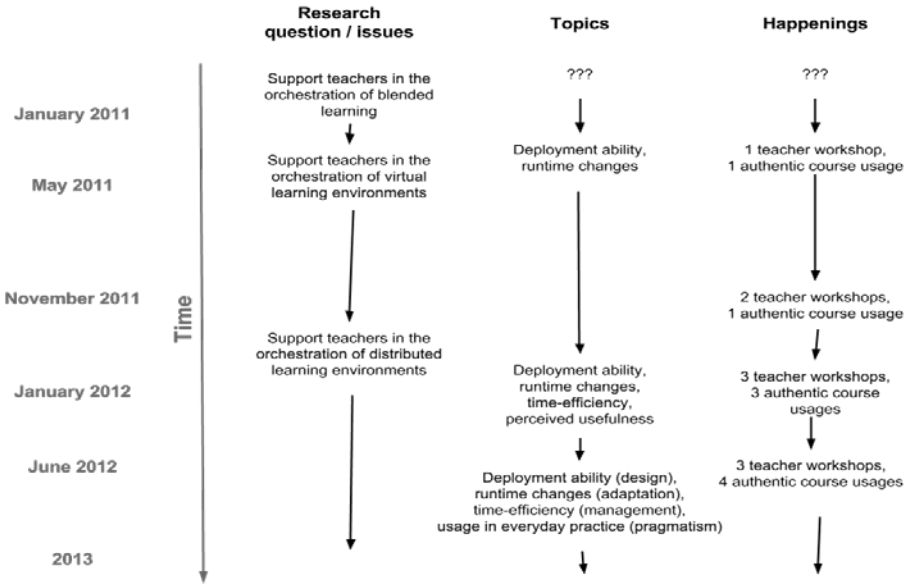



*Figure 4*. Chronological evolution of selected main concepts in the evaluation of the GLUE!-PS system.

As it can be seen from these adaptations, the evaluation process, which was described in an orderly manner (to be understandable by the readers) in the "front office accounts" of publications, is in reality a much more fluid and malleable process, in which the goals, the analytical lens and the methods used are adapted to the pragmatic constraints and unexpected events of the setting. This can be considered a form of the "progressive in-focus" that characterizes responsive evaluation (Stake, 2010).

## Pragmatism

In the previous sections, the impact of several setting constraints have been mentioned, and many others also had to be dealt with by the researcher team: having to adhere with the academic course calendar (both for the inclusion of interventions in authentic course usages, and for programming the teacher workshops in times of lower teacher workload), the (limited) availability of specific people (e.g., teacher researchers and other

informants), the necessity to adapt data gathering to what was feasible to be done by volunteer teachers in the limited time allotted to a teacher workshop, etc. The pragmatic adherence of the researcher team's evaluation activities to what was possible in a certain moment in the setting is also clearly represented by the in-happening adaptations and "damage control" in the face of unexpected occurrences, which had to balance the need for data gathering and the response to the informants' needs in terms of professional development (see 'Adaptation' above).

## Synergies

As it can be seen from all of the above, the researcher team tried to make the most of the contextual elements at their disposal: both in terms of human resources (e.g., militant teachers willing to try out the GLUE!-PS system in their courses, workshop participants that agreed to providing information as they learned about CSCL, etc.), as well as technological and material resources (the usage of publicly available tools for coordination and management of the researcher team, specific evaluation tools like the CSCL-EREM platform, university facilities suitable for the kind of collaborative work that the happenings required, etc.).

## Conclusion

In this article, we have presented the notion of "orchestrating learning", used in the field of TEL to address the increased complexity of educational practice in authentic settings, and we have applied it to the evaluation of learning technologies in such complex authentic TEL settings, which also has become more intricate. Moreover, we have operationalized this new notion of "orchestrating evaluation" by reusing a conceptual framework for research in TEL orchestration, which aims at helping identify evaluative tensions towards a more holistic view of such orchestration. This transposition can be intuitively justified, for example, if we consider evaluation of learning technologies as a learning process about the impact such technologies in an authentic setting. This evaluation learning process is often collaborative (within a research/evaluator team), supported by computers (hence, CSCL), and bound to the multiple constraints of an authentic educational setting (in which the evaluation occurs). Thus, it has

to be somehow orchestrated. Other frameworks for orchestrating learning have also been proposed, such as (Dillenbourg, 2013)'s "kernel and rings" model. Considering the application of these other models to orchestrating evaluation is left for future efforts along this line.

One of this paper's main contributions is to provide a meta-evaluation of one example evaluation of learning technologies. This structured account illustrates, through a concrete example, many issues commonly mentioned in research methodology manuals (adapting to emergent questions, the evolution of the research questions and their focus, etc.), but whose contextualized operationalization in the field is seldom described. Our "shop floor description" can be related to general evaluation issues such as (Guba, 1981)'s criteria for quality in research, or (R. Stake, 2010)'s progressive in-focus. However, fully exploring these relationships exceeds the scope of this publication, and will have to be addressed in the future.

In this paper we have offered a post-hoc analysis of an existing evaluation of learning technologies, to gain insights into how it was orchestrated. However, the notion of orchestrating learning and the operationalization in different aspects that we have done here could also be applied in other moments of the evaluation process. For example, we could envision applying this notion while designing the evaluation of a learning technology, e.g., by integrating this transposed orchestration framework with existing frameworks for evaluation design, such as the CSCL-EREM (Jorrín-Abellán et al., 2009). Again, this is left for future research, as is also left the potential generalization of this "orchestrating evaluation" framework beyond the evaluation of learning technologies, to evaluation of educational innovations in general, and even beyond that, to a general evaluation approach. The fact that most evaluations today are becoming cross-contextual, require teamwork and the use of multiple technologies, point to an increasing need in the researcher and evaluation communities of support in understanding how we can go from the abstract evaluation manual to the contextualized practice of evaluation within a multiplicity of constraints.

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**Luis P. Prieto** is Research Scientistat the CHILI Lab, École Polytechnique Fédérale de Lausanne, Switzerland. ORCID id: 0000-0002-0057-0682

**Yannis Diamitriadis** is Full Professor in the Department of Signal Theory of University of Valladolid, Spain. ORCID id: 0000-0001-7275-2242

**Juan I. Asensio** is Professor in the Department of Signal Theory of University of Valladolid, Spain. ORCID id: 000-0002-1114-2819

**Contact Address:** EPFL IC ISIM CHILI, RLC D1 740 (Rolex Learning Center), Station 20, CH-1015 Lausanne, Switzerland. E-mail: luis.prieto@epfl.ch

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# Sharing Resources in Open Educational Communities

Paolo Tosato[1]; Beatriz Carramolino Arranz[2] & Bartolomé Rubia Avi[2]

1) Department of Philosophy and Cultural Heritage, Ca' Foscari University of Venice, Italy
2) Departament of Pedagogy, University of Valladolid, Spain

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# Sharing Resources in Open Educational Communities

Paolo Tosato
*Ca' Foscari University of Venice*

Beatriz Carramolino Arranz
*University of Valladolid*

Bartolomé Rubia Avi
*University of Valladolid*

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**Abstract**

The spread of Internet and the latest Web developments have promoted the relationships between teachers, learners and institutions, as well as the creation and sharing of new Open Educational Resources (OERs). Despite this fact, many projects and research efforts paid more attention to content distribution focusing on their format and description, omitting the relationship between these materials and online communities of teachers.

In this article we emphasize the importance of sharing resources in open educational communities (OEC), analysing the role of OERs and OEC in teachers' lifelong learning. Investigating their current usage, we aim to discover whether their interweavings could be an effective approach to support sharing of resources among teachers and to promote new educational practices.

Through two surveys which involved more than 300 teachers from across Europe it was possible to highlight that is not simple to stimulate the collaboration among teachers, both online and face to face; nevertheless, when this happens, it seems to be a good way to promote formal and informal learning for teachers, as well as innovation in their professional practices.

**Keywords:** Open Educational Communities, Open Educational Resources, sharing, collaboration, lifelong learning


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# Compartiendo Recursos en Comunidades Educativas Abiertas

Paolo Tosato
*Ca' Foscari University of Venice*

Beatriz Carramolino Arranz
*University of Valladolid*

Bartolomé Rubia Avi
*University of Valladolid*

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**Resumen**

La difusión de Internet y los últimos desarrollos Web han potenciado los vínculos entre profesores, estudiantes e instituciones, así como la creación y compartición de nuevos Recursos Educativos Abiertos (REAs). A pesar de ello, muchos proyectos y esfuerzos de investigación han prestado especial atención a la distribución del contenido, centrándose en su formato y descripción, si tener en cuenta las relaciones entre estos materiales y las comunidades de profesores online.

Este artículo enfatiza la importancia de compartir recursos en Comunidades Educativas Abiertas (CEAs), analizando del rol de los REAs y de las CEAs en la formación permanente del profesorado. Investigando el uso actual de ambos, nos planteamos descubrir si su interconexión permite generar una aproximación adecuada para apoyar la compartición de recursos entre profesores y para promover nuevas prácticas educativas.

A través de dos encuestas, en las que participaron más de 300 personas de procedencia europea, ha sido posible resaltar la dificultad de estimular la colaboración entre profesores, ya sea de forma presencial u online. En cualquier caso, cuando existe colaboración, parece ser una forma eficaz de promover el aprendizaje formal e informal de los profesores y la innovación en sus prácticas profesionales.

**Palabras clave:** Comunidades Educativas Abiertas, Recursos Educativos Abiertos, compartir, colaboración, aprendizaje a lo largo de la vida


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Nowadays emergent open educational phenomena are taking place and evolving day by day, promoting the democratization of education. Phenomena like the Massive Open Online Courses (in their several presence forms) (Siemens, 2013) and the Semantic Web based Services (Fensel et al., 2011), such as automatic content aggregators based on users' personalization, are facilitating the creation and sharing of new open educational resources (OERs) (Atkins et al., 2007) and open educational practices (OEP), i.e., the possibility to freely use educational resources in open learning environments (OPAL, 2011).

The spread of resources (specially OERs), as well as the diffusion of the Internet and the latest Web developments, leads to a new concept of society, the *knowledge society*, where knowledge is like a shared resource to which everyone can access and feed with the new technologies. In particular the changes introduced by Web 2.0, which is transforming the Web from a unidirectional publishing space (Web 1.0) into a network of platforms, are enabling collaborative content creation and participation in social networks (Dohn, 2009; Greenhow et al., 2009). In this scenario we can imagine the use/re-use of OERs in a range of formal, non-formal and informal learning contexts. There, the processes of reusing and revising a resource should be “key strategies” to develop creativity, as well as to use the same content in a multitude of different ways, for instance taking into account different learning styles; social software and group structures in web-based communities could work as an amplifier for this process (Tosato & Bodi, 2011).

Unfortunately, as several researchers remind us (e.g. Dillenbourg, 2000; Kearsley, 1998; Moore 1993; Velleman & Moore 1996; Watson & Downes 2000), it has been typical throughout the history of educational technology to have over-optimistic expectations about new technical innovations. Although the number of repositories of digital resources has been constantly increasing during the last twenty years, as underlined by ROAR[1] and OpenDOAR[2], there are no sound results about how this growing number of open and freely accessible content hubs impacts on teaching and learning quality as well as on teachers’ professional practices (UNESCO, 2012; European Commission, 2012).

Most of the projects which produce OERs are publishing projects (Downes, 2007). The provision of resources is coming out from commercial publishing houses, universities or foundations; only a small part is produced

by teachers themselves, who seem to remain passive users of these archives (for instance, this is what has occurred with portals such as MACE[3], Share.TEC[4] and OpenScout[5], among others; these portals have emerged from projects funded by the European Commission). Despite the development of a portal to access educational resources is an important result of these projects, it is possible to detect an inefficient effort on engaging teachers' communities[6]. This lack of teachers' involvement prevented from turning these portals into resources able to influence teachers' practices and promote quality in education (OPAL, 2012).

Moreover, still OERs mostly address higher education (McCormick, 2003), often aiming to reduce the access cost to university materials (COL-UNESCO, 2011), with a lack of attention to Primary and Secondary Schools, as highlighted also by Richter & Ehlers (2010). These facts emphasize a challenge for the next years to make use of OER in K-12 schooling. In this context it is possible to see a gap between educational research and the practice of teachers in classrooms.

Therefore, it is necessary to develop systems which could tackle users' personal needs, allowing teachers to personalize the way they interact with the system itself and their peer (Carramolino & Rubia, 2013). To do this, it is important to take into account the newest Web developments, such as semantic Web services (automatically content correction, personalization services of knowledge retrieval, and so on) and social Web tools, in order to create a collaborative environment[7] that is able to promote communication and construction of meaning and knowledge among teachers.

## Research Problems

As highlighted by the Open Educational Quality Initiative, many research efforts focused on problems concerning resources access, neglecting how these materials could support the educational practices and promote quality and innovation in teaching and learning (OPAL, 2012).

According to this, we set out if sharing use experiences of open educational resources within a group of teachers could support an efficient use of OERs and enable new innovation processes and teachers' professional growth. Is it possible to adopt an approach which will include active teachers' participation, instead of being based on a simple

transmission of contents from repository to users? How should this participation take place?

Through two teacher surveys, we want to analyse in this paper the role of OERs and open educational communities (OEC) in teachers' lifelong learning, and to investigate their current usage. Our aim is to discover whether their interweaving could be a positive approach to support sharing of resources among teachers and to promote new educational practices.

High quantity and quality of contents, multimedia objects, systems for exchanging open resources, etc., are necessary but not sufficient conditions to generate a change in education towards the real ICT inclusion in practices with an expected impact in teacher professional development, as well as in new school practices. By means of providing abstract contents described by simple attributes and publishing them in online repositories, we cannot expect an active involvement of users. Differently, it is necessary a social construction view of knowledge (Wiley et al., 2003; Marconato, 2009). In a constantly changing world *"real-world information is not held inside silos like academic institutions pretend"* (Robin Good, 2012), but it is distributed throughout end-user-producer communities; therefore, it will be ever more important to advise teachers to leverage networks and collaborate in communities of practice (CoPs) (COL-UNESCO, 2011).

In the next section we analyze more deeply the importance of sharing resources in open educational communities, defining what we mean by "OEC". Afterwards, we report the results of two surveys to investigate the current usage of OERs and OEC in teachers' lifelong learning, to find out whether they can promote an efficient use of resources among teachers and teacher educators. Finally, the data reported are discussed in conclusion section.

## OER and Collaborative Environments

As mentioned above many projects and inquiries focused on OERs are paying more attention on their distribution, trying to describe every object in the best way to provide fast resource retrieval, forgetting that OERs are just one aspect of a major paradigm shift in education which cannot be seen isolated. It is intimately linked to connectivism and collaborative learning, as well as with digital literacy, open access and lifelong learning (Creelman

& Ossiannilsson, 2011). In particular, the concept of OER has its foundation and base in the connectivist theory, according to which:

> Personal knowledge is comprised of a network, which feeds into organizations and institutions, which in turn feed back into the network, and then continue to provide learning to individual. This cycle of knowledge development (personal to network to organization) allows learners to remain current in their field through the connections they have formed. (Siemens, 2004)

There are research evidences which have identified the potential of communities of practice and professional learning networks in teacher professional development for building ICT integration capability (Midoro, 2003; Bocconi et al., 2003), as well as the importance of participating in collaborative networks to be able to improve the pedagogical methods required by the digital age. Therefore, it is vitally important to establish a relationship between OER and collaborative environments, as sustained by recent developments (Wilson, 2011), which try to associate social networking tools to encourage collaboration with OERs. Also Sampson (2010) outlines a range of challenges in learning objects repositories (LORs), highlighting the importance of promoting collaboration.

Hence, in a Web 2.0 environment, an educational resource does not have to be only well designed to be really useful. It is also important that the resource may represent a pretext for establishing a relationship between the user and the context (the learning environment) and to promote an active interaction among those teachers who are using it (De Waal, 2007). The value of an educational resource does not lie only on itself but also in the process of reflection, communication and knowledge construction teachers create around it.

A large number of available resources is, for sure, a feature that can attract users inside a community; however our hypothesis is that the most interesting aspect of a repository of OERs and, in particular, of communities that deal with the design, use and reuse of OERs, are people interacting, using and contributing into the system. There are users who communicate with each other so that the Web has even an emotional aspect which cannot be ignored.

Web 2.0 tools can play an important role in building online communities by taking into account this emotional aspect and they can be useful for motivating and supporting online collaboration between teachers (Blaschke & Kurtz, 2010). In these online communities, teachers work together to share information, build new knowledge, and establish social networks (Harasim et al., 1995). For this reason, communities of practice[8], professional learning communities (PLCs)[9] and, recently, social networks[10] have been proposed as a new approach to teach, since they are able to reduce the teacher's isolation (Lortie, 1975), to encourage professional growth (Looi et al., 2008), and to transform teachers' practice (Lieberman & Pointer Mace, 2010).

Therefore, the main question we reflect on is: why do we have to keep on providing environments and repositories rich of resources, paying particular attention to the relation between users and artefacts, instead of the relationships among users? Do we really believe that by facilitating the interaction with contents we will be able to sustain collaboration and innovation in an educational approach? If a place exists in relation with specific CoPs (Lave & Wenger, 1991), i.e., shared practices among members of a particular social group, the designer of a learning system has to keep in mind and promote the qualification of social activities which happen inside the learning spaces. Maybe, it will be more important to sustain the creation of networks among users, rich of sharing posts, comments and materials, than providing the shape of the platforms, which are like a white canvas, painted by their participants.

Downes states that *"communications are exchanges of content between the participants"* (Downes, 2013, p. 220). If this is true, by sustaining the interaction among users we will be able to sustain the creation of new contents, enriching the system with new resources. From this point of view, we can see a repository like the consequence of a network, the sedimentation of ideas and concepts exchanged in a community.

For this reason, in this paper, we hold that it is important to share resources in open educational communities (OEC). We understand Open Educational Communities (keeping in mind the definition of OER[11]) like the open provision of a community of users, which is supported by information and communication technologies for creating, sharing, commenting, analysing and adapting educational practices and resources, and where formal, non-formal and informal learning may occur.

In this case the term "open" not only means free access to resources, teaching activities and tutoring, but also refers allowing one user to change or influence another user, generating new ideas, distributing knowledge from member to member, fostering collaboration, etc. According to Wenger (1998), if teachers have enough common ground to reciprocally engage themselves and a good dose of diversity which could lead them to a richer learning experience, then they could find interesting relationships with other peers.

What makes the community "educational" is the context of community itself, the experiences and best practices shared by users. The result of this process of participation which involves the whole community are digital objects, that we can define as "educational" thanks to the information that surrounds a resource, emphasizing its use in a particular learning context (De Waal, 2007).

## Community's Impact in Sharing Resources

To better investigate the relation between communities of practice and repositories, we carried out two studies. Our aim was to confirm whether it is possible to promote an efficient use of resources among teachers and teacher educators, and improve their didactic methodology by supporting collaboration and sharing of best practices in communities of teachers.

## Sample

As mentioned above, our research is based on two different studies. The first one refers to a survey applied in the Context of a European Project, Share.TEC (2008-2011), where authors of this article participated. The project aimed to create a digital portal for accessing, retrieving and reusing Teacher Education Resources across Europe (Carramolino & Rubia Avi, 2013). Among the activities of the project we had to collect and analyse data in order to improve the portal. In this article we have selected one of the surveys which was applied to potential users of the system, as it has direct relation with the research question we have set out. The selection of participants was made by convenience sampling (most of teachers were persons we knew personally), spreading the survey to teachers and teacher educators from the national contexts the members of the project belonged to

(for this reason the survey was translated into different languages: Italian, Spanish and Swedish, trying to involve people by means of face to face, e-mail and social networks). The survey was answered by 204 people from 3 countries (Italy, 80,00%; Spain, 12,00%; and Sweden, 8,00%). On average, the respondents were 42 years old and the majority were women (83,00%).

The second survey was applied inside an Italian research, independent from the Share.TEC project, where one of the authors participated. The aim of this research was to investigate the relation between community of teachers and educational resources, in particular whether supporting community of teachers and the sharing of material best practices, it was possible to promote an efficient use of resources and improve teachers' didactic (Tosato, 2013). Along the research data collection phrase two surveys were submitted to Italian Secondary School teachers. Data were collected during the months of November and December 2012. In this paper we selected one of the surveys, the one whose data were comparable with those collected in the Share.TEC project. The selection of participants was made by convenience sampling (most of teachers were persons we knew personally), spreading the survey to teachers working in the north-east regions of Italy (trying to involve people by means of face to face, e-mail and social networks). The survey was answered by 92 Italian teachers. On average, the teachers were 48 years old and the majority were women (77,17%).

The method adopted to submit both surveys consisted of a first information moment, about the aim of the research and of a short anonymous online questionnaire, composed mainly by closed questions.

Data reported in this section are not intended to be a predictor, neither of teachers' behaviour in social networking nor of their sharing of digital practices. Rather, we introduce these data because they might be useful to explore the topic of open educational communities and the difficulties which entail the creation of an environment able to make possible the sharing of experiences/knowledge and the establishment of collaboration to produce and review new materials. Furthermore, given the large sample size and its diversity, and in particular the high number of Italian people among them, results reported in this article refer to this specific sample, hence it is not possible to generalize them to all the teachers' domain at European level; this generalization would require the investigation of many other factors and contexts.

**Share.TEC Survey: Social Networking and Digital Resources**

The questionnaire was organized in four sections: the first one inquiries about users' personal data, in particular their professional context; the second one deals with the way teachers use and search online resources; the third section refers to social networking (whether teachers use social network tools and whether they collaborate in CoP); and the fourth section relates to the features they would like the system hold to recommend them, resources or persons. As the results obtained from sections two and three are the most interesting for this paper topic, we will focus on them.

The second part of this questionnaire, related to how teachers use and search online resources, underlined a lack of use of institutional repositories. In fact, data collected through the multiple choice question "What type of Web tools do you use when searching in Internet?"[12], showed that teachers prefer to use Google tools or Web 2.0 services (Wiki, Blog, YouTube, Delicious, Social Network) to search resources, and only few of them were using specialized repositories of open educational resources: 40 users (19.61%) were using institutional repositories (e.g. archives that are not connected with universities), 55 (26.96%) were using universities repositories and only 3 (1.47%) were using MERLOT (see Figure 1). These results put in evidence the impact that repositories (specialized in resources for a particular context) have in users, how much these repositories are known by teachers or teacher educators and how much they satisfy their needs. It is clear that up to now an overwhelming majority of teachers continues to use general search engines (197 users – 96.57%), like Google, for searching their resources.

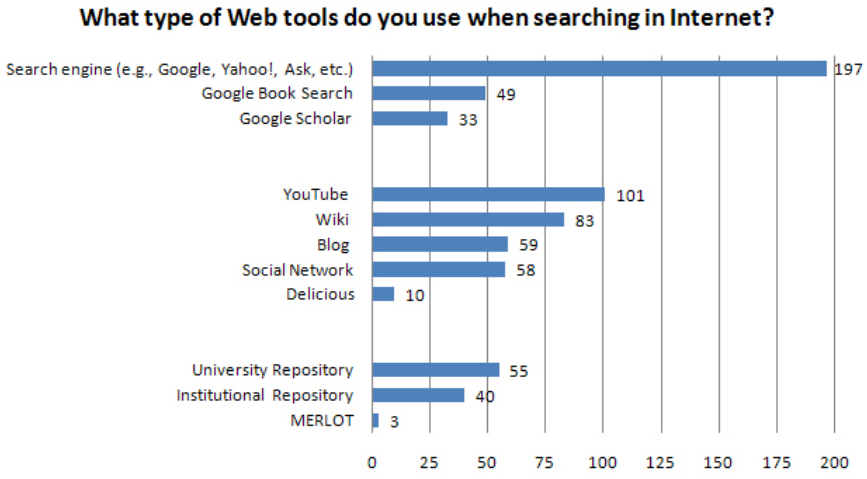


*Figure 1*. Tools used by users to search resources online. Graph drawn on the basis of data collected by question 5 in "Share.TEC - social networking/recommender" survey (http://www.univirtual.eu/limesurvey/index.php?sid=78165&lang=en).

Data suggests the difficulty of creating a community of practice around these specialized repositories. In addition, without a collaborative environment able to involve a significant number of users, it might be difficult to stimulate the sharing and creation of new resources, as well as the improvement of teachers' practices.

The third part of the survey, related to social networking, highlighted some difficulties to create a community of teachers. To the questions "Do you use Facebook or any other social network (LinkedIn, Plaxo, Xing)?" and "Do you know what a 'Community of Practice' is?" users who answered positively were respectively 45.59% and 52.45% (see Table 1). In particular, investigating more deeply the answers from those users who declared to know what a community of practice is (107 users), only 30.39% of them declared to be a member of a community of practice, and only 28.92% declared to be nowadays a member of a community of teachers at national or international level. It could have been possible they did not

know what a community of practice was, as it is a theoretical concept which was not explained in the survey.

Table 1
*Knowledge about communities of users*[13]

| | YES | NO | I don't know |
|---|---|---|---|
| Do you use Facebook or any other social network (LinkedIn, Plaxo, Xing)? | 45.59% (93) | 51.47% (105) | 2.94% (6) |
| Do you know what a 'Community of Practice' is? | 52.45% (107) | 43.63% (89) | 3.92% (8) |

In contrast with this lack of use of collaborative environments, which deserves to be investigated deeply, there is a general desire to be part of an online community of peers, based on the exchange of resources and comments (as reported in Table 2, a limitation of this research is that we did not investigate whether respondents were aware about the differences between Community of peers and Community of practice). In fact, 85.78% answered positively to the question "Would you like to work online with a colleague to solve a problem that afflicts you?", and 87.75% answered positively to the question "Would you like your teacher network to be based on the exchange of resources and comments?" (see Table 2).

Table 2
*Desire to be part of an online community of peers*[14]

| | YES | NO | I don't know |
|---|---|---|---|
| Would you like to work online with a colleague to solve a problem that afflicts you? | 85.78% (175) | 9.80% (20) | 4.41% (9) |
| Would you like your teacher network to be based on the exchange of resources and comments? | 87.75% (179) | 6.86% (14) | 5.39% (11) |

In any case, despite this desire of sharing resources and experiences, when we asked users why they used Web 2.0 tools and why they were members of community of practice, the most common reason was "for

finding information", while they did not explain in their answers the idea of sharing. In fact, referring to the question "What type of Web tools do you use when searching in Internet?", we asked teachers "Why do you use these Web tools? What are the features that you find the most useful?"[15]. The 93.14% of the users declared that the principal reason behind their choice was that they could find information and data in a simple and quick way (so the effective usability of tools such as Google can be a relevant issue for selecting this kind of search engines to find resources or information). This result seems to be linked to the findings gathered by Weisberger, as cited in (Educational-portal blog, 2010), showing that only 10-12% of professors using social media use them for active purposes, such as learner-generated content creation, but most of them use it to find information.

**Italian teacher survey: teachers' community and educational resources**

This second questionnaire, which involved only Italian teachers, was organized in the following four sections: professional environment, operational processes and interaction tools (to investigate the tools used by the teachers to exchange digital contents and their practices), teacher perspectives (whether to participate in a teachers' community supports resources and experience sharing), and professional growth process (whether to share didactic experiences in a teachers' community supports didactic innovation processes and professional growth). The analysis reported below refers mainly to the sections two and three.

The second part of the survey, related to operational processes and interaction tools, highlighted the difficulties that teachers meet while they collaborate in communities of practice, confirming what we observed in the Share.TEC survey. Despite a general willingness to cooperate and share materials inside a group of peers, only 33,70% of the users are members of a community (percentage quite similar to the Share.TEC survey: 30,39%). A deeper analysis of data collected pointed out that the majority of teachers who participate in a community are members of a group where interactions happen both online and face to face (61,29% respect to the community-participating teachers), and only 9,68% of teachers are members of a group where collaboration happens totally online (see Figure 2).

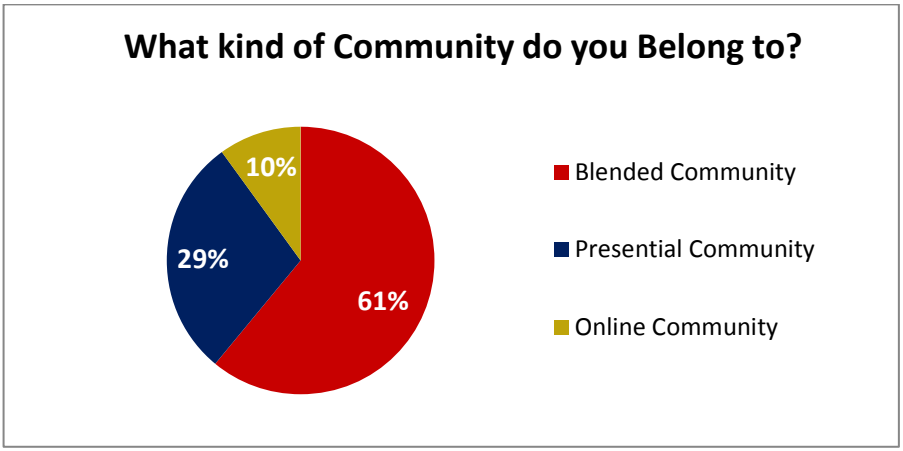


*Figure 2*. "What kind of community are you member?" Graph drawn on the basis of data collected by question Q13 in "Communities of teachers, didactic experiences and repositories of digital resources" survey (http://www.projectschool.it/survey/index.php/survey/index/sid/615945/newtest/Y/lang/it)

The majority of teachers who answered the questionnaire are members of a community which integrates teachers of institutions from the same region (51,61%) or a group of teachers who work inside the same school (29,03%). Only 9,68% of teachers are members of a national or international community. These data underline how important is for teachers to arrange face to face, which are useful to strengthen the community and to enrol new members.

Investigating more deeply the characteristics of these communities, 19,35% of teachers who belong to a community state that they do not use online platforms to collaborate or share materials. These data testify the great use of electronic mails to share materials (85,45% of teachers use e-mails to share resources online). This aspect might have relation with the enormous potential for experimentation in school, where it is possible to introduce new tools to help the communication among users, but also points out how communities of teachers remain hidden reservoirs of resources and experiences, so that it would be possible to share resources and practices in a more efficient way and with a greater impact on professional practices if they would use OEC.

Moreover, in accordance to both studies addressed in this paper (the Share.TEC survey and the Italian teachers' questionnaire), teachers state to prefer a search engine like Google to look for online resources.

However, it is interesting to note that users who are members of a community are more likely to use blog and community itself to search materials (see Table 3). In the Italian survey, the community seems to act as a support to teachers for sharing educational materials: 77,42% of teachers who are members of a community share digital materials online, compared to 50,82% of users that are not members of a community (see Figure 3).

Table 3
*What kind of tools do you use to search resources online?*[16]

| | Teachers member of a community | | Teachers that are not member of a community | |
|---|---|---|---|---|
| | N° | % | N° | % |
| Search engine like Google | 30 | 96,77% | 61 | 100,00% |
| Online repositories that you know | 12 | 38,71% | 26 | 42,62% |
| Tools offered by your community | 10 | 32,26% | 4 | 6,56% |
| Forum | 3 | 9,68% | 7 | 11,48% |
| Blog | 5 | 16,13% | 4 | 6,56% |
| Wiki | 6 | 19,35% | 12 | 19,67% |
| Social network | 2 | 6,45% | 6 | 9,84% |
| Other | 0 | 0,00% | 0 | 0,00% |

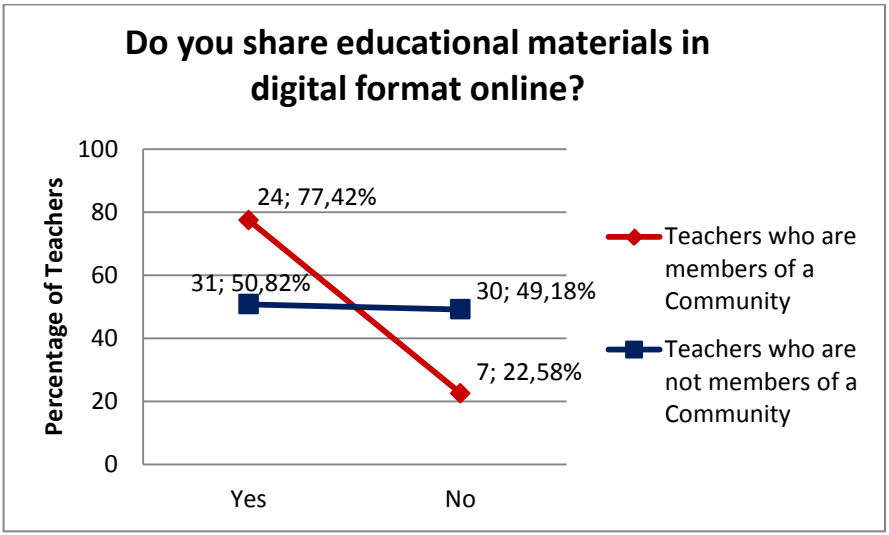


*Figure 3.* "Do you share educational materials in digital form online?". Graph drawn on the basis of data collected by question Q19 in "Communities of teachers, didactic experiences and repositories of digital resources" survey (http://www.projectschool.it/survey/index.php/survey/index/sid/615945/newtest/Y/lang/it)

To better understand the impact of a community in sharing resources, in the third part of the Italian survey (related to teacher perspectives: whether to participate in a teachers' community supports resources and experiences sharing), community-participant teachers (31 teachers) were asked whether the exchange of materials is facilitated and stimulated by their group of peers. Positive answers were 90,32% (28 users) and negative answers 9,68% (3 users). This aspect was investigated in deep by asking the reason why the community is so important for them. 53,57% of the users underlined the importance of sharing with other teachers, i.e., users with the same interests. The 50,00% of the users state that the community is a useful place where you can ask how to use resources, and 32,14% highlighted how into a community it is possible to find not only materials, but also a description of the learning experience in which the resources were used/created. The majority of users that are members of teachers' communities, also made clear the usefulness of the community to create

new educational resources and to reuse materials (26 users out of 30, 83,87%); this is especially true if the group membership is similar to a "hoppy website"[17], i.e., a community in which there is always someone available to trust, someone to ask for a help; a kind of instant-on, workplace chat room.

## Conclusions

On the basis of these data, stimulating collaboration among teachers, both online and face to face, does not seem to be simple, and in particular we cannot expect it to happen spontaneously (Olimpo, 2010). Furthermore, in some cases, it seems that teachers are still reluctant to adopt ICT to share resources and knowledge, such as collaborative environments. In this context it is clear that OERs might not be enough for innovating teachers' professional practices. Teachers might accept cooperation with other teachers and change their attitudes towards the use/sharing of educational practice and resources. To underline this apparent teachers' reluctance to adopt ICT and the innovation they bring, Belland used the sociological concept of *habitus* (Belland, 2009).

To better understand and tackle these problems, it is important to take into account the age and the training of our teachers. If we consider that the average age of the aforementioned survey participants, 42 years old in the Share.TEC survey, and 48 years old for the Italian survey, we are not speaking about digital natives[18], but about teachers who were trained when ICT was either not present or viewed as a tool to solve specific problems, not as something that deeply changes the learning process. This entails that teachers' understandings of how education is practiced are difficult to change in few years, especially if the teachers' training programs still considers ICT like a merely technical tool which is not integrated in the learning process. Unless teacher education programs change the way of developing digital and collaboration competences as an essential life and career competence, it will be unlikely that teachers will change their habits and also that they embrace new approaches to teaching (Albion et al., 2011).

Despite the Web seems to be a good training environment to develop the digital competences, we cannot hope that this process happens by a spontaneous use of the Web; it is necessary to design and implement

specific learning situations based on OERs and Open Communities of Practice.

The creation of environments for promoting the collaboration and exchange of best practices and resources among teachers seems to be a good way to promote formal and informal learning. In particular, these environments have to be open educational communities, in which OERs are far from being published materials created by academics and merely consumed by repository users. Furthermore, while the number of cooperative activities in a network increases, *"personal social networks become the scene of informal exchange of expertise, and 'communities of practice' develop"* (Bessenyei, I., 2007, p.10).

However, even if new platforms and collaborative environments have been implemented to motivate teachers in sharing digital resources and in participating in CoP there is still a suspicion towards ICTs adoption. This means that a lot of efforts are needed. Particularly, in the teachers' training context are required efforts for both change teacher's habits and to increase collaboration in their practice, as emphasized in Horizon 2020 Programme, where ICTs are underlined as key aspect to promote the *"modernization of education and training"*, where *"the challenge is to reinvent the education ecosystem and re-empower teachers in the digital age"* (European Commission, 2013a). Moreover, this Programme shows like the use of platforms for open collaboration are *"essential tools for building operational links between science, technology, innovation and society"* (European Commission, 2013b, p.5).

## Notes

[1] ROAR - Registry of Open Access Repositories, URL: http://roar.eprints.org/
[2] OpenDOAR - Directory of Open Access Repositories, URL: http://www.opendoar.org/
[3] MACE - Metadata for Architectural Contents in Europe, portal of architectural resources, URL: http://mace-project.eu/ (project co-funded by European Commission).
[4] Share.TEC - Sharing Digital Resources in the Teaching Education Community, portal of educational resources for teacher educators, URL: http://portal.share-tec.eu/ (project funded under the eContentplus Programme: http://www.share-tec.eu/).
[5] OpenScout - Skill based scouting of open user-generated and community-improved content for management education and training, portal of open educational resources in the area of management education and training, URL: http://learn.openscout.net/ (project co-funded by the European Commission within the eContentplus Programme: http://www.openscout.net/).

[6] When we talk about online communities of teachers we refer to communities like *Open Science Resources* (http://www.osrportal.eu/), *NDLR - National Digital Learning Resources* (http://www.ndlr.ie/), *Educat* (http://www.edu365.cat/), *LeMill* (http://lemill.net/), and so on.
[7] In this paper we will limit our view to Collaborative Virtual Environments (CVEs) meant for educational practices. With this term we mean *"computer-enabled, distributed virtual spaces or places in which people can meet and interact with others, with agents and with virtual objects"* (Redfern & Naughton, 2002, p.204).
[8] *"Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly. [...] learning can be the reason the community comes together or an incidental outcome of member's interactions."* (Wenger, 2012). A community of practice is featured by three characteristics: the domain (it has an identity defined by a shared domain of interest), the community (members engage in joint activities and discussions, help each other, and share information) and the practice (members of a community of practice are practitioners).
[9] Professional learning communities are communities *"in which the teachers in a school and its administrators continuously seek and share learning and then act on what they learn. The goal of their actions is to enhance their effectiveness as professionals so that students benefit."* (Hord, 1997). Professional learning communities are featured by these attributes: supportive and shared leadership, collective creativity, shared values and vision, supportive conditions, and shared personal practice.
[10] A social network, also named virtual community, is a *"Web-based service which allows individuals to (1) build a public or semi-public profile within a bounded system, (2) to articulate a list of other users with whom they share a connection, and (3) to view and to cross their list of connections and those made by others within the system [...]. What makes social network sites unique is not that they allow individuals to meet strangers, but rather that they enable users to articulate and make visible their social networks."* (Boyd & Ellison, 2007). Examples of social networks are: Facebook, LinkedIn, Twitter and YouTube.
[11] UNESCO defines OERs like: *"The open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes."* (UNESCO, 2002, p.24).
[12] "What type of Web tools do you use when searching in Internet?" is a multiple choice question with the following options: Search engine (e.g., Google, Yahoo!, Ask, etc.), Library Web site, Online reviews, Online bookseller, Google Scholar, Google Book Search, Windows Live Academic Search, My toolbar/my favorites, Institutional Repository, University Repository, Social Network, Delicious, YouTube, Blog, Wiki, MERLOT, Other.
[13] Questions 8 and 10 in "Share.TEC - social networking/recommender" survey (http://www.univirtual.eu/limesurvey/index.php?sid=78165&lang=en).
[14] Questions 16 and 17 in "Share.TEC - social networking/recommender" survey (http://www.univirtual.eu/limesurvey/index.php?sid=78165&lang=en).
[15] "Why do you use these Web tools? What are the features that you find most useful?" is a question with an open answer. Hereafter an excerpt of the users' answers: "allow quick access to a huge amount of information of a particular type (for instance Google Scholar allows a broad search for academic literature)", "quick video and data search", "convenience, speed, low cost, breadth of choice", "possibility to find information, sometimes also well structured, in a rapid and fast way", "possibility to get real-time information", "speed and convenience to find information".
[16] Question Q17 in "Communities of teachers, didactic experiences and repositories of digital resources" survey (http://www.projectschool.it/survey/index.php/survey/index/sid/

615945/newtest/Y/lang/it). We obtained a no-sense value in the item: "Tool offered by the community" for teachers who were not members of a community. They assumed it was referred to social networks instead of a community of practice.

[17] Website created by people really passionate about a hobby, who want to tell the world about it. For instance a person can build a site about cooking, gardening, cycling, his/her favorite music band, and so on. Thanks to this site, the author can make his/her hobby more popular, learn new and interesting facts related to that activity, and attract followers.

[18] In this paper we use the digital native–digital immigrant metaphor just to refer to the age of our users. We are aware that the same author who coined this metaphor, Marc Prensky, reconceptualized the concept, updating it towards "digital wisdom" (Prensky, 2012).

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**Paolo Tosato** is a researcher in the International Center of Studies for Educational Research and Advanced Training, Department of Philosophy and Cultural Heritage, Ca' Foscari University of Venice, Italy. ORCID id: 0000-0002-3707-7840

**Beatriz Carramolino Arranz** is Member of the research groups: Intelligent and Cooperative Systems Research Group / Education, Media, Computing and Culture (GSIC-EMIC); and Transdisciplinary Research Center in Education (CETIE). Department of Pedagogy. University of Valladolid, Spain. ORCID id: 0000-0001-6137-5496

**Bartolomé Rubia Avi** is Member of the research groups: Intelligent and Cooperative Systems Research Group / Education, Media, Computing and Culture (GSIC-EMIC); and Transdisciplinary Research Center in Education (CETIE), where he leads the CETIE Doctorate Program in "Transdisciplinar Research in Education". Department of Pedagogy. University of Valladolid, Spain. ORCID id: 0000-0002-4963-4552

**Contact Address:** Paulo Tosato, Via Borgo Padova, 65/6, 31033, Castelfranco Veneto, Treviso, Italy. Email: ptosato@tiscali.it

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# ORIOLE, in the Search for Evidence of OER in Teaching. Experiences in the Use, Re-use and the Sharing and Influence of Repositories

Gema Santos-Hermosa[1]

1) Educational Resources-Magnament, Library Learning Support Service, Universitat Oberta de Catalunya (UOC), Spain

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# ORIOLE, in the Search for Evidence of OER in Teaching. Experiences in the Use, Re-use and the Sharing and Influence of Repositories

Gema Santos-Hermosa
*University Oberta of Catalunya*

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## Abstract

The study presented here aims to gather useful information on the use, re-reuse and sharing of resources in Education and also the influence of repositories, to better understand the perspective of individual practitioners and suggest future areas of debate for researchers.
Open Resources: Influence on Learners and Educators (ORIOLE) project, was based within the Institute of Educational Technology, The Open University (OU) from 2009-2013 and focused on investigating, understanding and disseminating about use and reuse of open resources in learning and teaching. This paper focuses on the second survey activity of this project. During 2011 (Pegler, 2012), an extensive online survey about reuse of educational resources was conducted through (mainly UK-based) practitioner communities. In 2013, a more international version was created (available in English and Spanish) and circulated during that year (http://bit.ly/OERsurvey_2013).
The ORIOLE Survey 2013 collected information about the contexts in which open resource use may occur, looking particularly at attitudes about reuse of educational resources (OER) in teaching. What influences open resources in education is a topic of relevance to anyone taking on forward engagement with open education and the answers lie with those who are working directly in the delivery of learning and teaching, and those who support this work.
It is hoped that this qualitative analysis will provide a deeper understanding of the differences in the motivation to engage with OER and the shifts in experience and expectations across diverse contexts.

**Keywords:** Open Educational Resources, openness, use, re-use, sharing, remix, motivation, funding policies, repositories, ORIOLE


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# ORIOLE, en la Búsqueda de Evidencias de Recursos Educativos Abiertos en la Enseñanza. Experiencias en la Utilización, re-utilización, Compartición e Influencia de Repositorios de Recursos Educativos

Gema Santos-Hermosa
*University Oberta de Catalunya*

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**Resumen**

El presente estudio tiene como objetivo recopilar información útil sobre el uso, reutilización y compartición de recursos educativos y la influencia de los repositorios, para comprender mejor la perspectiva de los académicos y sugerir futuros ámbitos de debate a los investigadores.

*Open Resources: Influence on Learners and Educators* (*ORIOLE*) se basa en el Instituto de Tecnología de la Educación, The Open University (OU), el periodo 2009-2013 y trata de la investigación, comprensión y difusión del uso y la reutilización de los recursos abiertos en el aprendizaje y enseñanza. Este artículo se centra en la segunda encuesta llevada a cabo dentro del proyecto ORIOLE. Durante el año 2011 (Pegler, 2012) se realizó una amplia encuesta en línea acerca de la reutilización de los recursos educativos, a través de las comunidades académicas (principalmente en el Reino Unido). En 2013, se creó una versión más internacional de la encuesta anterior (disponible en Inglés y Español) que estuvo en circulación durante ese año (http://bit.ly/OERsurvey_2013).

La Encuesta ORIOLE 2013 recopiló información acerca de los contextos en los cuales se puede producir el uso de recursos abiertos, prestando especial atención a las actitudes acerca de la reutilización de los recursos educativos en la enseñanza. Qué influencia tienen los recursos abiertos en la educación es un tema de interés para cualquier persona involucrada en la educación abierta y las respuestas se encuentran entre los que están trabajando directamente en la impartición de enseñanza, y también entre los que dan soporte a este trabajo.

Se espera que este análisis qualitativo proporcione una comprensión más profunda de las diferentes motivaciones que juegan un papel en la adopción de los recursos educativos abiertos, las experiencias y expectativas que se presentan en diversos contextos.

**Palabras clave:** Recursos Educativos Abiertos, apertura, uso, reutilización, compartición, remix, motivaciones, financiación y políticas, repositorios, ORIOLE


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Open Resources: Influence on Learners and Educators project (ORIOLE) - based in the Institute of Educational Technology at the UK Open University- has tried, through a variety of strategies, to improve understanding of what experiences, expectations, motivations and challenges arise from the use, re-use and sharing of resources, including the role of repositories. In doing so, the project has drawn on existing research into the influence of reusable learning objects (RLO) (McGreal, 2004), recognising the contribution that earlier repository-based activity has made to understanding what barriers and opportunities educators and learners may encounter in the practice of resource reuse. The project recognises the complexity of tracking reuse, particularly of open resources (McAndrew, et al., 2009), which is a complex and two-sided process, requiring not only the effective offering (provision or creation) of resources but also their use/reuse in practice (sometimes in adapted forms) (Pegler, 2011). Simply offering resources for reuse, as learning object repositories have, provides an insufficient foundation to understand the current reuse that occurs.

In the UK, JISC has over an extended period invested in developing extensive online collections and repositories (e.g. Jorum; the UK national repository for further and higher education) as well as an infrastructure to support this activity. From 2010-2012, JISC together with the UK Higher Education Academy directed investment in supporting resource reuse towards funding projects which were based on open educational resources (OER) within the UK OER programme (McGill, et al., 2013). By the end of this period, most universities in the UK had been involved in at least one UK OER project as a member of a discipline consortium, an institutional initiative or through work led by an individual academic. In 2011, the ORIOLE project developed and distributed an online survey based on earlier UK-based RLO surveys and research, particularly the work on the CD-LOR (Community Dimensions of Learning Object Repositories Project) at Glasgow Caledonian University (Margaryan, et al, 2006). The 2011 survey, conducted by Chris Pegler (The Open University), was directed specifically at practitioners in the UK higher education and further education community with experience of sharing or reusing resources with learners or other educators. In 2013, a further survey was distributed, this time internationally in English and Spanish and with some modified questions. The addition of another language, and a more international focus

for the survey was made possible through the contribution of Gema Santos-Hermosa (Open University of Catalonia) who joined the ORIOLE project during a visiting fellowship to IET in late 2012.

Both surveys allowed the comparison of the opinions and reported activity of practitioners working within funded projects requiring some level of resource reuse or sharing and those who did not work in such projects. An early comparison of the differences between the 2011 and 2013 survey responses working in projects, and also the English and Spanish language responses for this question were reported in OER13 (Pegler & Santos-Hermosa, 2013). This paper focuses on the further development of the 2013 Survey. The ORIOLE Survey 2013 was extensive and ambitious in trying to obtain information on the expectations of reuse and sharing and also records of what activity underpinned these objectives. The data has been made available as open data on the ORIOLE website http://orioleproject.blogspot.com (2011 data with 2013 data forthcoming) and it is hoped that it can be remixed and drawn on by other researchers.

- The specific study from ORIOLE Survey 2013 presented in this paper tries to focus on how use, reuse and sharing of learning resources take part in teaching practice and what are the attitudes towards repositories. In order to understand this better and to find some evidences, comparisons between different target groups have been established. Some of the assumptions around these groups (which will guide the analysis of data and discussion of results) are the following :Practitioners who have been involved in funding project based on OER would be more familiar with reuse and sharing practices and, probably, also more motivated and convinced to use, re-use and share resources in their educational practice
- There might be difference between the English-speaking and Spanish-speaking surveys and contexts, the professional profiles (main interest in educators but also vs librarians or technicians) educators vs librarian or technicians) or respondents who already create and use/reuse educational resources as for their opinions about the use, reuse and sharing of resources in teaching and their perceptions about repositories.

It is intended to find out if the different characteristics or requirements among respondents can affect, to a greater or lesser extent, what they

reported. Thereby, we would like to shed light on the matter and confirm whether the presumptions and results obtained are meaningful.

## Methodology

This study is based on the ORIOLE Survey 2013, which concerns the reuse and sharing of educational resources, particularly open resources, and it is intended to those who have an involvement or interest in this topic.

The ORIOLE 2013 questionnaire was developed based on a previous version, ORIOLE Survey 2011, and a remix of other earlier resources. This second survey conducted by ORIOLE was a more international version of the previous one, created in two versions (English and Spanish)[1] and adapted to a broader context.

### Survey Design

The survey has a total of 34 questions[2] divided into 12 sections. There are two introductory questions dedicated to a *data protection agreement*, in which it is requested to agree to the Data Protection Act 1998 in order to have permission to use data for research purposes and at the same time, preserving anonymity.

Initial survey questions focused on establishing the *work context* of respondents. It includes questions about (where in the world they are working (Q3), type of educational system (Q5) and main role (Q6), policies and funding aiding the use and reuse of learning resources (Q7) and if they have, currently or previously, worked on a project requiring this (Q8-Q10).

Subsequently, a *branching question* (Q11) follows, which paves the way to two different routes of the survey:

1. Those who create or use/reuse educational resources
2. Those who do not create or use/reuse educational resources (not part of their work)

On the one hand, respondents answering affirmatively (1) are directed to the next section about creating and using resources and they can follow the standard survey until the end. On the other hand, respondents who answer negatively (2) are routed to a shorter version of the survey (from Q27 onwards), since we assume they are not involved with the creation and use

of learning materials , nevertheless, they have some kind of interest in the matter.

The next sections are dedicated to the *open activity and learning resources*: creating and using learning resources (from Q13 to Q15), adapting or reusing them (Q16 and Q17), choosing between alternative resources (Q18), sharing resources that they have made (from Q19 to Q23), motivation to share (Q24) and using other people's resources (Q25 and Q26).

The following set of questions is related with *Open Content and OER*: definitions (Q27 and Q28), attitudes and beliefs about them (Q29) and a last single question which explores about *sharing other than learning resources* with colleagues/others (Q30).

The later questions thank respondents for their participation: they are asked to leave their name and email contact (Q31 and Q32), to choose a charity they would support (Q33) and to leave any further comment – should they have one- (Q33).

The questionnaire consists mainly of closed-ended questions: response options to be chosen from a suggested list (one or multiple-choice questions), binary answers (yes or no) and different levels of agreement (fully agree, partly agree, and disagree) or consideration (very important, important, not important/applicable) to be valued from a given number of statements. At the end of the set of questions, an open-ended field is provided in order to let respondents formulate their own answer or provide further information. Moreover, there are three open-questions (Q10, Q32 and Q34) to specify the projects they are involved in (if applicable), their contact information or any other final comment. However, it is important to clarify here that to protect the integrity of responses, the participants in the survey were under no obligation to identify themselves individually.

Finally, the survey questionnaire was validated through pre-testing with a small sample of focus teachers ($n = 3$) before the distribution took place.

## Sampling

ORIOLE 2013 was intended for a large population survey, and targeted to those related with education: educators, stakeholders and teaching support staff that had online access. Since the sample frame based on the total of teaching staff[3] around the world was too large and we were interested in

their practice (reports of what happens) rather than theory, we targeted those who use or share resources in practice or have the potential to do so and filtered out those who do not (by reporting in Q11 that 'Creating or using/reusing educational resources is not part of my work'). 92% of those taking part in both surveys reported that this (creating or use/reuse of resources or both) was part of their work. Those who reported that they were not using/reusing or creating resources (8% of deviation) were then routed out of the survey, hence, the responses reported here are those of practitioners in resource creation or use/reuse only.

The sample frame selected can give some indications of users' views on issues researched, but cannot be generalized for the whole teaching community. Accordingly, the survey was not attempted to ensure a representative sample. In this sense, some possible 'selection bias' of the survey, due to this unrepresentative sample, which should be taken into account are: undercoverage (which may occur since members of the population should have access to the Internet in order to answer the online survey); non-response bias (respondents differed from non-respondents, since the response rate is low) and voluntary response bias (sample members of a forum discussing about the main topic of the survey could be self-selected volunteers).

**Selection Procedure and Data Collection**

A randomized process for selecting units from the sample frame (selection procedure) and a method of contacting selected units and enabling them to complete the survey (data collection method) were followed.

The online survey was distributed internationally; mainly through forums, mailing lists, professional contacts and other networks. Individual emails with an invitation to answer the survey were also sent to people who were (or potentially could be) involved in sharing/using resources. Finally, there were other more general distribution channels, such as newsletters and websites.

The information-gathering tool selected for the data collection was the online platform *SurveyMonkey* and the analytic method adopted was quantitative. Statistical analysis, filters (to extract answers from specific profiles of respondents) and cross-tabs (to compare answers between questions and/or type of respondents) were made in order to facilitate data

interpretation and to propose some assumptions. Moreover, a review analysis of the literature was also carried out to contextualize the research and also to support or rebut the main themes that emerged during the data collection and analysis.

Finally, we would like to mention a practical note here. In order to show the analyzed data, a series of tables have been extracted from the Survey Monkey platform in excel format. The large and complete data (breakdown of numbers of respondents, absolute and cumulative totals, percentages, etc.) will be available as open data from the ORIOLE project website. However, in this paper we will offer customized tables (with selected most/less rated answers and percentages) in order to simplify and facilitate the readers' understanding.

## General Data Description

The survey attracted responses from educational practitioners in resource creation or use/reuse. It was conducted on a sample of 241 people (280 started but 39 skipped[4]): 137 in the survey in English and 104 in the Spanish one. Fourty-five different countries throughout the world participated in the surveys: Spain and 14 Spanish-speaking countries (from South America) answered the Spanish one and the rest of 31 countries (from around the world) responded the English one.

The geographical spread is interesting, although there is a clear bias towards respondents from the US (22.4%) and the UK (10%) with respect to the survey in English and (33.6%) for Spain in the survey in Spanish.

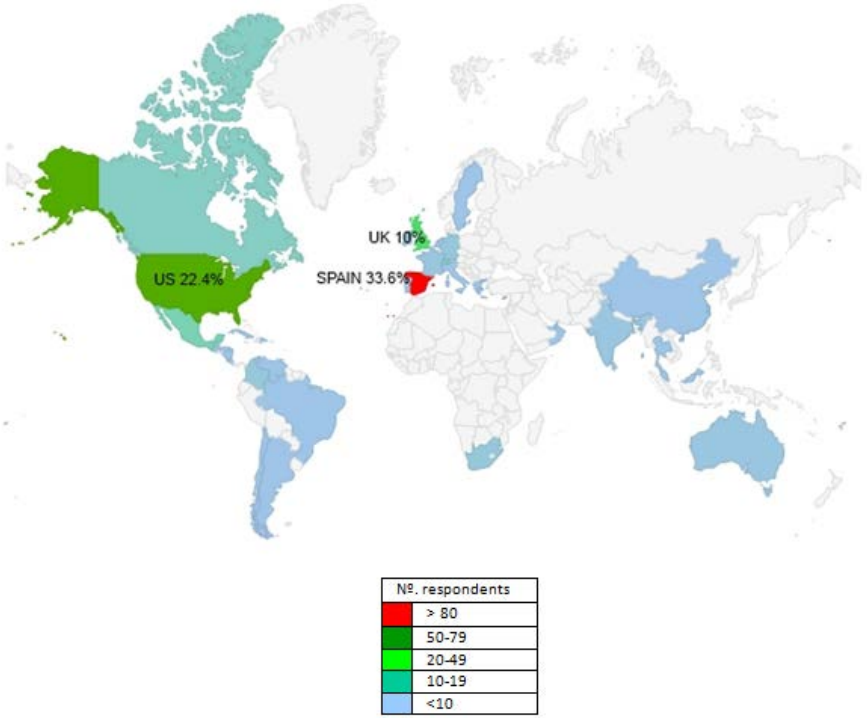


*Figure 1*. Dissemination-map of the ORIOLE survey respondents

The most popular role was teaching (see figures 2 and 3): 34.8% of the English-survey respondents and 35.3 % of the Spanish one highlighted this as a main role. In both cases, there was a predominance (75%) of educators from Higher Education and more than 60% were involved in face-to face-teaching.

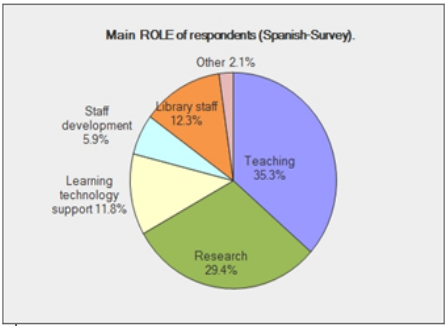


*Figure 2*. Role of respondents (English Survey)

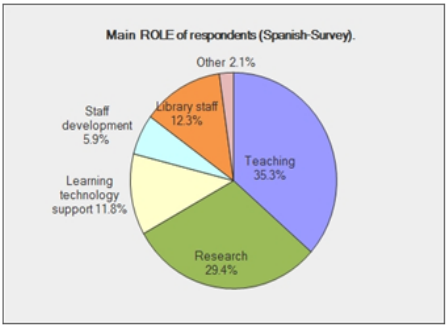


*Figure 3* Role of respondents (Spanish Survey)

The 54% of respondents (52.3% educators) in the English-survey and 50% (42.6% educators) of the Spanish one worked on a project where there was a funding requirement to share or reuse educational content (table 1). These projects were of a wide variety (inter-institutional, governmental, international, national, local, etc), since more than 65% of respondents involved reported some information about them (Q10). As regards the provenance of those funded to share or reuse, 29.6% of the total (both surveys) were in Spain; 19.4% in the US; 12.9% in the UK.

Table 1

*Do you currently work on a project which requires you to share or reuse educational resources (i.e. content which could be used in learning and teaching)? (Q8)*

| | **English- Survey** % (Nº. respondents) | **Spanish-Survey** % (Nº. respondents) | **TOTAL Respondents** |
|---|---|---|---|
| *LINKED* | 54% (61) | 50% (47) | **108** |
| *NOT LINKED* | 45.5% (51) | 50% (47) | **98** |
| **TOTAL Respondents** | **112** | **94** | **206** |

The variety of the collected data allows a differentiated analysis between various target groups. These groups may support some of the assumptions of the study which are based on:-the variation between the two surveys

contexts represented (English and Speaking language countries; mostly respondents from Spain, US and UK)

## Findings and Discussion

This section presents some findings for our research, organized around two topics which become the control variables of the study: A) open activity within teaching –create, use/reuse and share learning resources- and B) influence of repositories.

For the analysis, we have considered some specific sections and questions in the survey, those directly related with these themes and accommodated as useful. Then, we will describe the results obtained from the surveys, explore possible explanations around them and discuss their relation with the previous research in the field.

Finally, we would like to clarify (see more in the *Limitations* section) the exploratory nature of this analysis given the reduced number of answers obtained from respondents and the specific sample frame we are looking at.

### Open Activity within Teaching: Design, Use/Reuse and Sharing

We will try to analyze here how use, reuse and sharing take place in the context of teaching practice, according to the results obtained in the surveys. We are interested, more specifically, about how educators decide to engage with use/reuse and sharing: their expectations, attitudes, preferences and requirements for using and sharing.

Between 63-73% of educators declared (Q11) they both create and use/reuse resources in their teaching; while 11-12% mainly create and 14-21% mainly use/reuse them. Educators create and use/reuse more for students (83.5-92.5%) rather than for colleagues or other types of audience (Q15). Regarding the subject area, they usually create or use these resources (Q13), more answers were collected in Social Science (53.13% in the survey in Spanish and 77% in the English one) and Education (around 31% in both surveys).

Next, we will describe, more specifically, responses as regards creating, using/ reusing and sharing learning resources.

**Use**

When educators were asked (Q18) about **what was important in order to choose a resource to be used**, the most and least important factors influencing their decision were shown in the following (table 2):

Table 2
*Factors influencing educators when they choose a resource to be used (Q18)*[5]

| | **Educators survey in ENGLISH** | **Educators survey in SPANISH** |
|---|---|---|
| **'Very important' factors** | | |
| *There is no cost to use the resource* | 75.6% | 68.6% |
| *Useable without clearing copyright (open licenses or public domain'*) | 67.5% | 64.7% |
| *Adaptation, remix or derivative* | 62.1 % | 50.9% |
| *Positive user ratings, comments or reviews* | 67.5 % | 43.1% |
| *Easy to upload or link to my teaching platform* | 54% | 52.9% |
| **'Not important/not applicable'** | | |
| *Popularity* | 72.9% | 47% |
| *Rare or unusual content or formal* | 52.,9% | 43.2% |
| *Approved or used within my institution* | 51.35% | 51.3% |

The top three important factors for use contemplated by educators are also reaffirmed by those respondents who mainly both create and use resources (Q11), but they highlighted the statement '*useable without clearing copyright*' as the most important one. Indeed, tackling the legal issues in learning materials can be a powerful way of transforming open activities in education by reusing third party materials to create new resources (Cassey, 2006). The issue of IPR (Intellectual Property Rights) is one of growing importance and seems to increasingly permeate debate. Therefore, some actions are being carried out in this sense; for instance, the *TrustDR* project[6], which is devising some practical solutions to the problem of managing IPR in learning materials, and the *JISC Legal service* that works in the legal guidance for ICT use in Education[7].

Another important factor, not valued in the first positions (as one of the most 'very important') by educators, but also well rated considering the

sum of the scores 'very important' and 'important' (by 92.1% in the Spanish Survey and 83.78% in the English one[8]) is related with '*designed for reuse, e.g. stand alone and granular (small size) resource'*. This aspect is reflected as a facilitator for use/reuse throughout a wider research study.

Another survey (Dichev&Dicheva, 2012), distributed among Computer Science instructors[9], also came to similar results showing that most respondents seek learning components that are part of a lecture or an activity rather than larger units or a course level content. Other findings from the University of Nottingham (Windle *et al*. 2010), which looked at reusable learning objects for health studies, acknowledged that while increasing the 'specificity' of the objects can significantly reduce the potential for reuse, there was a necessary trade-off to reuse or share the objects with peers. Finally, research based on eye-tracking and remote observation to follow users of an OpenLearn[10] unit (San Diego & McAndrew's, 2009) suggests that although the unit may have been designed to follow a certain pedagogical sequence, logs show users may not follow the same sequence and users are typically seeking a single item per search. Thus, a single/small resource would usually lack an explicit narrative or learning outcome and therefore places much greater demands on the user to construct their own narrative (Lane, 2007).

It is also interesting to mention other reflections here about the use of resources that some of the respondents commented (answers extracted from an open field question in Q18), such as*: "to meet ADA[11] Standards for Accessible Design"*[12], *"to be respectful with indigenous rights (UNDRIP[13])"*, sustainability, user-friendliness and the possibility that the resources could be benchmarked.

Amongst the different assessments referred by educators regarding the use of learning resources, it has been observed that while the English-survey respondents considered '*the availability in languages other than English*' not important/not applicable (62.1 %), the Spanish ones were more likely to find this important (47%) and very important (39.2%).

Before going any further, we would like to point out that the main factors selected by educators when they choose a resource to be used are reiterated by the rest of the professional profiles surveyed. Additionally, the library staff incorporated the influence of resources '*recently created or updated'* (61, 9%) and the technologists added some other more technical aspects; such as '*incorporates interactive multimedia or other 'rich' media*'

(60%), '*description is accurate and detailed'* and '*adaptation, remix or derivatives permitted'* (56%).

We will now focus on responses related to those for which learning resources are designed, created or used/reused (consumers). When surveyed were asked if they **design, create or use/reuse learning resources for students, colleagues or for others** (Q14 and Q15), some differences between the Spanish and English contexts are observed (table 3).

Table 3
*Designing and adapting learning resources*[14]

| | **Responses in English-survey** | **Responses in Spanish-survey** |
|---|---|---|
| **Q14: Do you design or create learning resources…** | % of YES (received responses) | |
| for students? | 92% (72) | 80% (91) |
| for colleagues? | 64% (32) | 35.5% (64) |
| for others? | 39.3% (15) | 16.5% (39) |
| **Q15: Do you adapt or reuse learning resources…** | | |
| for students? | 89% (70) | 78% (70) |
| for colleagues? | 59.6% (30) | 33.3% (30) |
| for others? | 39.3% (11) | 12.2% (39) |

Most respondents from both surveys declared they design or create (Q14) and also adapt/reuse (Q15) learning resources for students. However, regarding the creating and reusing of resources for colleagues or for someone else, there were differences between the surveys. In the survey in English, more respondents agreed to doing it for colleagues (almost the double of the Spanish one) and for others (more than the double).

More differences have been identified related to work and projects set up with support. Respondents (from both surveys in English and Spanish) who had answered they had the support of someone else to carry out some of the work (Q23), also stated to having created more resources for colleagues (53-78%) and others (50-60%) than those who had answered not having support (41-63% and 15-43% respectively).

An assumption to explain the results about the creation and use/reuse for others than student (that is, for colleagues or others), could have to do with the levels of specialization amongst the professionals who design, create

and adapt/reuse learning materials. This could be due, for instance, to the higher incidence of the instructional designers or educational developers in the different educational contexts (Siemens, 2008). This role would be directly implicated in the design, creation and use/reuse of learning resources for others (mainly educators instead of students) and could offer 'expertise' and guidance in. In this sense, there might be some particular contexts which have more instructional designers, as well as interdisciplinary teams, mediating in the learning resources' creation process (Power, 2009). On the other hand, the Spanish-speaking context might have educators that are more autonomous in designing, creating and adapting learning resources on their own and having less (or without) technical or instructional support (Cabero et al., 2010). Learning designers may provide an interesting help to educators, not only providing learning resources but also as guidance in making them able to take and adapt their materials (Conole & Weller, 2008). This is a challenging area with a range of issues of both a pedagogical and technical nature that requires further research.

To sum up, the attitudes and opinions expressed by surveyed educators regarding the use of learning resources were found to be aligned with sustainability (not cost associated), granularity (pieces for incorporation into their teaching plans), copyright and open licenses, availability (online and easy to download), quality systems (ratings and comments), accessibility, etc. They also seemed to be interested in being able to make adaptations from other learning materials, probably in order to keep content up-to-date,to stamp their individual style or to structure them for a different audience ('repurposing') (White & Manton, 2011; JISC, 2009). We will now tackle these issues deeply when analyzing the reuse activity.

**Reuse**

**In Q16,** respondents are asked about which factors influence their **decision to reuse a learning resource** and educators, of both surveys, highlighted the following positive influences (see table 4):

Table 4
*Positive and negative influences in the decision to adapt or reuse (Q16)*

| **'positive influences'** | **Educators ENGLISH-survey** | **Educators SPANISH-survey** |
|---|---|---|
| *improving student learning quality* | 84.2 % | 88.4% |
| *reuse is a good thing to do* | 84.2% | 84.6% |
| *supporting my research activity* | 71% | 88.4 % |
| *the work is online, available for remix by others* | 84.2% | 69.2% |
| *good for my personal development* | 78.95 % | 71,1 % |
| *this saves me time* | 78.95 % | 80.7% |

From the answers collected, '*improving student learning quality'* is found to become a major reason for adapting learning resources amongst educators, who might reuse materials that meet and support learners' needs as well as making learning richer. This main influence expressed by educators could have to do with spending more time in pedagogy (designing learning strategies) rather than focusing on content generation (Gordon et al., 2002).

Some studies (Bond et al, 2008) suggest that the most effective way to reuse might not be to use a resource as it was created but changing the way a resource is used. Thus, there would be two levels of reuse (Willis et al., 2009; Littlejohn, 2003): reuse of an existing resource (which implies the material used as a learning object) and reuse of a resource as the model for another new resource (that implies the material used as a learning design). Engaging educators in participative design processes (such as developing customizable learning activities) would be essential both for adapting learning resources to their new context of use and to involve the educators in that 'recontextualisation'.

The factors stated by those who claimed that they both create and use/reuse resources (Q11) were very similar, although the assigned level of influence changed slightly. In their decision to adapt/reuse resources, they prioritized some reasons: 'the *work is online, available for remix by others*' (91%) and '*reuse is a good thing to do*' (90.9%) ahead of the rest of factors. These answers suggest that those who both create and use/reuse learning materials are more aware and knowledgeable about what is needed for

reuse. Since it has been stated (Pegler, 2011) that the widest spread of reuse is where the user and creator are the same, we could guess that this group of respondents could be more motivated for reuse. Some other reasons mentioned by educators as to why they might adapt/reuse rather than create resources are (open comment from Q16): '*to update resources, availability of many resources in my field*', '*alignment with a collectivist ideological orientation*', '*only in announcement of grants for OCW*', '*in case of institutional funding for research*', '*to set an example and to disseminate our message more broadly*', '*to access to other people's expertise/knowledge*', '*to increase general awareness of resource availability* and *because it is challenging/fun*'.

It is noticeable that educators responding to the English and Spanish surveys differed in their judgment about what was a positive influence and what had no effect/not applicable in reuse (see table 5):

a) '*My project, department or institution requires this*': while 63% of the English-survey respondents outlined that this had not affected influence (and 31% that had a positive one), the opposite happens in the Spanish-survey; where 61.5% of respondents considered it as a positive influence (and 36% displayed it as having no effect).
b) '*Improving my reputation or that of my team, department or institution*': the same pattern as the previous one is repeated here: around 60% of the English-survey educators answered that this has had no effect but 60% of the Spanish one manifest the contrary.

Table 5
*Influences in the decision to adapt or reuse (Q16)*

| | **Respondents ENGLISH-survey** | | **Respondents SPANISH-survey** | |
|---|---|---|---|---|
| | **Positive influence** | **No effect/not applicable** | **Positive influence** | **No effect/not applicable** |
| (a) My project, department or institution require this | 31.5% | 63.1% | 61.5% | 36.5% |
| (b) Improving my reputation or that of my team, department or institution | 39% | 60% | 63.4% | 34.6% |

These answers prompt that respondents of the Spanish-speaking context are more dependent on their institutions when they reuse than respondents in the English survey. In addition, if we compare responses from those linked and not linked to projects which requires the reuse/sharing of resources (see table 6), we realise that differences are higher in the English survey - 28% in statement (a) and 17% in (b)- than in the Spanish one - only 8.4% of difference as for (a) and 10% in (b). These divergences suggest that English-context respondents perceived institutions as a more positive influence if they were linked to projects than if they were not, p (this is supported by calculating the $\chi_2$, chi-square statistic (6.736)[15], which offers the significance of the relationship between the two nominal variables), whereas Spanish-context respondents considered that institutions have a more positive influence in their decision to reuse, independently if they are linked or not to projects which require the reuse/sharing of resources.

Table 6
*Respondents' linking to projects (Q8)*

| | **Respondents ENGLISH Survey** | | **Respondents SPANISH Survey** | |
|---|---|---|---|---|
| | **Linked** | **NOT linked** | **Linked** | **NOT linked** |
| (a) My project, department or institution require this | 53% | 25% | 68.4% | 60% |
| (b) Improving my reputation or that of my team, department or institution | 50% | 33% | 87% | 77% |
| *Dependence of variable of institutional influence (a&b) and to be linked or not to projects* | Chi-Sq )= 6.736/ P value = 0.009449<br>Result is significant at $p < 0.05$ | | Independence of *institutional influence (a&b) and to be linked or not to projects* | |

Thus, attitudinal drivers became important again for adapting and sharing resources, since having support (institutional or governmental policies and/or funded projects) and positive disposition towards the reuse is essential for educators' uptake of learning resources at both micro-individual and macro-institutional level (Masterman & Wild, 2011). Regarding the subject discipline affecting the reuse and repurpose of learning resources, educators who responded they mainly use/reuse

resources (Q11) were mostly from the Education subject area. It should not be a surprise to discover that the subject discipline may influence how likely educators find materials to reuse. Some subjects are in more demand than others as well as some disciplines may have restrictions or opportunities for users' repurposing, so in some areas consistent updating of references is very important (Law, Social Care and Health can be subject to sudden change, in law or in the processes controlling their profession) (Pegler, 2011).

In terms of consciousness about **using and adapting existing learning** resources (Q17), 50-60% of educators feel that they currently do not use and adapt existing learning resources as much as they can. This is likely due to some of the inhibitors and barriers for effective reuse, identified by previous studies (OECD, 2007; OLCOS, 2007; OPAL, 2010): no trust in others' resources, lack of time, lack of interest and motivation, lack of a reward system, lack of policies to support it, lack of accessible technologies, lack of quality content, lack of skills and technical capacities among the educational communities. Other boundaries that would distance users from re-purposing are the critical mass of available content, problems of interoperability of repositories and tools, copyright issues, cultural differences (Pawlowski & Zimmermann 2007; Davis *et al*. 2010).

As regards **concerns about using resources created by someone else (Q25),** at least more than half of the surveyed educators agreed on the following assessment (table 7):

Table 7
*Concerns about using resources created by someone else (Q25)*

| | **Respondents ENGLISH-survey** | **Respondents SPANISH-survey** |
|---|---|---|
| **'Important' factors** | | |
| Might be inaccurate or out-of-date | 88.2 % | 68.6% |
| Not enough high quality | 61.7 % | 70.8% |
| If online, the site may change or disappear | 67.,6% | 62.50 % |
| Would need to make changes before using | 67.6 % | 67.6 % |
| Have infringed copyright | 61.7% | 64.8 % |
| **'Not important' factors** | | |
| Others using the same resources (exclusivity) | 76.4 % | 70.8 % |
| The different style may confuse students | 55.8 % | 68.7 % |
| Altering someone else's work | 67.6% | 56.2 % |
| Miss the creative buzz | 63.6% | 52. 9 % |

According to these results, educators identified accuracy, quality, online availability and copyright as 'important' issues when using learning resources made by others. Those factors are essential to make clear that there is work involved in reuse and that users should take into account some parameters when they create materials to be reused.

Indeed, one of the most important concerns for use/reuse is the perceived lack of quality. Even though the efforts might be spent on achieving quality assurance (such as the generic International Standards Organisation- ISO[16]; the European Foundation for Quality Management – EFQM or other quality instruments such as ranking, peer review or recommender systems), the value and the awareness of users about quality is a main concern. There are also other related variables of crucial importance; like the cost of applying quality approaches, the stakeholders' perceptions and actions and trust (Clements & Pawlowski, 2012). In this sense, trust in the resources available from others also becomes another important barrier for reuse; understanding the lack of reliability of educational resources, of individuals who created them or institutions where they belong to. Other surveys have also detected this factor as the main one that stops the reuse of educational resources (Bates et al., 2006), followed by the lack of quality and lack of Internet connectivity.

We can see a direct relationship between some of the variables that respondents have already identified as inhibitors of reuse: quality and trust. According to Clements and Pawlowski (2012), this 'trust' in (1) organizations; (2) individuals; (3) resources; and (4) technologies could facilitate the search of 'high-quality' learning resources and therefore to increase 're-use' of OER. Effectively, trust could be a key instrument in facilitating the process of re-use for educators. However it does not automatically provide quality, since it might help to find resources of quality but still leaves educators the task of evaluating about whether the resource is re-usable for their needed purposes and context. Thus, trust is connected with quality but only facilitates parts of the re-use process for users.

## Share

At this point, we will describe how educators **create resources to be shared** (Q22), **how they share them** (Q19-21 and Q22) and what is their

**motivation** to do it (Q24). It is also intended to go one step ahead in the study about sharing, in order to know **how other resources that are not educational are shared** for learning, with students, or for research with other colleagues (Q30).

Educators displayed different motivations and interest in order to share resources (see table below). Again the main benefit largely viewed (Q24) is improving the student's learning quality and the positive consideration about reuse. From these responses, like in the case of reuse, educators seem to share materials that might improve the process of learning as well as showing awareness about sharing as a benefit. Some other less altruistic influences for sharing are to support the existing research activity, interests or professional development. However, the possibility of reward is believed to have less effect on the decision to share. This could be considered as surprising since respondents of other surveys (Masterman& Wild, 2011) concurred unequivocally with the importance given to this statement, pointing to the need for appropriate reward systems to be established to help reuse and sharing and to ensure the sustainability of existing resources. On the other hand, there is the assumption that educators' creativity and imagination also plays an important role (Littlejohn, 2003).

Table 8

*Factors influencing educators in their decision to share resources (Q24)*

| | **Educators ENGLISH-survey** | **Educators SPANISH-survey** |
|---|---|---|
| **'positive' influences** | | |
| *student learning quality improved* | 78% | 98% |
| *reuse, is a good thing to do* | 88.8% | 84.7% |
| increases the use of resources | 83.3 % | 90% |
| *supporting existing research activity or interests* | 83.3 % | 85.4% |
| *good for my professional development* | 58.3% | 56.59% |
| *possibility of reward* | 56.5% | 58.3% |

Educators surveyed also responded they frequently (32-36% of respondents), sometimes (42-44%) or rarely (17-20%) share **`finished' learning resources** (Q19) with practically everyone except their students. As for **'in progress' learning resources** (Q20), 27-32% of educators answered that they share them frequently; 42-43%, sometimes and 16-20%, rarely. Although there is not much difference between the responses, a

general preference for sharing 'finished' resources rather than the ones 'in progress' is observed. In addition, 69.4% of the Spanish-survey respondents outlined they would consider sharing learning resources in the future (Q21) and only 37% of the English-survey answered the same. These last responses could be due to the fact that they already share as much as they are likely to or wish to.

Some of the most popular considerations given by educators, about **making learning resources suitable for sharing (Q22)** are the following:

Table 9
*'often' ways to make resources available for sharing (Q22)*

| **Q22: 'often' ways to make resources available for sharing** | **Respondents ENGLISH-survey** | **Respondents SPANISH-survey** |
|---|---|---|
| to check accuracy /gramar | 71.4 % | 82.9% |
| to check copyright | 57.1% | 59.5% |
| change file format | 59.5% | 48.9% |
| improving the appearance of materials | 45.7 % | 74.4% |
| including references before sharing | 45.7 % | 74.4% |
| deposit in a repository | 25.7% | 74.4% |
| upload them so they can be found | 55.8 % | 68.7 % |

These reasons suggest that educators invest some effort and time in assuring the quality and reusable form of resources before sharing them. They also take into account some technical aspects that would facilitate the reusing and sharing of resources. This might point out that educators anticipate technical issues which help to generate more sharing, since having resources available for sharing create opportunities for reuse and vice versa.

Something that is noticeable is the level of divergence between respondents of the surveys in Spanish and English. In the first case, Spanish educators have more consideration for improving the appearance of materials and including references before sharing, depositing in a repository and uploading them so they can be found (51% 'often' do it while 48.8% of the English-respondents would 'never' consider this factor). Furthermore, '*translation into another language'* is less considered by the English-survey

respondents, who 'often' (5.7%) do it, 'occasionally' (11.4%) or 'never' (68.57%). They would not need to do it, as English is the international language for the exchanging of academic information. However, educators in the Spanish-survey highlighted this aspect of translation (59.5% of them do it 'often' or 'occasionally' and 34%, 'never'); this is probably because it would be necessary if they want to share their learning resources internationally, instead of maintaining them in their language and sharing them locally. In fact, according to the results of previous surveys (OPAL, 2010), the availability of OER in the user's language constitutes a barrier which would point to public policy and institutional policy intervention to support learning resources supply from a multi-linguistic perspective.

As for respondents who specifically argue both creating and reusing resources (Q11), the top three aspects chosen to make a resource suitable for sharing (Q22) are to '*check the copyright'*, the '*accuracy and grammar* and to '*add references and acknowledgements'* (62-72% of respondents); all of them related with the quality of the resources to be shared. This reminds us of the connection between use, reuse and sharing: the experience of using resources and making them suitable for reuse implies they are also prepared for sharing.

## Influence of Repositories

### Global Computation (All Respondents)

In this case, we will first of all show the global computation (all respondents) to identify some insights and examples of what respondents valued.

The '*availability of a trusted or familiar* repository' is one of the factors to be chosen in questions 16, 18 and 24 *of* both surveys. Table 10 shows the incidence of this factor (importance and influence) according to the respondents:

Table 10

*The 'availability of a trusted or familiar repository' is:*

| | **Respondents ENGLISH-survey** | **Respondents SPANISH-survey** |
|---|---|---|
| **'*important*'** when they choose a resource **to be used (Q18)** | 47.7% | 56.7% |
| a **'positive influence'** in their decision **to adapt or reuse (Q16)** | **73.6%** | **80%** |
| a **'positive influence'** in their decision **to share resources (Q24)** | 63.4% | 73.2% |

From the answers gathered, it is encouraging to observe the importance and positive influence that trusted repositories appear to produce in respondents. Nonetheless, we should also take into account that 'availability of a trusted' repository as being one of the factors to be selected from a list of influences for use, reuse and sharing. Therefore, there were other factors ahead with equal or more positive rates.

Some assumptions that emerge from these first data are that repositories may be perceived as a more important influence for adaptation/reuse and even sharing of learning resources rather than for their use.

Although many developments have been made in the design and functionality of repositories as well as in the encouragement of their use (recruiting potential users via liaison programs; improving technical aspects of repositories; creating Open Access institutional policies; etc), the efficient use of them is still questionable. Into the bargain, it is difficult to find evidence in the literature that repositories are used. A review of the research about MERLOT (Shea et al, 2006), found that it was the most prominent repository of educational resources, as regards number of uploaded material and registered users, but its real use could not be established. This study concluded that MERLOT had not 'consumers' at all, only innovators and inventors who review and evaluate other contributions.

Other studies suggest (Dichev & Dicheva, 2012) that the use of content repositories is largely due to the traffic that search engines direct to them. Thereby repositories could increase their use by adapting to the searching behavior of the user; for instance, through standard metadata which makes the content understood by search engines and hence, found and used. Some other main features valued in the repositories were the quality control of the hosted material and the release of the content under open content licenses.

Functionality and efficiency of repositories could as well be one of the other main issues to be improved in repositories. Finally, it is remarkable that the concentration on ontologies and the semantic web is gaining popularity in enhancing educational resources by means of being used and shared among educators (Yalcinalp & Emiroglu, 2012).

These global results also indicate that respondents in the Spanish-speaking context seem to have a better consideration of the repositories than those of the English survey. This pattern differs from the one obtained in a previous survey, launched by JISC in the UK, with respect to academics' use of repositories (Bates et al., 2006). In this case, the English-respondents had a positive experience in the use of repositories (reflected in the responses of ease of use and time for locating material) and they declared to be familiar with the JORUM and MERLOT repositories. From that time till now, repositories have evolved; just like the perception of users about them. Consequently, further research is needed in order to know users' thoughts and expectations about current repositories.

**Specific Samples of Respondents (Target Groups)**

Some specific samples of respondents will now be analyzed in order to see if there are differences from previous results or this behavior pattern is repeated again. Thus, we will focus on responses from two specific target groups: one related with professional profiles (librarians and educators), and another one formed by respondents involved or not in projects requiring the reuse and sharing of educational materials. We intend to test if library staff would weigh in favour towards the functionality of repositories more strongly, as well as would those linked to funded projects.

**Educators vs Librarians**

The data collected about the incidence of the '*availability of a trusted/familiar repository*' in the use, reuse and sharing of learning resources showed some 'curiosities' as commented here in table 11:

Table 11
*Repositories as a 'positive influence' or an 'important' /'very important' factor to:*

| | EDUCATORS | | LIBRARY STAFF | |
|---|---|---|---|---|
| | **ENGLISH Survey** | **SPANISH Survey** | **ENGLISH Survey** | **SPANISH Survey** |
| Use (Q18) | 16.1% | 58.1% | 33.3% | **61.5%** |
| Reuse (Q16) | 63.1% | 85.1% | **100%** | 75% |
| Sharing (Q24) | 58.3% | **80.1%** | 76.9% | 66.6% |

- As a factor in the decision to use, it appears to be more 'important' for educators in the Spanish-survey than in the English one. Furthermore, 28% of the English-survey respondents restated their position by expressing that trusted repositories were 'not important' in contrast with 5.8% of the Spanish one, who even selected repositories in fourth position of importance[17]. If we compare the responses of the librarian staff, the responses are also higher (almost the double) in the Spanish context than their colleagues in the English survey. Although we obtained few responses from librarians, they seem to place more importance on 'repositories' as a factor of use than educators (even more than English librarians)
- As for adapting/reusing, educators of both surveys appear to be much more aware than in the previous postulation. While 85.4% of the Spanish-survey respondents found trusted repositories as a 'very important' factor to reuse and rated this in the third place, the English one surveyed were less (63.1%) and positioned it in sixth place after other top factors. In this case, librarians seem to be very convinced (75-100%) about the positive influence of repositories in the reuse of learning materials.
- Regarding the influence of repositories in sharing, educators in the Spanish-speaking context seem to be more in favor than library staff of the same context (85% in contrast with 66.6%). According to the chi square calculation (4.2025 and P value=,

0.040365), in this case there is a dependence between the variables Educators/librarian as for sharing. However, in the English-survey the results are the contrary: librarians' consciousness is higher (76.9%) than that of educators (58.3%).

We can behold again (as previously identified) that the educators of the Spanish-survey have a more positive consideration about repositories when they use, reuse (specially) and share learning resources than their English-survey's colleagues. On the other hand, most agreement has been observed between the two selected professionals groups, which seem to be related with reusing learning resources; which got the most positive responses (63-100%). In this case, it is worth noting that librarians of the English-survey were 100% in agreement. Finally, repositories were also approached as an important influence when sharing resources, especially by educators of the Spanish survey and library staff in the English one.

Why do these different patterns of awareness about repositories exist? Some interpretations to discuss this question could be the following: the '*shareability*' of learning resources through interoperability between repositories and the existence of online communities of practice (CoP) encouraging the dissemination and sharing of resources in repositories.

Educators from other researches (Yalcinalp & Emiroglu, 2012) mentioned the importance of operability across various repositories as well as the interrelation of educational resources in the same repository. In this sense, the provision of technologies that enhance the '*shareability*' of OER through interoperability between repositories would provide an opportunity of sharing resources among educational institutions. This could explain the high awareness of librarians and repository developers regarding the possibilities of repositories in aspects of reuse and sharing.

On the other hand, the rise of teaching CoP for the development and sharing of educational resources may encourage the dissemination and reuse of learning materials in collaborative environments and platforms, such as repositories. There are some experiences supporting this assumption. For instance, for educators of the repository Share.Tec[18] (Banzato, 2012; Carramolino & Rubia, 2013), the reuse of digital resources was of considerable importance in their professional practice. Moreover, educator users of the LORO repositories (Beaven, 2012) and CIRAX (Santos-Hermosa et al., 2013) had the opportunity to share resources and practices, to discuss with peers who have different experiences but common

interests, to develop their professional learning and, finally, to improve their teaching. CoP enhances not only the sharing of knowledge but also promotes educators' creativity by enabling the creation of something new (Tosato, 2011). Therefore, this could explain the interest and predisposition of educators for sharing.

### Respondents Linked or Not To Funded Projects

Table 12

*Repositories as a 'positive influence' or an 'important' /'very important' factor to:*

| | LINKED TO PROJECTS | | NOT LINKED TO PROJECTS | |
|---|---|---|---|---|
| | **ENGLISH survey** | **SPANISH survey** | **ENGLISH survey** | **SPANISH survey** |
| Use (Q18) | **78.7%** | 100% | 72.5% | 89.1% |
| Reuse (Q16) | 76% | **97.3%** | 74.3% | 100% |
| Sharing (Q24) | 68.8% | **82.3%** | 67.5% | 72.7% |

The data indicates that, in the English survey, there are not many differences between respondents linked or not linked to funded projects, so answers and rates are quite similar as for the importance given to repositories when choosing the use, reuse or the sharing of learning materials. In the Spanish survey we can observe something similar except in the case of use, where respondents linked to funded projects have a more positive consideration about use (100%), which is supported by chi-square calculation than those not linked (this is supported by thechi-square statistic:4.2286. The P-Value is 0.039749. The result is significant at $p<0.05$).

Finally although it is encouraging to observe the high level of interest expressed by respondents towards repositories, it should be highlighted that there is a difference between 'awareness' and 'contributions'. Therefore, having a 'positive influence' or considering repositories as an 'important' /'very important' factor on the respondent's decision does not necessarily mean that respondents use, contribute or share learning resources deposited in repositories.

## Conclusion

In this paper, we based our empirical study in the attitudes and opinions of the ORIOLE Survey respondents, together with the analysis of the literature about OER. While our study confirmed many statements based on previous surveys and studies, it also identified some interesting indicators and showed areas where further research would be particularly helpful to confirm or expand on our findings.

ORIOLE Survey has pointed out that, in the decision to use, re-use or share educational resources in the context of teaching practice, some of the most important factors displayed were quality (accuracy, updating, positive ratings and comments), copyright issues, granularity (in order to customize resources to suit different educational needs), availability (online access and easy donwload) and economy (no associated cost). Indeed, the survey itself raised interest of improving student learning quality and awareness of re-use as a 'good thing to do'. These preferences mainly expressed by educators were also reiterated by the rest of the professional profiles even though, in some cases, each group displayed their peculiarities. As for those other respondents, who claimed they both create and use/reuse learning resources or they are linked to projects which requires this, prioritized the factors more related with the repurpose of resources (availability for remix, checking the copyright, accuracy, etc.). These attitudes suggest more awareness and knowledge about what is needed for reuse and an increased susceptibility to use, reuse and share educational resources.

Although, in general, respondents of the English and Spanish surveys had no significant variations in their responses, occasionally they differed in some of their evaluations. This has showed some hypothetical patterns which might be worth further studied; such as the inclusion of instructional designers to participate/support the creation of resources, the dependence of institutions regarding the influences in the decision to adapt or reuse, the importance of the resource's language, etc.

ORIOLE Survey has also collected considerations about trusted repositories as a positive factor in the use, reuse and sharing of educational resources. A behavior pattern which has emerged from surveys' responses is that repositories are perceived as a more important influence for adaptation and sharing rather than for the use of learning resources. As commented in the discussion, this is probably related with the development

of the repositories, which have evolved from archiving and preserving resources to incorporate them in educational practices (Santos-Hermosa et al., 2012), and the '*shareability*' of learning resources included through interoperability between repositories.

Repositories have carried out diverse practices to encourage their use and to gain educators' awareness (Primary Research Group Staff, 2011) and currently there is also a need for re-thinking their role. One of the most effective ways to improve acceptance of repositories seem to be the willingness to respond to people's concerns and queries in an efficient manner. In this regard, repositories of learning resources based on communities of practices (CoP) might be an opportunity to be used beyond resources' preservation and to promote micro trading economies where resources are exchanged (Campbell, 2003). CoP is also seen as the key quality assurance task force, providing peer-reviewing and recommendations to other users in the community (Larsen & Vincent-Lacrin 2005; Auvinen, 2009). Therefore, we consider that activities around using, repurposing and remixing OER in repositories can be achieved if they are integrated in teaching professional development and ultimately becoming community-driven. At this stage of development of repositories, this system should be sustainable and would meet the requirements of the educational context. New experiences to foster communities of teachers around educational repositories (Beaven, 2013; Tosato, 2013) might bring new and hopeful results.

Finally, to round off our study in a encouraging and future-oriented way, we believe that some of the emergent issues commented in this paper will be able to further studied in the coming years, since fortunately they are included in the agenda of international organizations (UNESCO, 2012; Johnson et al., 2012; European Comission, 2013) in the coming years. For instance, recommendations about the creation and use/reuse of OER as part of the professional development of teaching staff or the benefits of sharing and collaboration between institutions and their academics .

## Limitations and Future Work

One of the main limitations of this survey has been the low number of answers and their concentrated location, despite the dissemination carried out internationally. In addiction, there was a lack of completed surveys

provided by respondents; which may be due to the length of the questionnaire. All of this calls for great caution in interpreting the results.

On the other hand, the ORIOLE survey was focused on obtaining perceptions and attitudes about open content, OER, use, reuse and sharing of learning materials. There was an implicit expectation of these areas; however, it does not provide any empirical data about the actual practices of use/reuse and sharing. Therefore, these open activities cannot be actually evident. Further investigation into the use/reuse and sharing and its implications for teaching would be of utmost interest.

**Acknowledgement**

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# Notes

[1] They are available online or in pdf format:
English: http://www.surveymonkey.com/s/ORIOLE_E/
https://docs.google.com/file/d/0B77aM81pfNQ5MmdCTzRFNFJXWnM/edit
Spanish: http://www.surveymonkey.com/s/ORIOLE_S
/https://docs.google.com/file/d/0B77aM81pfNQ5T0dsdHJFTVNtZG8/edit )

[2] Idem note i

[3] According to the UNESCO Institute for Statistics (UIS) and its *UIS Public report of education*, the estimation of the total world sum of teaching staff would be 82,371,184 (population data based on the 2012 revision of the World Population Prospects).

[4] For the analysis we have excluded those who did not answer (skipped questions) and just worked with the valid answers.

[5] This is a selection of the most and least rated answers

[6] funded by the JISC in the UK: http://www.jisc.ac.uk/whatwedo/programmes/digitalrepositories2005/trustdr.aspx

[7] http://www.jisclegal.ac.uk

[8] 27 respondents answering 'very important' plus 20 saying 'important', out of 51 (in the Spanish Survey) and 13 respondents answering 'important' plus 18 'important' respondents, out of 37 (in the English Survey)

[9] 374 respondents, from different university categories and various geographical regions
[10] Open Learn is the repository of free educational resources of the Open University UK: http://www.open.edu/openlearn
[11] Americans with Disabilities Act (ADA)
[12] http://www.ada.gov/2010ADAstandards_index.htm
[13] United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP): http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf
[14] This is a selection of the affirmative answers (respondents could also choose "no" and "not applicable" and to give more than one answer).
[15] English data: The Chi-square statistic (Chi-Sq)= 6.736. The P value is 0.009449. This result is significant at $p < 0.05$.
[16] There is the specific ISO 19796-x standards series for educational organizations and educational resources
[17] They chose behind the factors 'there is no cost associated', 'Useable without clearing copyright (open license or public domain)'and 'Recently created or updated'.
[18] http://www.shartec.eu/it/

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**Gema Santos-Hermosa** is Digital & Liaison Librarian, in the Library Learning Support Service at Open University of Catalonia, also is PhD student al University of Barcelona, Spain.

**Contact Address:** Universitat Oberta de Catalunya (UOC). Biblioteca Virtual, Ramba de Poblenou, 156, 08018, Barcelona, Spain. E-mail. msantoshe@uoc.edu

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# El Desarrollo de Subjetividades y la Construcción como Investigador/ra a través de los Relatos Biográficos, Coordinado por José Ignacio Rivas Flores y Pablo Cortés González

María Jesús Márquez García[1] & Daniela Padua Arcos[1]

1) Departamento de Educación, Universidad de Almería, Spain.

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# Review I

Rivas Flores, J. I., & Cortés González, P. (Coord.) (2013). El Desarrollo de Subjetividades y la Construcción como Investigador/ra a través de los Relatos Biográficos. Chiapas: CeCOl Editorial. ISBN 978-607-95945-9-6.

Cuando hace algunos meses tuvimos en nuestras manos este libro sabíamos que contribuía al conocimiento del mundo académico e investigador desde un lugar diferente, tal vez uno de los lugares más importantes pero más relegados en mundo de la investigación universitaria, y es la contribución desde nuestras propias vidas y experiencias. Nunca antes nos habíamos atrevido a compartir con el mundo nuestros relatos como investigadores e investigadoras desde el punto de vista que este libro aborda, es decir, poniéndonos en la piel de investigadores/as y participantes, no solo en un lugar de igualdad entre nosotros/as mismos/as, sino además mostrándonos desde una dimensión de Sujetos con historia tal como lo desarrollamos en nuestra práctica profesional.

Hablamos de un libro que recoge las biografías de investigadoras e investigadores, docentes en ejercicio o en formación de distintas universidades y distintos países, que narran, cuentan y elaboran su historia acerca de cómo llegan por diversos caminos a encontrarse en un grupo de investigación (PROCIE), en el que comparten un paradigma cualitativo y un enfoque crítico. Una mirada diferente del "mundo", otra forma de posicionarse ontológica, ética y epistemológica en la investigación, basada en una metodología biográfica narrativa no usual y que podemos ver en cada uno de sus relatos.

A través de la lectura de las siete biografías que incluye el libro, tenemos la oportunidad de asomarnos, no sólo a la introspección y reflexión de las distintas trayectorias de las que cada una y uno de las investigadoras


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e investigadores, sino a los diferentes modos de contar experiencias vividas, transitando por aspectos profesionales, formativos, emocionales, de relación, de compromiso y cómo estas conforman una forma de sentirse así mismos, al mundo de la educación y la investigación educativa.

La metodología con la que se realiza este trabajo fue decidida en el grupo de investigación, optando por realizar entrevistas abiertas en parejas que ayudara a romper miedos y a reflexionar a partir de un diálogo entre investigadores/ras dentro de un clima afectivo que potenciase la construcción mutua. Nos dio oportunidad de escucharnos, preguntar cuestiones que nos surgía al conocer nuestras historias, dialogar entre nosotros, sorprendernos y conocernos desde otra perspectiva. A partir de la transcripción de cada entrevista cada investigador/a elaboró su propio relato. Este proceso supone una forma de comprensión ideológica de la realidad; no se busca construir un discurso intelectual y académico ajeno a los sujetos sino interpretar los hechos desde la propias tradiciones culturales de los investigadores e investigadoras y desde sus marcos de comprensión.

En los capítulos de partida y el de cierre del libro, respectivamente, se presenta la historia del grupo de investigación ProCIE, perteneciente al Plan Andaluz de Investigación, las vicisitudes e invariantes de su constitución y desarrollo, la investigación biográfica centrada en la cultura escolar y la investigación narrativa como eje metodológico en desarrollo desde la experiencia de las investigaciones realizadas y en realización. El último aporta elementos reflexivos de la polifonía de voces que conforman este libro, el proceso analítico de tematización y búsqueda de las dimensiones emergentes: El contexto, el texto y la transformación. Dimensiones que son desarrolladas en subapartados en los que se profundiza en cuestiones epistemológicas y ontológicas. La construcción de un tipo de conocimiento entendido como un acto humano arraigado en el concepto de educación. Ligado a una la metodología de investigación narrativa que conlleva una forma de posicionarnos ante la vida, que rompe con barreras simbólicas que continuamente nos definen: vida personal-profesional, ser investigador/a-docente, conocimiento científico-social, etc. Los siete relatos recogidos cuestionan qué nos ha impulsado a investigar, qué y cómo investigamos y construimos y qué nos aporta y configura la investigación.

Avivamos en esta breve reseña cada biografía invitando a los lectores y lectoras a adentrarse en el diálogo que ellas nos plantean:

Analía inicia su relato con los recuerdos de su vida en la escuela como alumna, un mundo que se le brindaba como fascinante por un lado y extraño por otro. La dificultad de conciliar su vida en pareja y su maternidad con su trabajo en Argentina. En la universidad, siente "en carne propia el sistema jerárquico en las relaciones entre el profesorado". En Málaga encuentra otro modo de estar y participar en un grupo de investigación. Señala tres pilares que sostienen los procesos de investigación educativa, "el grupo, la interacción y comunicación y la solvencia académica, como cuestionamiento y reinterpretación de las teorías, los enfoques y las perspectivas".

Claudio elabora un relato apasionado y personal que acompaña de metáforas y sentido crítico para analizarse así mismo como persona e investigador. Se pregunta por qué la investigación educativa no cambia la forma de actuación en educación. Esta paradoja le lleva a un constante cuestionamiento en el que une su experiencia, sus deseos y sus reflexiones acerca del rol del investigador y la forma de sentir la investigación como un proceso de interpretación del mundo que le rodea y cómo lo ha vivido en el contexto argentino.

Esther consigue mostrar las rupturas que marcan su desarrollo personal y profesional con la academia en un proceso que mantiene en su vida como profesora universitaria. Relata su proceso de encuentro con el "cuerpo" y búsqueda de sentido pedagógico de lo corporal. "Yo misma vivía y experimentaba la ambivalencia y la tensión entre mostrar una imagen, sentir un cuerpo y construir una identidad corporal y emocional". Actualmente asume la investigación como un pilar importante en su compromiso académico, profesional y humano.

Fátima es maestra en una escuela e investigadora. Nos lleva al relato de su experiencia escolar en las distintas etapas, desde primaria hasta sus estudios de magisterio. En los estudios de Psicopedagogía se integra en el grupo de investigación ProCIE. La pregunta central en todo su relato es qué hace falta para movilizarnos ante las injusticias sociales, académicas, políticas, etc. Para ella "la investigación nos permite agudizar nuestros sentidos para poder entender lo que no se muestra evidente".

Juan Antonio explica en clave cronológica su trayectoria profesional que le lleva a ser orientador en un centro de secundaria y profesor asociado en la universidad. La trayectoria no es una línea trazada ni prevista para él,

sino que confluyen experiencias y relaciones que resultan necesarias para el desarrollo profesional.

Pablo cuestiona esa absurda dicotomía entre el yo como investigador y el yo como persona, para él son elementos ligados íntimamente. “Las expectativas de mi vida, no han sido cuestiones meramente materiales sino un camino por recorrer, por entender que caminando encuentras cosas para seguir creciendo”. Es incomprensible investigar sin un posicionamiento socieducativo crítico, sin unos planteamientos y unos principios ideológicos visibles y reflexionados, y sin un compromiso social con los participantes en la construcción conjunta del cambio, humanizando la relaciones entre las personas en todas sus dimensiones.

Por su parte, José Ignacio elabora un relato de ajuste con su pasado para comprender su experiencia particular que nace en un entorno de dictadura franquista y su evolución posterior. A través de las experiencias que relata de la escuela franquista podemos entender que fue este país educativamente hablando. La realización de la tesina es un hito en su trayectoria formativa, rompe con el paradigma positivista y entra en el enfoque cualitativo en el que desarrolla sus inquietudes de investigación. Sus experiencias iniciales les llevan a una visón política de la sociedad y al compromiso social, político y educativo que relata cómo mantiene en la investigación, en la docencia y en su vida personal.

El cruce de caminos profesional y el encuentro que aparentemente pudieron ser fortuitos, se ha ido consolidando en vínculos y relaciones que derivan en nuestro desarrollo personal, grupal e investigador como muestra este libro. Su lectura entretenida y sencilla nos va introduciendo en un diálogo con los relatos, sus aportaciones, cuestionamiento y metodología. Substancialmente nos aporta un modo particular y contextualizado de construir cultura investigadora y docente con el grupo de investigación como punto de encuentro, en una historia común y diversa de la que nosotras mismas, autoras de esta reseña, formamos parte.

María Jesús Márquez García & Daniela Padua Arcos,
Universidad de Almeria
mjmarque@ual.es