

## ARTICLE

# The Use of Podcasts in Higher Education: Communication, Innovation, Education and Knowledge Management

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## Abstract

The sociocultural and economic scenarios being shaped by the knowledge society are forcing the structural foundations of higher education to be reconsidered. The methodological change resulting from the necessary incorporation of ICTs may represent an opportunity for innovation, change and improvement. A new environment for lecturer-student relationships is needed to strengthen a series of concepts: communication, freedom, choice, protagonism and engagement. Teaching is constructed on the basis of innovative principles and original projects in the classroom. Social transformation depends on the commitment of lecturers and students in this respect. Now more than ever before, the opportunity for students to intervene in important issues relating to teaching-learning processes is possible thanks to the use of 2.0 tools. Podcasting is a new form of constructing, generating and managing knowledge on the basis of collaborative networking. Experience tells us that the only way to learn is through a personal quest for knowledge; one that will make us competent to carry on learning throughout our lives. We consider podcasts from a

teaching-pedagogical perspective and reflect on the educational potential that they offer for the development of educational projects.

### Keyword

methodological change, ICT integration, podcasting, learning networks

## *Comunicación, innovación, educación y gestión del conocimiento en torno al uso del podcast en la educación superior*

### *Abstract*

*Los escenarios socioculturales y económicos que la sociedad del conocimiento está conformando retan a plantearse las estructuras sobre las que se sustenta la educación superior. El cambio metodológico, derivado del necesario influjo de las TIC, puede ser una oportunidad para la innovación, el cambio y la mejora. Se necesita un nuevo entorno relacional entre docente y discente que potencie una serie de conceptos: comunicación, libertad, elección, protagonismo e implicación. La tarea docente se construye a partir de principios novedosos y de una proyección original en el aula. La transformación social depende del compromiso de discentes y docentes en este sentido. La oportunidad de intervenir en cuestiones relevantes en cuanto a los procesos de E-A por parte del alumnado, gracias al uso de herramientas 2.0, es, hoy más que nunca, posible. El podcasting constituye una nueva forma de construir, generar y gestionar conocimiento a partir del trabajo colaborativo y en red. Nuestra experiencia nos dice que la única forma de aprender es a través de una búsqueda personal del conocimiento, que nos hará competentes para seguir aprendiendo a lo largo de nuestra vida. Consideramos el podcast desde una perspectiva didáctico-pedagógica y reflexionamos sobre las posibilidades educativas que ofrece en relación con la génesis de proyectos educativos.*

### *Keywords*

*cambio metodológico, integración de las TIC, podcasting, redes de aprendizaje*

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## Introduction

*One of the myths surrounding the Google search engine is that it finds everything available on the Internet..., and that anything missing from it needs to be digitalised for it to appear. Lawrence Lessig has said that turning off a computer does not disconnect it from the Internet. Under these premises, it is becoming more and more difficult to remain on the sidelines.*

Peña, Córcoles and Casado (2006)

The vast amount of information constantly being produced by the knowledge society creates veritable collaborative and transformational learning communities that have great potential for development.

Worthy of note is the concept of social software, which provides Web-based applications for users to contribute information without prior or limiting interests in terms of setting up a variety of work groups. We are witnessing the emergence of collective intelligence, based on 2.0 tools, that is shaping a new, innovative environment. This situation offers schools a number of options that may lead to major changes in teaching and learning processes, which, in turn, will be accompanied by efficient proposals for a methodological change that takes account of the possibilities and resources that the Internet offers. The Internet is ever more present in our society and, in view of this fact, the educational community cannot remain on the sidelines. According to Peña, Córcoles and Casado (2006: 7), it is a matter of retaining all the good elements accumulated over many centuries of experience and combining them with the contributions made by new tools, while simultaneously trying to avoid old problems and new risks. It is a complicated yet necessary task. The digitalisation of fieldwork notebooks, the Web as a platform, real-time peer review, etc. shape the new playing field where everything is on view. More importantly, content and scientific contributions are public, and so too are their development, inter-author relationships and knowledge flows, since they can be tracked using page view histories, pingbacks and trackbacks, and through social networks, syndicated, aggregated and commented content, social assessment (implicit through ad hoc tools and explicit through web page metrics) and a whole network of relationships between humans and computers.

Thus, in our case, the university lecturer must endeavour to start from these bases of action and, consequently, be competent in terms of seeking out new methodological approaches that strengthen and facilitate learning that is anchored in the effective construction and management of knowledge. An attempt is therefore made to give a presentation of practical facts that corroborate how the use of 2.0 tools – podcasts in this instance – in the field of higher education fosters the formation of constructivist, socio-critical learning communities in which the flow of knowledge is not unidirectional. Rather, it is shaped in such a way that all members – on the basis of committed, ethical participation – share and promote the development of information and communication in a multidirectional way. While this is something that appears to have happened throughout history, nowadays the Internet provides it with a support for immediate, speedy dissemination, and for achieving greater efficiency in terms of attaining global competency.

## 1. Teaching Methodology Innovation and Reflexivity. A Prerequisite

*One should not lose that love for pedagogical practices, though these should be governed by reflection and research, and unquestionably be supported by technology, but not dominated by it. First we need an innovative pedagogical project based on the criterion of educational quality, and then a technology that allows us to develop it... A balance needs to be sought between the technology's sustainable development and the social and educational field, in the quest for what Quintanilla (1995: 18) calls an 'appropriate technological culture'.*

Cebrián (2009)

Reflexive, meditated and sustainable processes should be present throughout the development of teaching and learning processes; they need to respond to the concerns that practice itself raises so that lessons can be learnt and the professional experience can be improved as a result. Each practical episode has to be formed as a rich experience that can make us see and value things differently, while never forgetting about the framework and theoretical construct on which it is based. We are faced with a complex process of deliberation and thinking on the interpretation of an experience in order to learn from it and, consequently, to intervene in its innovation, change and improvement. Thus, innovations in the classroom must always be present if our aim is to carry on discovering new and better ways of doing things. Organisational teaching action should become an element of reflexive action that seeks quality of actions in the classroom and of the education institution in general.

Thus, improvements in learning and teaching quality cannot be found in the majority use of technology alone. Rather, it can be found in the teaching and pedagogical opportunities that these tools offer. Regarding assessment experiences (Schacter, 1999; Kulik & Kulik, 1994, etc.), Cebrián (2009: 20-21) spoke of the impact of ICTs on learning and pointed out that:

- When technologies are used, there is positive proof of their impact on students' attitudes and motivation, particularly for creating a range of methodological strategies for teaching. Likewise, the percentiles are higher when technologies are used in teaching: students learn more in less time.
- Some studies have shown that technology-mediated learning is less effective and even ineffective when the learning objectives are not clear and when technology is considered in a diffuse way. Likewise, in many areas studied, the use of computers has not had a positive impact.

We therefore need learning environments that connect individuals in a network and enable them to achieve an effective transformation on the basis of creativity and purposeful attention to teaching-learning processes. Functional collaboration, collaborative learning, bidirectional communication, multimodal production, independence, responsibility, commitment, etc. are some of the principles of action that should be present in these learning environments.

On the basis of these considerations, which acted as the premises for our work, we tried to achieve the integration of 2.0 tools into teaching-learning processes, specifically by setting up an experimental group that would use podcasts as the cornerstone of its development, and two control groups that would use Edublogs as the point of reference. All of this was applied to the Psychopedagogical Foundations of Special Education subject on a master's degree offered at the Faculty of Education in Melilla. Before starting our experiment, other practices were analysed (three subjects in the 2007/2008 and 2008/2009 academic years: Curriculum Design, Development and Innovation; Special Education; and New Technologies Applied to the Education) and their characteristics were taken as points of reference. Furthermore, the particular traits of each environment were taken into account for the extrapolation of their actions. This article presents the experiment so that it may be taken as a potential point of reference for analysis and action on methodology and practice.

It is clear that the use and integration of ICTs represents a challenge for teaching innovation, but, as stated by González (2008: 7), we should remember that it is not the inclusion of ICTs into education alone that makes such education innovative; educational innovation must be seen from a much broader and integral perspective, in which the combination of appropriate technological media and an educational design based on specific, context-related learning needs characterises the kind of educational practice that is able to respond to the demands of the knowledge society.

Regarding the pedagogical sense of ICT integration, Ferreiro (2006: 124) underscores seven episodes in the teaching design of a lesson (Eli method). This falls within the framework of a 'back to basics' pedagogical current and picks up on the need to develop the following points:

1. To fulfil basic teaching functions that, among other things, ensure that the students' attention is caught, guided and channelled towards what needs to be learnt.
2. To activate higher psychological functions that ensure learning by understanding.
3. To create situations so that students are able to process information with the help of strategies that allow knowledge to be constructed.
4. To facilitate a productive exchange between learners.
5. To foster reflection on what needs to be done, what was done and how it was done, as well as what is being done at any given moment in time.
6. To encourage students to constantly draw on prior knowledge and experience, and to retrieve processed information.
7. To assess the processes and results of an activity undertaken.

The fulfilment of these seven points ensures that students learn. Moreover, they are flexible and focused on the fulfilment of teaching functions.

With regard to the integration of ICTs into teaching-learning processes, the importance of the teaching and pedagogical contribution is therefore unquestionable. Besides the technical component and the possibilities it offers (which are also present), an opportunity arises to develop and implement a reflexive transformation of nodal formation: meaning construction, commitment, reflection and innovation in application.

*More and more often, information can be obtained through ICTs, so face-to-face sessions acquire a new form of expression and development; they will be dedicated to the processual components of professional competencies: cognitive and social skills, as well as attitudes and values. Thus, both educational approaches, and even models that are contemplated in a harmonious and consistent way, will facilitate every society's learning ideal in order to achieve the deployment of the potential of all its members and reach full use of the capacity that makes human beings different: that of thinking, feeling, creating, being moved, discovering, transforming and cooperating consciously with each other as an expression of the fullest respect by and for human beings.*

Ferreiro (2006: 126)

## 2. Podcast 2.0. A Tool with Educational Potential for Free, Horizontal Publication in Collaborative Networking

According to Solano and Sánchez (2010: 125), podcasts are digital audio files, though there are also digital video files (video podcasts or vodcasts), that can be distributed on the Internet and are linked to RSS feeds, thus allowing them to be updated periodically and automatically. Podcast content is varied, though it usually includes conversations between people, as well as music. There are podcasts on a whole host of topics, though their use in teaching contexts is still fairly limited despite the recent development of some projects on how to implement the use of this tool for educational purposes. These experiences highlight the fact that podcasts offer a degree of flexibility because they allow access to audio information from any fixed or mobile device; from a pedagogical viewpoint, they revolutionise the educational outlook because they promote the free, horizontal publication of information.

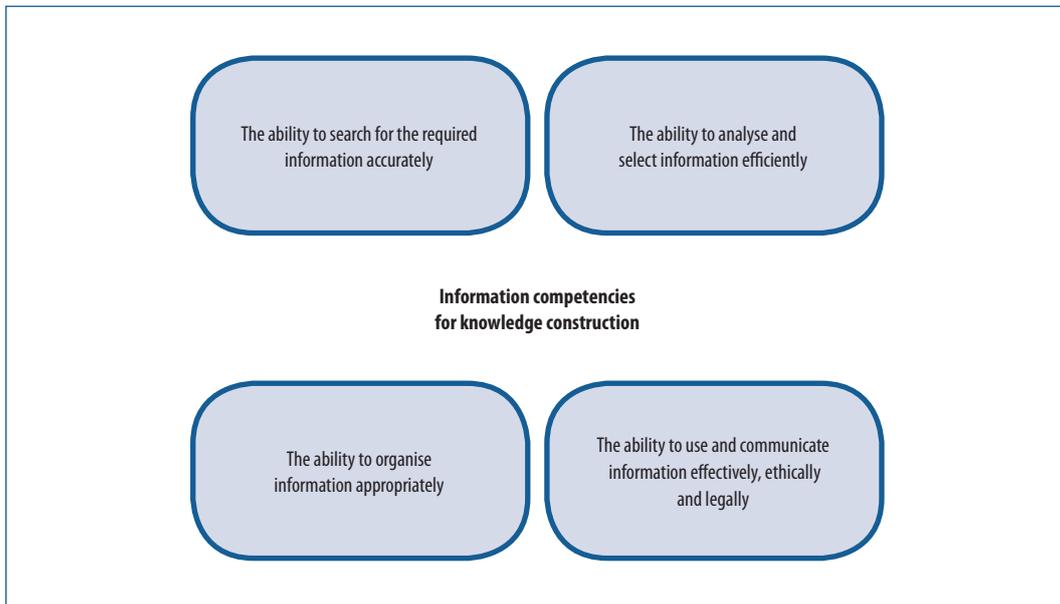
Podcasts are published on numerous websites, including: Odeo (<http://odeo.com>), Podcast.es (<http://podcast.es/>), Castpost (<http://www.castpost.com/>), Podserve (<http://www.podserve.co.uk/>), iLike (<http://www.ilike.com/garageband>), Gcast (<http://www.gcast.com/>), etc.

Podcasts therefore fall within the 2.0 philosophy. In the same way as other similar tools, according to Suárez (2010) they facilitate:

- *Resource sharing*: Allows other people's public resources to be accessed and multimedia content to be distributed. These websites (YouTube, Flickr, SlideShare, etc.) are sources of information that education can not only take advantage of, but also validate for an appropriate educational use.
- *Resource creation*: Allows new content to be generated individually or collaboratively, which can be created by a variety of groups. This creation process may involve a number of tools, though the most popular ones are wikis, blogs and other platforms like Google Wave.
- *Information retrieval*: Allows selective, tailored access to web content, as well as mass distribution on a variety of topics. For this purpose, social tagging tools like Delicious, or subscription tools like RSS, are used, which allow up-to-date, simplified access to information.
- *Social networks or, more precisely, social networking services*: Allow virtual communities to be created and managed. Through these tools, people establish ties and contacts, and share content, opinions and experiences, motivated by a series of shared interests.

In the field of education the use of podcasts implies the development of information competencies that encourage the construction of knowledge and its effective management. This is the object of achievement and historical memory of education and its organisation. This idea is shown very clearly in the table below (De Pablos, 2010: 13): after an initial instrumental digital literacy phase, it is necessary to move on to the constructive-meaning phase inherent to the processes of lecturer-student relationships.

Figure 1: Abilities connected with information competencies (De Pablos, 2010)



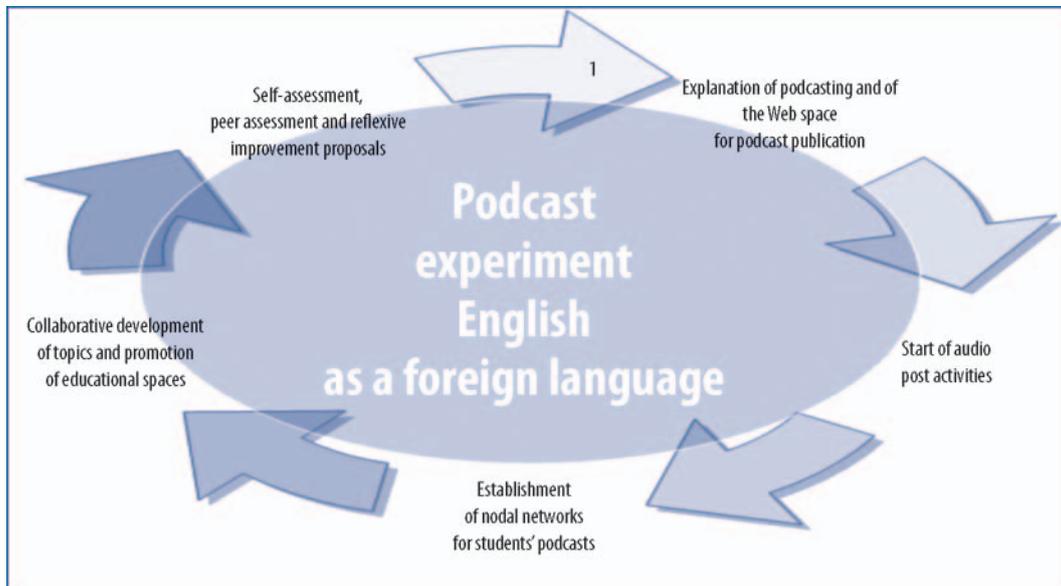
### 3. Competencies for Constructing Knowledge through the Integration of ICTs into Higher Education

#### 3.1. Report. Description of the experiment

The experiment started in the 2009/2010 academic year in the Psychopedagogical Foundations of Special Education subject on a master's degree, through an educational innovation programme (PID 09-236) at the University of Granada, which went by the title of: "Experiments involving multimedia production using Web 2.0 tools and methodological change". The field of action was limited to the integration of Web 2.0 tools into teaching-learning processes and, to be precise, the use and dissemination of podcasting as an innovative teaching proposal.

The methodological change brought about by introducing podcasts, a Web 2.0 tool, into classroom activities meant that the active, committed participation of students in the process was required from the outset in order to strengthen the acquisition of specific competencies such as: the capacity to work collaboratively in a team and individually; the capacity to be critical and self-critical; the strengthening of social relationships and the acquisition of skills to foster such relationships, as well as creativity, commitment and initiative; the capacity to search for and select information; the capacity to manage and classify knowledge; the initiative to take on responsibilities and the effective acquisition of roles; the control of uncertainties and unsettling situations; the capacity to analyse, summarise and interpret real-life situations; the strengthening of communication skills; and the capacity to use technological tools and, in particular, Web 2.0 tools.

Figure 2. Phases of the ICT integration experiment.



As we shall see later, this allowed us to gain integral educational benefits in terms of better student engagement in the content particular to the subject thanks to an ongoing, efficient search for information and to subsequent multimodal design and production. The students' capacities to analyse and relate issues to other content improved considerably by making all research proposals practical; these were ultimately included in the podcast production. A greater, more active participation of students in classroom dynamics was also achieved thanks to the possibilities offered by the tool itself, and to the process of digital literacy that consequently led them to become interested in and to learn about other tools and options that the Internet and the Web 2.0 context offer. When observing the advantages of a new Internet-based constructive approach, it was found that both performance and subject grades improved. And finally, it allowed communicative relationships between lecturers and students to become more flexible and dynamic.

The phases of this research were as follows:

1. At the start of the project, alongside explanations about the class itself, the students were informed that their subject was going to be complemented by an Internet-based Web 2.0 technological tool called 'podcasts' as a support structure for the subject; this tool would facilitate the recording of audio with specific content in a foreign language (English in this instance).
2. Throughout the academic year, different activities were introduced on the basis of content blocks established for the subject area, thus complementing and developing processes. In the classroom, students were told how the Podcast.com platform worked, and the process of recording audio posts began.
3. Several different research projects were undertaken in small groups on specific topics; the results were then recorded and posted on the platform.

4. Assessment processes were shared. Parallel assessments were made by the students, as were constructive self-assessment reflections. Likewise, the students assessed the lecturer on the basis of objective implementation criteria.
5. The tools used were MP3 and MP4 recording equipment, computers and Internet-based 2.0 classifying tools.
6. Finally, an assessment questionnaire for the experiment was completed in order to establish its potential and any effective improvement proposals.

### 3.2. Project justification

- The use of this Web 2.0 tool allowed interest in the Psychopedagogical Foundations of Special Education subject to be raised, and the acquisition of new competencies to undertake it to be made more enjoyable.
- The dynamics of the tool's use facilitated the formation of opinions and arguments on it, in relation to certain theoretical aspects.
- It encourages the students' active, committed, collaborative participation throughout the creation process, this fostering the capacity to develop action criteria in order to actively search for information and, consequently, to contrast and confirm the stances adopted in their posts.
- It represents an approach to the use of ICTs in all fields and, consequently, to offering communication and knowledge management opportunities in areas that are disadvantaged or that have a variety of obvious limitations.
- It created a meeting point of opinions and arguments formed as a result of studying theoretical and practical cases through the development of motivational aspects inherent to the use of Web 2.0 tools.
- It establishes and develops a digital literacy process particular to the needs of the knowledge society, as well as a turning point for the creation of multimodal tools for these utilities.

### 3.3. Objectives resulting from the implementation

As far as the students were concerned, they optimised their efforts and dedication to learning the content of the Psychopedagogical Foundations subject and of a foreign language (English) based on motivational aspects and the promotion of constructive, reflexive self-directed learning, through the acquisition of competencies to manage ICTs and the capacity to subsequently produce their own resources for use in networks. Thus, the products were: the development of responsibility for language learning; the student's linguistic and pedagogical awareness; and autonomy for learning. Reflexive processes were fostered and learning objectives were clarified in communication terms. Likewise, self-assessment was encouraged through the promotion of an educational change that accepts competency and distributed transformation as the guiding principle. As far as the lecturers were concerned, it favoured and facilitated teaching by means of adaption to a new educational space that is now available and which, in turn, improves the quality of teaching-learning processes.

In relation to the organisation and the educational institution, it should clearly improve the processes of institutional quality that take technological and social evolution as their point of reference to adapt to new working environments, thus promoting organisations that teach realities and try, through a transformative commitment, to sustain progress on the basis of proper knowledge management. While acknowledging their limitations, ICTs have a lot to offer in this respect and should therefore be integrated into this field as a clear sign of banking on quality improvements in educational centres.

The general objectives of our experiment were:

- To integrate podcasts, a Web 2.0 tool, into teaching-learning processes by turning the students into participants and protagonists.
- To strengthen bilingualism in the development of a knowledge area (Psychopedagogical Foundations), by publishing posts and/or podcasts in English.
- To achieve a better connection between interests and ways of learning that students now employ.
- To promote collaborative social networking that activates communication, participation and knowledge management on the basis of sustainability principles.
- To strengthen podcasting as a communicative action in higher education.
- To classify resources for the promotion and learning of different subjects.
- To encourage students to use (publish, share and manage) and integrate audio into teaching-learning processes.

More specifically, the teaching objectives pursued were:

- To improve teaching quality through teaching and pedagogical approaches that integrate ICTs in general and Web 2.0 tools in particular, to ensure the development of new competencies aimed at active professional development.
- To shift the hitherto established role of the lecturer towards that of a facilitator and guide throughout the whole process, while offering students the chance to become the central axis of the whole process through the acquisition of a proactive role on the basis of active, committed engagement in their own education.
- To strengthen flexibility in terms of using the tools, thus facilitating new means of communication through creativity.
- To generate tutorial action and feedback processes to strengthen the proper operation of these methodological changes.
- To strengthen acts of communication between fellow students by establishing nodal links and networking.
- To allow students to complement their education by acting as a link between the acquisition of new lines of knowledge other than those strictly defined in a teaching programme.

### 3.4. Dominating the art of podcasting in the classroom

Given below are some of the students' practicals (this is just a small example; for further information, please go to: <http://www.jttorres.es/bases-psicoped/edublog-podcast-grupos-alumnos-as/>) for which the use of podcasts is promoted to undertake the subject and to achieve meaningful learning, both of which rely on an appropriate planning and classification of resources; these should be sustainable in terms of use and professional development, taking collaborative networking as the basis.

<<http://gomezdelamonja.podcast.es/podcast.php?editor=gomezdelamonja>>

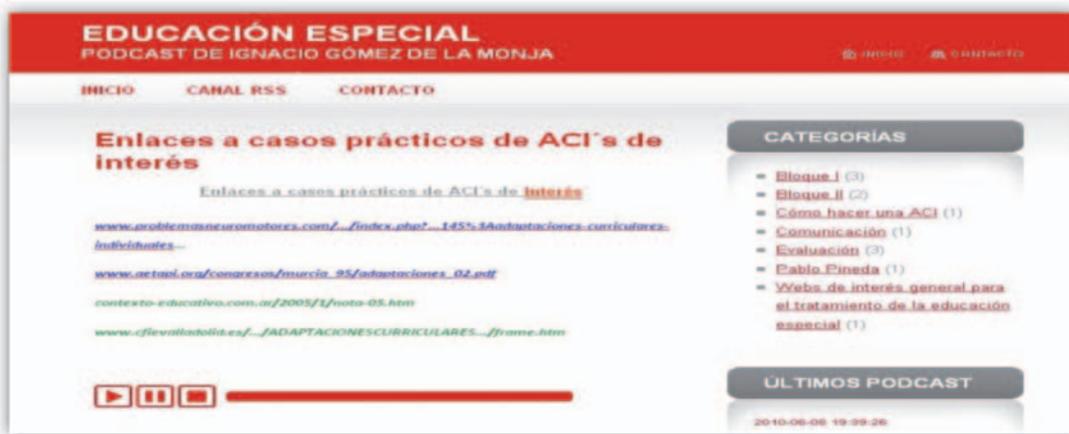


Figure 3. Podcast by a student at the Faculty of Education in Melillaa

<<http://martaphuelin.podcast.es/podcast.php?editor=martaphuelin>>



Figure 4. Podcast by a student at the Faculty of Education in Melilla

<<http://kikote73.podcast.es/podcast.php?editor=kikote73>>

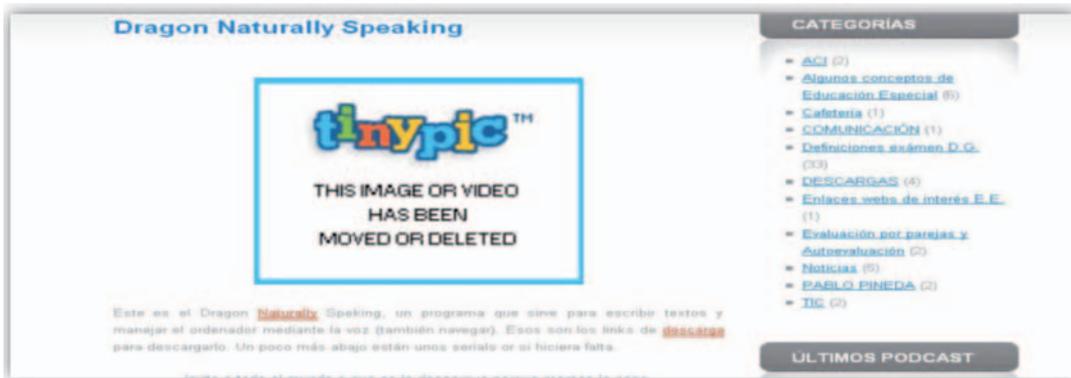


Figure 5. Podcast by a student at the Faculty of Education in Melilla

<<http://amg85ugr.podcast.es/podcast.php?editor=amg85ugr>>



Figure 6. Podcast by a student at the Faculty of Education in Melilla

### 3.5. Academic impact of actions undertaken

On completion of the subject, with the consequent use, integration and development of podcasts as an educational resource, students were asked to complete assessment questionnaires. The questionnaire had 32 items of two types: 23 were based on an assessment scale from 1 (totally disagree) to 4 (totally agree); a further nine were open questions. The sample shows variables of age, gender, degree being taken, academic year and other studies undertaken, and included 37 people (nearly all of the 41 students enrolled, which makes the particular case of the Faculty of Education in Melilla stand out). In the data analysis, the following distributed statistics were considered for the thematic blocks into which the questionnaire was structured: initial education and perspectives, assessment of classroom Web 2.0 practicals (podcasts) and attitudes towards podcasts; mean and mode, standard deviation and percentages.

*Initial education and perspectives.* The datum relating to ICT (podcast) integration into teaching-learning processes (93.9% *totally agree or agree*) is significant. Regarding the podcast tool, its capacity for collaborative work was highly valued (93.9% *totally agree or agree*). The use of podcasts linearly promoted innovation (93.9% *totally agree or agree*). However, podcasts were not integrated into learning processes in a determining way (87.8% *agree or somewhat agree*) and mastery of them was not optimal (9.09% *totally disagree*). Other data worthy of note refer to the optimal capacity to access the Internet (84.8% *totally agree or agree*) and the disposition towards collaborative work as opposed to individual work was not very clear (75.7% *totally agree or agree*).

*Assessment of classroom Web 2.0 practicals (podcasts).* The use of podcasts did not appear to categorically facilitate the comprehension of the subject's thematic content, since 60.6% of the respondents stated that they *agree or somewhat agree* with that aspect. As to whether academic results had improved through the use of podcasts, 63.6% *somewhat agree or totally agree*. However, collaborative work was generally present at all times; this was reflected by 84% of the respondents (*agree or totally agree*). The social network formed appeared to be sustainable, since the knowledge, use and integration of 2.0 tools had improved (72.7% *agree or totally agree*). The disposition towards carrying on learning along these lines was high (90.9% *agree or totally agree*). In addition, 87.5% of the respondents *totally agree or agree* with the fact that networking created a knowledge of fellow students' resources and materials. However, despite the use of podcasts, the feeling of being isolated did not go away; 6.25% *totally disagree*. The most positive aspects of podcast use were those referring to concepts such as: accessibility, flexibility, collaborative work and knowledge management. The most negative aspects referred to: too much time spent on learning, a lack of guidance by the lecturer at certain times, hardware and connectivity problems in practical classes.

*Attitudes towards podcasts.* The assessment of podcast integration as an important component of quality and improvement was highly positive (86.2% *totally agree or agree*), and it was considered absolutely necessary for innovation (96.5% *totally agree or agree*). It was argued that there is a need to adapt to the new social context, to the collaborative potential, to knowledge and resource management and to flexibility and simplicity. Of the respondents, 79.3% felt that distributed and nodal management was positive for the use of this tool. There was no clear, definitive preference regarding its use over traditional methods; 68.97% fell into the interval *agree or somewhat agree*. The reasons that respondents gave for this were that: both methodologies should be integrated; a better, more detailed process of ICT integration is required; a gradual change is required, as is progress in lecturer and student culture; greater equipment capacity would be expedient; and so on. However, they widely acknowledged that the management and organisation of knowledge was optimised through the use of podcasts. Neither did it appear clear that relationships between the lecturers and students improved through the integration of ICTs (5.9% *totally disagree*). Finally, the experiment – as a methodological change – was assessed very positively on the whole. This was reflected by that fact that 86.2% of the respondents *totally agree or agree*. Elsewhere, the students suggested: improving planning by lecturers; improving connectivity and equipment optimisation (a prevalent need); implementing prior digital literacy processes for students; and fostering greater collaborative engagement in order to establish an effective network.

The experiment therefore confirmed the need to integrate ICTs and, consequently, podcasts into teaching-learning processes. However, there seemed to be a demand for a more gradual, better planned integration with a prior structure, with prior digital literacy programmes for lecturers and students, and with a necessary process of collaborative engagement by everyone involved. Networking presupposes commitment, collaboration, effort and training. Without these requirements, the integration of 2.0 tools – podcasts in this instance – cannot be done efficiently, despite the inherent advantages.

## 4. Conclusion

The strengths and potential of this educational resource appear to be numerous and attractive. That is why we should consider podcasting as an optimum resource for higher education, provided it is framed within a process of implementation and development that takes account of pedagogical and technological aspects. Cabero and Gisbert (2005) pointed this out when they spoke of the properties of audio for education:

- It provides an environment of narrative continuity.
- It humanises the user-machine relationship.
- It catches users' attention and motivates their actions.
- It develops processes of user participation and identification.
- It strengthens browsing interaction.
- It can be used to emphasise and customise instruction.

Taking the data of a *Pew Internet & American Life Project* study on podcast downloads as the point of reference, Solano and Sánchez (2010) also stated that 12% of Internet users said that they had downloaded a podcast to listen to or watch. The study also pointed out that 1% downloads a podcast daily, and it was felt that this figure would increase. Education can take advantage of these possibilities, while always taking account of the fact that the importance of the medium does not reside in the innovation it presents per se, but rather in how it is incorporated into the curriculum. This is yet another reason for not allowing the opportunity to use this resource to get away.

Our experiment offers an insight into potential methodological alternatives that underscore reflexive, critical-thinking attitudes that have, incidentally, always arisen and been tried out in higher education institutions. The will to learn continues to be key and it appears to have been confirmed that these 2.0 tools help in that respect by shaping new environments with the potential for constructive and emotional development.

Finally, we would like to conclude this article with a post by a student to the subject discussion board. Quoting Kofi Annan, she expressed an important idea that may help to understand our work better: "Information and communication technologies are not a panacea or magic formula. But they can improve the lives of everyone on this planet." "We have tools that can propel us toward the Millennium

Development Goals; instruments with which to advance the cause of freedom and democracy; vehicles with which to propagate knowledge and mutual understanding.” (Kofi Annan, UN Secretary-General, opening address, first phase of the World Summit on the Information Society, Geneva 2003).

The students’ podcast experiment is encouraging with regard to the improvement and promotion of freedoms. We can speak and be heard. Such is the potential of the new environment. Education must be present and show itself to the world with the aim of constructing on the basis of condemnation when right, and love when necessary. For a better world, converse, collaborate, announce, warn and feel that you are part of it.

## References

- CABERO, Julio; GISBERT, Mercè (2005). *Materiales formativos multimedia en la red. Guía práctica para su diseño*. Seville: Eduforma/Trillas.
- CEBRIÁN DE LA SERNA, Manuel (coord.) (2009). *El impacto de las TIC en los centros educativos. Ejemplos de buenas prácticas*. Madrid: Editorial Síntesis.
- DE PABLOS, Juan (2010). “Higher Education and the Knowledge Society. Information and Digital Competencies”. In: “Information and Digital Competencies in Higher Education” [online monograph]. *Revista de Universidad y Sociedad del Conocimiento (RUSC)*. Vol. 7, No 2. UOC. [Accessed: 05/11/10].  
<<http://rusc.uoc.edu/ojs/index.php/rusc/article/view/v7n2-de-pablos/v7n2-de-pablos-eng>>
- FERREIRO, Ramón. (2006). “Del pizarrón a las TIC. Entrevista con Ramón F. Ferreiro” [online article]. *Apertura. Revista de Innovación Educativa*. Vol. 6, No 003. Mexico: Universidad de Guadalajara. [Accessed: 22/03/10].  
<<http://redalyc.uaemex.mx/redalyc/pdf/688/68800311.pdf>>
- GONZÁLEZ MARIÑO, Julio César (2008). “ICT and the transformation of educational practice in the context of knowledge societies” [online article]. *Revista de Universidad y Sociedad del Conocimiento (RUSC)*. Vol. 5, No 2. UOC. [Accessed: 04/10/10].  
<<http://rusc.uoc.edu/ojs/index.php/rusc/article/view/v5n2-gonzalez>>
- LESSIG, Lawrence (2004). *Free Culture*. New York: The Penguin Press.
- PEÑA, Ismael; CÓRCOLES, César Pablo; CASADO, Carlos (2006). “The 2.0 Teacher: teaching and research from the web”. *UOC Papers* [online article]. No 3. UOC. [Accessed: 16/11/10].  
<[http://www.uoc.edu/uocpapers/3/dt/eng/pena\\_corcoles\\_casado.html](http://www.uoc.edu/uocpapers/3/dt/eng/pena_corcoles_casado.html)>
- SOLANO, Isabel. M.ª; SÁNCHEZ, Maria del Mar (2010). “Aprendiendo en cualquier lugar: el podcast educativo”. *Pixel Bit. Revista de Medios y Educación*. Vol. 36, pages 125-139.
- SUÁREZ, Cristóbal (2010). “e-Learning as an Object of Study” [online article]. *Revista de Universidad y Sociedad del Conocimiento (RUSC)*. Vol. 7, No 2. UOC. [Accessed: 03/11/10].  
<<http://rusc.uoc.edu/ojs/index.php/rusc/article/view/v7n2-suarez/v7n2-suarez-eng>>

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