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University e-Portfolios as a New Higher Education Teaching Method. The Development of a Multimedia Educational Material (MEM)

Dr. José Ignacio Aguaded Gómez

aguaded@uhu.es

Professor, University of Huelva

Dr. Eloy López Meneses

elopmen@upo.es

Contracted Doctor Lecturer, Pablo de Olavide University, Seville

Dra. Alicia Jaén Martínez

ajaemar@upo.es

Contracted Doctor Lecturer, Pablo de Olavide University, Seville

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Abstract

The new European university context requires a methodological and evaluative shift towards active didactic, socio-constructive and investigative perspectives that are student-centred. This study describes the learning setting, the results and the conclusions of an innovative practical exercise carried out by first-year students on two different degree courses at an Andalusian university, using e-portfolios set up for group work and implemented through an edublog. The study's main aim is to establish the most significant achievements, problems and evidence that emerge from this didactic group project. The project includes the design and implementation of a multimedia educational material (MEM), and involves the students in didactic planning and self-assessment processes. The conclusions show that the e-portfolio is a didactic method that fully integrates teaching, learning and assessment into a continuum by allowing students to work together didactically on such aspects. This methodological alternative also greatly helps the lecturer in his/her understanding of the students' learning processes, the working methods of his/her classes, the problems associated with team working, the information sources that students use, and the tutoring and learning-assessment processes. Lastly, the e-portfolio enables the future social educators' levels of didactic comprehension and professional-competency acquisition to be gauged.

Keywords

e-portfolio; formative assessment; social software; Web 2.0

Portafolios electrónicos universitarios para una nueva metodología de enseñanza superior. Desarrollo de un material educativo multimedia (MEM)

Resumen

En el nuevo contexto europeo universitario es necesario un cambio metodológico y evaluador orientado a perspectivas didácticas activas, socioconstructivas e investigadoras centradas en el estudiante. La presente investigación describe el escenario de aprendizaje, los resultados y las conclusiones de una práctica innovadora universitaria realizada con estudiantes de primer curso de dos titulaciones diferentes que se imparten en una universidad andaluza, con la utilización de portafolios electrónicos de carácter grupal, implementados a través de un edublog. El estudio pretende, principalmente, constatar los logros, dificultades y evidencias más relevantes de este proyecto didáctico grupal que incluye el diseño y la implementación de un material educativo multimedia (MEM), que implica a los estudiantes en procesos de planificación didáctica y autoevaluación. Las conclusiones del estudio destacan que el portafolio electrónico es una metodología didáctica que integra globalmente en un continuo la enseñanza, el aprendizaje y la evaluación, al permitir trabajarlos didácticamente de forma conjunta. Asimismo, esta alternativa metodológica facilita de forma considerable el conocimiento por parte del docente de los procesos de aprendizaje de los estudiantes, la metodología de trabajo de sus clases, las dificultades de trabajar en equipo, las fuentes de información que utilizan los estudiantes, los procesos de tutorización, así como los procesos de una evaluación formativa. Por último, permite valorar la comprensión didáctica y el grado de adquisición de las competencias profesionales de los futuros educadores sociales.

Palabras clave

portafolio electrónico, evaluación formativa, software social, web 2.0

1. The e-portfolio

Today, it is hard to conceive of a quality university that is able to function without the support of information and communication technologies (ICTs). Indeed, the vast majority of teaching, research and transfer activities now rely on them (Aguaded & Hernando, 2011). And besides the teaching staff's active participation, there has to be a firm institutional commitment to support and protect the initiative (Aguaded, Muñiz & Santos, 2011).

In this respect, universities are under an obligation to change. And most are doing so, by centring training processes on students' characteristics and needs, and also by incorporating flexible, open settings for training and learning. So the new kind of university institution being configured is now called University 2.0 (Cabero & Marín, 2011).

In the current didactic metamorphosis taking place in Europe, priority is given to the establishment of a teaching system that fosters students' integral training in order to: a) satisfy the demands of society and the labour market; b) meet the needs of lifelong learning in line with the principle of continuing improvement (Arís & Comas, 2011); and c) reformulate methods applied to the classroom, placing particular emphasis on the learning process and giving greater protagonism to students (Barberà, Gewerc & Rodríguez, 2009; Salmerón, Rodríguez & Gutiérrez, 2010). In this respect, e-portfolios can and must play an important role in methodological innovation, evaluation and educational research processes.

From a socio-constructivist perspective, several authors (Barrett, 2000; Xu, 2003; Klenowski, 2005; Barberà, 2005; Alfageme, 2007; Prendes & Sánchez, 2008) consider an e-portfolio to be an extensive collection of students' work that demonstrates effort, progress and achievement in one or more areas over time.

For lecturers, other noteworthy benefits of e-portfolios include the building of learning communities (Jafari & Kaufman, 2006), the fostering of professional development (Barret, 2000) and the cultivation of knowledge and beliefs about the teaching profession and practice (Darling-Hammond & Snyder, 2000; Harland, 2005). In addition, Rico (2009) suggests that the use of an e-portfolio enables a lecturer to have a greater awareness of each student's individual needs and to address different paces of learning that may coexist in a group. Together, both aspects will guide a lecturer's approach to applying different methodological strategies to suit the needs and expectations of each student.

Moreover, as Prendes and Sánchez (2008) and Bahous (2008) point out, an e-portfolio can help university students to orientate themselves, to organise their learning, to take decisions and to perform day-to-day assessment. These aspects are based on the evidence they select, the knowledge progress they make and the learning self-assessment they perform. Likewise, it offers students formative opportunities because it allows them to reflect on and mirror the evolution of their learning, to observe the result of their learning, to increase their motivation to learn, to learn to learn, and to take greater responsibility for their learning processes (Martínez, 2007).

Regarding this study, it should be noted that the e-portfolio has been used as a digital system allowing users not only to document the competencies, events and plans that are important to them in a scholarly, university and formative context (Barberà, 2008), but also to integrate technologies into their construction in order to facilitate reflection (Barret, 2000).

From this socio-constructivist and investigative psycho-educational perspective, we believe that e-portfolios can be considered methodological alternatives for pedagogical research and innovation. This is so because they facilitate reflection and learning-community building, educational-task planning, collective responsibility and individual introspection, and support for the implementation of processes aimed at formative assessment and educational improvement. Likewise, e-portfolios allow several important aspects to be analysed, such as the growth and documented evolution of activities carried out on the one hand, and the development of cognitive skills on the other hand. They also allow education practice to improve.

It should be noted that this study has used this didactic resource as a learning portfolio (Zeichner & Wray, 2001) in the sense that it documents a group of students' learning over time. Or rather, as a portfolio of a process understood as a collection of works evidencing the path towards learning (Abrami & Barrett, 2005).

A group e-portfolio was also used through an edublog (<http://diariotrabajosocial.blogspot.com/>). The *Blogger* (<https://www.blogger.com>) service was used, which is 14th in the list of 2.0 learning tools shown on the Centre for Learning & Performance Technologies (C4LPT) website (Hart, 2011).

Blogs are discussion or informational sites published on the Web consisting of posts. They allow users with minimal technical knowledge to create and edit content (Huffaker, 2005). In addition, they are easy to use in the university context; they foster higher-order learning skills and they encourage students to play an active role in the building of knowledge communities (Cabero, López Meneses & Ballesteros, 2009; Aguaded, López Meneses & Alonso, 2010).

Finally, blogs are ideal technological resources for producing e-portfolios because students can write, design and produce them online through an easy-to-use application (Roig, 2009).

2. Study context

The study describes a university experience of e-portfolios produced by students taking the ICTs in Social Education subject on the first year of two degree courses: the degree in Social Education, and the double degree in Social Education and Social Work offered by the Faculty of Social Sciences, Pablo de Olavide University, Seville, in the 2009/2010 academic year.

The main aim is to establish the most significant achievements, problems and evidence that emerge from carrying out a didactic group project (4-8 students) connected with the design and implementation of a multimedia educational material (MEM) on a cross-disciplinary topic selected by the students themselves.

The subject programme¹ revolves around four core aspects of ICT content (Diagram 1). Specifically, the study refers to the second thematic section, whose object of study is technological-didactic resources and their educational use.

1. The full version can be found on the personal edublog <<http://eloy3000.blogspot.com>>.

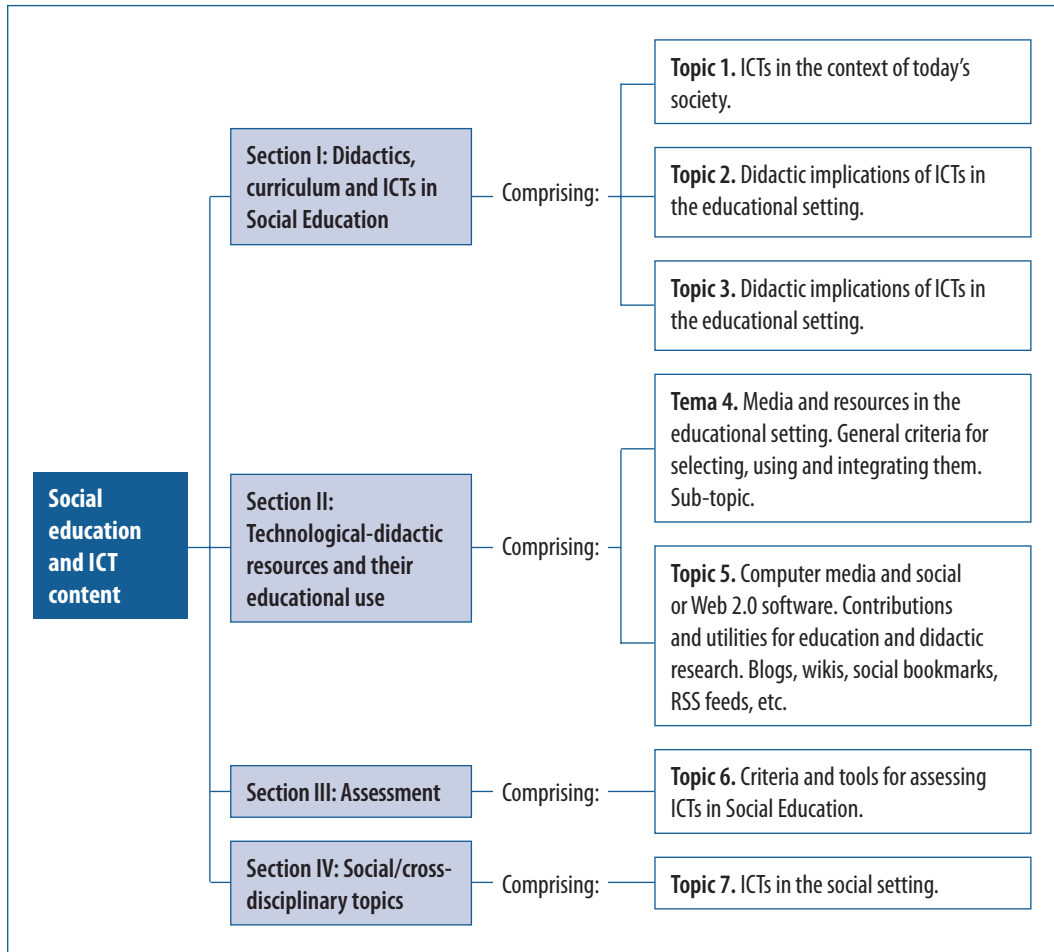


Diagram 1. Concept chart of the subject content sections.
<www.mindomo.com/view.htm?m=6cd2bf5f280e4e7bb7cca11b77b8beb1>

First of all, to carry out the group multimedia educational project, the students had to familiarise themselves with social software and create their group e-portfolios. To that end, two one-and-a-half-hour computer-based practical sessions were held in March to find out about the most significant features of *Blogger*, <www.blogger.com>.

Then, in mid April, two one-hour theory sessions were held to give a detailed explanation of how the multimedia didactic project – consisting of two tasks – should be carried out. The first task accounted for 30% of the final grade for the subject, and comprised the implementation of a socio-educational project on the design and production of a MEM connected with a cross-disciplinary topic (values, peace, health, sex, road safety, environmental education, etc.), and the production of a multimedia didactic guide (Table 1).

Table 1. Didactic elements of the multimedia didactic guide.

<p>1. Multimedia educational material (MEM) identification</p> <p>1.1. Title:</p> <p>1.2. Authors: (full names of the authors, in surname alphabetical order)</p> <p>1.3. Didactic resource duration: (for a computer slide presentation, the approximate time is estimated as being the amount of time a viewer takes to read it)</p> <p>1.4. Production date: (month and year the material was produced)</p> <p>1.5. List and brief description of all the items forming part of the MEM.</p>
<p>2. MEM description</p> <p>2.1. MEM script</p>
<p>3. Didactic analysis</p> <p>3.1. What are the educational objectives?</p> <p>3.2. What content does the MEM deal with?</p> <p>3.3. Content description using a concept map, charts, diagrams, etc.</p>
<p>4. Educational guidance for using this MEM</p> <p>4.1. Educational activities BEFORE and AFTER using the MEM.</p> <p>4.2. Tools for assessing the use of this didactic resource.</p>
<p>5. Complementary materials</p> <p>5.1. Bibliographic references used.</p> <p>5.2. Complementary bibliographic references.</p> <p>5.3. Links to items to look at on the Internet (blogs, wikis, websites, videos, etc.).</p> <p>5.4. Other audiovisual reference materials.</p> <p>5.5. Self-produced materials that can be used to develop the proposed educational activities (questionnaires, interview guides, texts for reading, etc.).</p>

In the second task, the students posted relevant information about reflections, evidence and progress in relation to the implementation of the multimedia project² on the edublog (<http://diariotrabajosocial.blogspot.com>). In those posts, they also had to express their concerns, give an account of the tutorials they had taken, explain what the next tasks were and describe the problems they had encountered in the design and production of the MEM. In addition, in the last post, they were asked to give a didactic assessment of their own work, as well as a reflective contribution on the strengths and weaknesses of using the e-portfolio in this formative process. This task accounted for 20% of the final grade for the subject.

Regarding the e-portfolio assessment matrix, and as Tillema and Smith (2007) point out, it can be put together in many ways and by means of a diversity of methods. In this respect, the rubric shown in Table 2 was based on a review of the literature (Barrett, 2000; Klenowski, 2005; Barberà, 2008; among others) and on the competencies involved in the production of the e-portfolio.

2. For more information, please see the online presentation using Scribd social software <http://es.scribd.com/fullscreen/67426537?access_key=key-2jmomd9do6a9pfueq2p0>.

Scribd, <<http://www.scribd.com>>, is social software for document sharing. For more information, go to <<http://en.wikipedia.org/wiki/Scribd>>.

3. Didactic objectives

The objectives of the educational practical exercise were:

- To plan and structure academic tasks.
- To find out about the process that students followed, and the progress they made, in the implementation of the MEM.
- To encourage the students' reflective, reasoned learning.
- To carry out processes of self-assessment of the educational practical exercise.
- To tutor students and help them take decisions.
- To strengthen the students' critical and self-critical capacities.
- To learn about and use 2.0 social software (blogs).

Table 2. Rubric of the group university e-portfolio.

<i>Assessment criteria</i>	<i>Value</i>	<i>Score</i>
E-PORTFOLIO PLANNING	4 points	
By means of the information provided, the work sessions generally showed evidence of the MEM's evolution/progress.	2	
The work sessions generally express, with clarity, what the next tasks and problems encountered are.	2	
OTHER DIARY ASPECTS	3 points	
Often consults other scientific sources to improve the audiovisual work.	1	
Has attended a tutorial to clarify any doubts about the work.	1	
Quality and number of sessions/posts (more than three).	1	
PRESENTATION	3 points	
Structure, clear writing and extensive, appropriate and relevant vocabulary.	2	
Spelling and accent rules.	1	

4. Method and data collection

Qualitative and descriptive methods were used in the study. In this respect, as Revuelta and Sánchez (2003) point out, qualitative methods try to identify a social reality and understand what it is like, rather than explain or predict it. To perform the analysis of the data collected, the following principles were taken into account:

- Qualitative analysis requires the assessor to assign meanings, to produce results and extract findings.

- Data are recorded by the assessor, who transcribes information in the form of written texts.
- Information should not be understood as a linear process, but rather as a cyclical process.

The data used for this study are related to the e-portfolios produced by the students who took the ICTs in Social Education subject on the first year of two degree courses: the degree in Social Education, and the double degree in Social Education and Social Work offered by the Faculty of Social Sciences, Pablo de Olavide University, Seville. The e-portfolios analysed were for the 2009/2010 academic year, and they focused on the collection of information on the design and implementation of a MEM connected with a cross-disciplinary socio-educational topic. The data for each group portfolio come from posts made in the group-work sessions on the project in question. These group e-portfolios can be found on the edublog (<http://diariotrabajosocial.blogspot.com>) of the subject.

5. Data analysis

Since the data collected are qualitative, a CAQDAS (computer-assisted qualitative data analysis system) was used to perform the data analysis. Specifically, for the implementation of the instrumental stages, the NVivo 8 qualitative data analysis software package was used because of its utility for coding text and relating different categories. In addition, it favours the transparency of the analytical process by allowing investigators to perform searches quickly and accurately in a particular text (Welsh, 2002; Flick, 2004).

Regarding the data reduction and theoretical structuring process, the framework included the following stages: unitising (coding) and categorising, and interpretation and inference (Miles & Huberman, 1994).

For the data reduction stage, the posts for the various e-portfolios on the edublog (<http://diariotrabajosocial.blogspot.com>) were organised into text documents compatible with the software package. Then, with the data coded in a text format compatible with the NVivo software package, the data analysis project was designed. After that, an inductive method was followed to initially categorise the posts on the basis of topics that arose in the various documents, until arriving at the final node and sub-node system shown in Diagram 2.

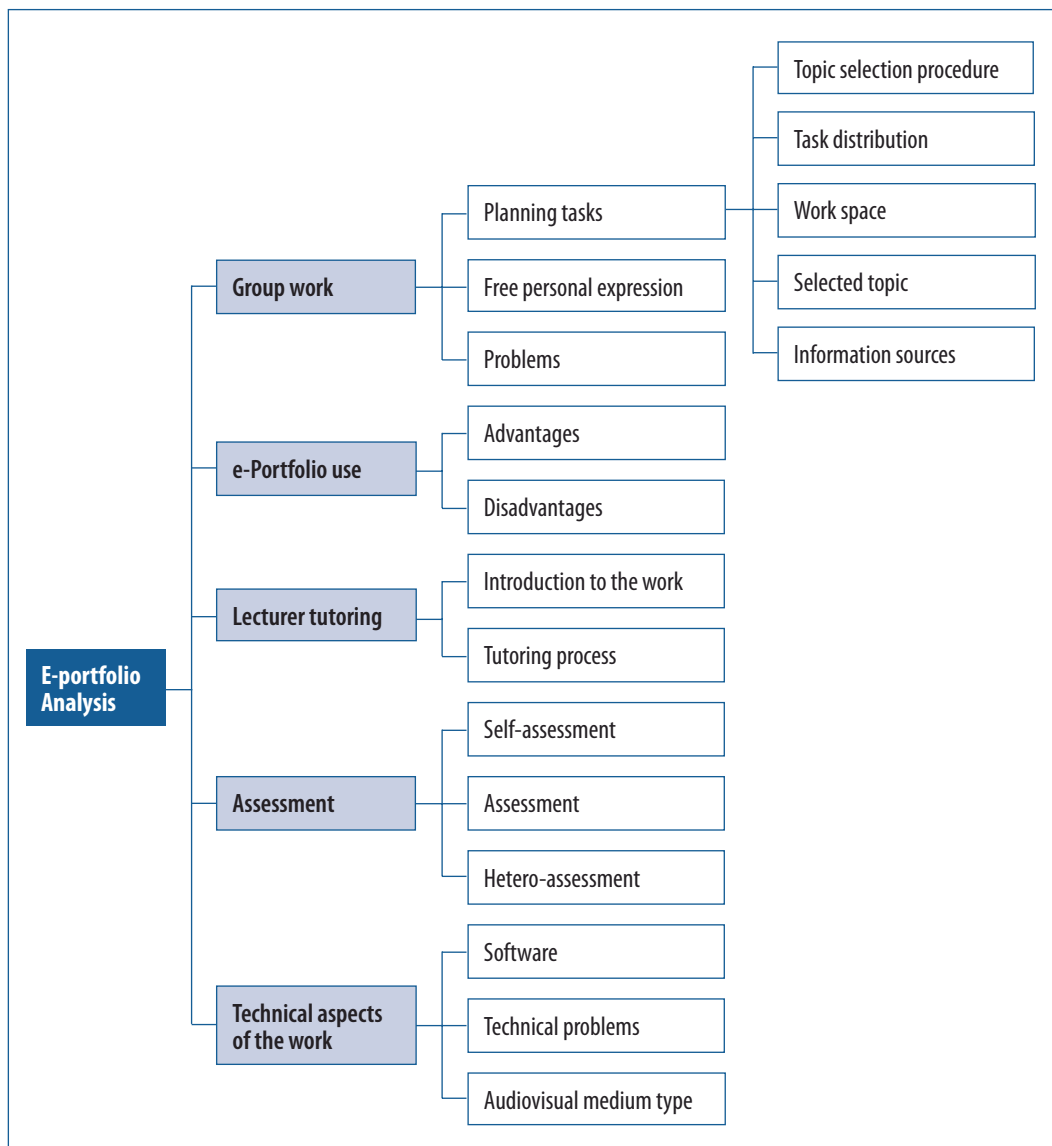


Diagram 2. Node and sub-node classification of the study.

In the following lines, each category of the didactic study is described.

The first node is called 'Group work'. This category includes aspects centring on the development of teamwork, tasks connected with the multimedia didactic project's planning, anecdotes, problems, etc. (Table 3).

Table 3. Descriptions of study categories. 'Group work' node.

<i>Sub-node</i>	<i>Key topics</i>	<i>Description</i>
Free personal expression	Personal information	Includes the funniest posts that the groups made while carrying out some of the various parts of the final work.
Group work problems	Problems	Includes posts about problems that the group encountered during group work, including differences of opinion, discrepancies, group growth, etc.
Planning tasks This category presents information about aspects of the work connected with topic selection, task distribution, work spaces, etc.	Task distribution	Includes procedures connected with the way in which the educational tasks are distributed.
	Topic selection procedures	Includes information about the process that the groups followed to select the topic of the work.
	Work spaces	Includes information collected on the spaces chosen by the different groups to hold their work meetings.
	Topics	Includes information about the different Social Education and Social Work topics selected.
	Sources	Includes information about the different sources consulted while doing the work.
	Choice of audiovisual medium type	Includes information about the choice of audiovisual medium type.

Table 4. Description of the 'e-Portfolio use' node.

<i>Node</i>	<i>Key topics</i>	<i>Description</i>
e-Portfolio use This category serves to relate all the information about the use of the e-portfolio tool. The advantages and disadvantages are described, as is their use as a means of assessment and group self-assessment.	Advantages	Includes information about the advantages of working with this tool in the educational setting.
	Disadvantages	Includes information about the disadvantages and problems of working with this tool in the educational setting.

Table 5. Description of the 'Lecturer tutoring' node.

<i>Node</i>	<i>Key topics</i>	<i>Description</i>
Lecturer tutoring	Tutoring and monitoring	Includes information about the work tutoring process followed by the lecturer.

Table 6. 'Assessment' node.

<i>Node</i>	<i>Key topics</i>	<i>Description</i>
Assessment	Self-assessment	Includes information about aspects that the different groups took into account while using this medium for their self-assessment.

Table 7. 'Technical aspects of the work' node.

Node	Key topics	Description
Technical aspects of the work This category includes information about posts focusing on the use of various video-editing software packages, the technical problems encountered while recording and editing videos, the choice of the type of video montage to be carried out, etc.	Software	Includes information about the choice of video editing software for video editing and montage.
	Technical problems	Includes posts on aspects connected with the different technical problems that the group encountered while producing the audiovisual medium.

Finally, after delimiting each of the nodes, the coding process was applied (Figure 1).

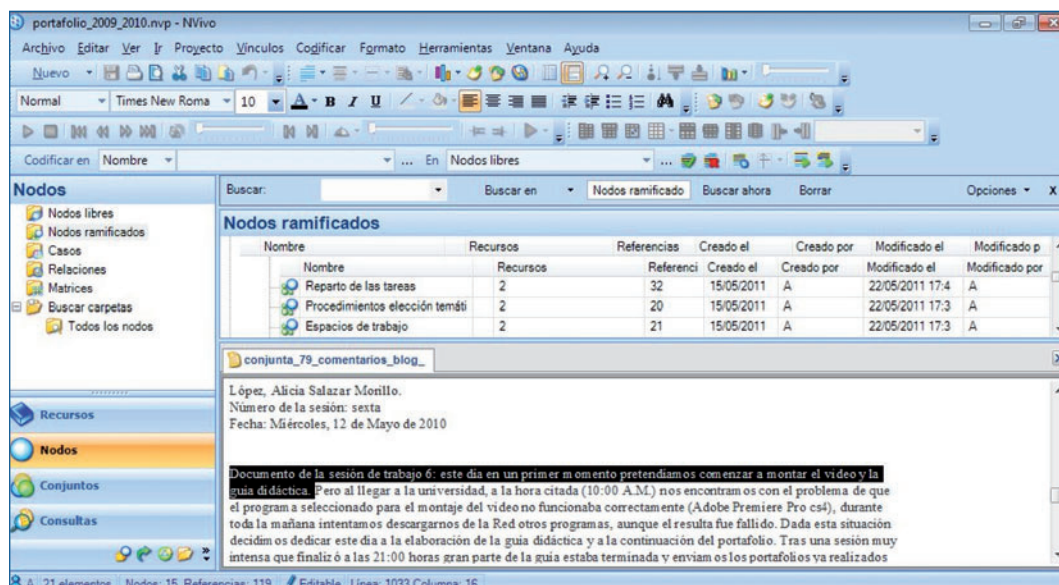


Figure 1. Coding process using NVivo.

In the following section, the various categorised data units are interpreted, that is to say, the results obtained are described.

6. Results

In general, all the participants made comments connected with the categories that had been considered in the study (Table 8).

Table 8. Number of student posts connected with the study categories.

	<i>Key topics</i>	<i>Id code</i>	<i>References found</i>	<i>Words included in posts</i>
Group work	Free personal expression	LEP	4	120
	Group work problems	DTG	24	1,085
	Task distribution	RTG	32	1,807
	Topic selection procedures	PET	20	1,323
	Work spaces	ETG	21	362
	Topics	TTG	18	1,194
	Information sources	FTG	10	258
	Choice of audiovisual medium type	TMA	8	275
e-Portfolio use	Advantages	VUP	8	436
	Disadvantages	IUP	7	288
Tutoring	Tutoring	TTG	36	1,644
Assessment	Self-assessment	ATG	9	1,512
Technical aspects of the work	Software	PI	7	181
	Technical problems	DTT	19	1,105

First of all, Chart 1 shows the results obtained for the number of references found in the text.

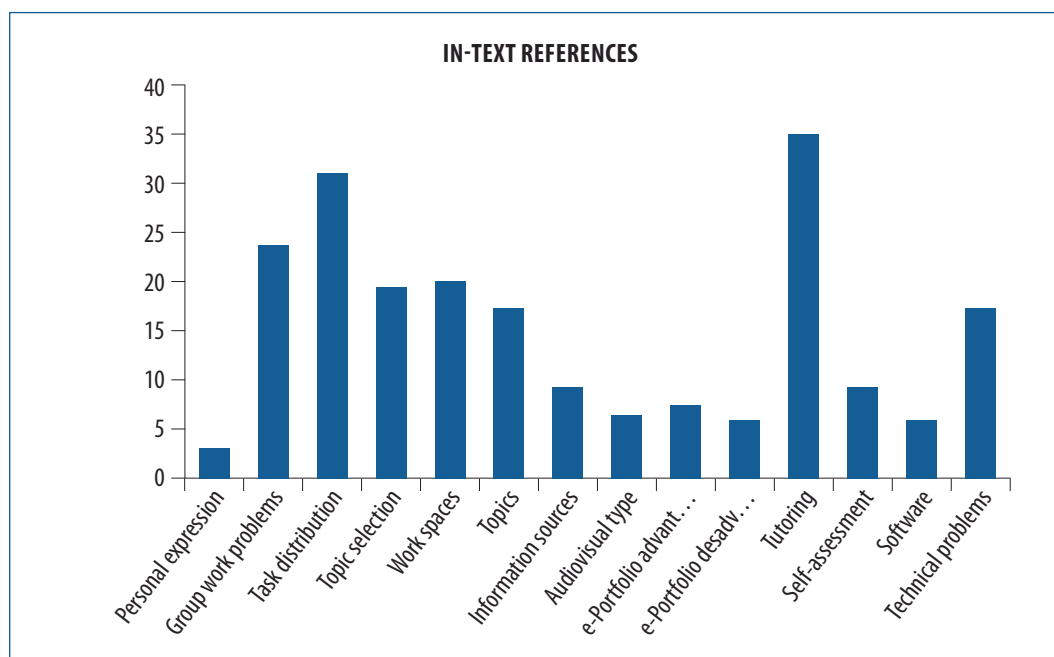


Chart 1. Comparison of references found in the text, by key topic.

The topic with the highest number of references (36) is about the tutoring process followed while carrying out the audiovisual media work. In other words, regarding the work carried out, the students placed greater importance on communication with and feedback from the subject lecturer. This is clear to see in some of the references shown in Table 9.

Table 9. Coding report for the 'Lecturer tutoring' node.

Document		Node: Lecturer tutoring	Characters
1	Ref. 2.	<i>Como dije anteriormente no tenía ni idea de cómo desarrollar mi trabajo y en una tutoría con el profesor me puso un PowerPoint sobre África y al verlo me di cuenta de que podía transmitir mucho más lo que deseaba con este recurso que con el vídeo.</i> [As I said earlier, I had no idea how to develop my work and then, in a tutorial, a lecturer showed me a PowerPoint presentation about Africa, and when I saw it I realised that what I wanted to express could be conveyed much better through this resource than through video.]	17355 - 17602
	Ref. 10.	<i>El docente nos sugirió cambiar alguna de ellas que le parecían más afines al tema que íbamos a tratar, tales como que introdujéramos la figura de un educador social que ayudara a los protagonistas con sus problemas.</i> [The lecturer suggested that we should change some of them, which he felt were better suited to the topic we were going to deal with, such as introducing the figure of a social educator to help the lead characters with their problems.]	47434 - 47651

In this respect, we agree with Bozu and Imbernón (in press), in that an e-portfolio is a strategy that enables lecturers, through an analysis performed on the teaching practice itself, to establish the strengths and weaknesses – which need to be addressed in the short term – of the content worked on in the classroom, of the method and didactic resources used, etc.

Moreover, the groups used the e-portfolio as a way of gathering information about the process they followed while 'Planning tasks', to which there were 32 references.

Most of the groups chose to carry out the work stages by consensus, by holding meetings in which they discussed the different issues on which they had to work. The tasks were shared out in accordance with the members' possibilities.

Another important didactic aspect was connected with the problems that students had in working as a group, to which 24 references were made. This was due to differences between group members. Some of them were related to timetable clashes and work or academic commitments; the fact they lived a long way from the reference university, meaning that working at the weekend was not an option; problems in reaching agreements on various aspects of the work; etc. Nevertheless, most of these problems were sorted out after discussions to reach a consensus on ideas or after democratic voting.

Regarding the meeting place or places for the work team, they were generally study spaces; specifically, the central corridors of the University hall. Other places for the digital recording of the multimedia educational project were the cafeteria, the library and specific outdoor areas, or the students' homes.

Regarding the procedures for selecting the MEM topic, more than half used the brainstorming didactic strategy, with a subsequent debate and vote. The MEM educational content was socially

current and relevant, and included gender equality, drug dependency prevention, anorexia, gender violence, etc.

Regarding the information sources that the students in the work groups consulted, most were electronic: socio-educational websites, blogs, videos and online scientific references about the selected topic.

References were also found to a variety of technical problems that had cropped up, which ranged from recording and editing problems to not having the necessary resources available, insufficient quality to be able to produce optimum work or not knowing how the video editing software worked. Some of the issues are shown in Table 10.

Table 10. Coding report for the 'Technical problems' node.

Document	Node: Group work \ Technical aspects of the work \ Technical problems	Characters
1	<p>Ref. 5.</p> <p><i>En esta sesión hemos vuelto a tener un problema con el vídeo, puesto que no se veían las fotos que ya estaban montadas. Por tanto, hemos vuelto a mirar el vídeo imagen por imagen y hemos corregido fallo por fallo.</i></p> <p>[In this session, we had yet another problem with the video, because we couldn't see the images that had already been edited. So we had to go back and look at the video frame by frame to put every fault right.]</p>	41779-41990
2	<p>Ref. 6.</p> <p><i>Al principio hubo alguna dificultad y tuvimos que repetir tomas que no eran de buena calidad, debido a imprevistos como la iluminación, el sonido, etc.</i></p> <p>[There were a few problems at the start, and we had to repeat some takes when the original quality wasn't that good because of lighting, sound and other issues.]</p>	31632-34784

Regarding the 'Software' node, the data analysed are related to the software that the students used to edit the video. "*Comenzamos el montaje del vídeo y para ello contamos con dos ordenadores. El montaje se decide entre todos realizarlo en el ordenador de María Segura y con el programa de Windows Movie*" [We began editing the video, and to do that we had two computers. We all decided to do the editing on María Segura's computer using *Windows Movie Maker*] (document 2, reference 1. 21845-22031).

Regarding the 'Choice of audiovisual medium type' category, it should be noted that there was a great deal of variety, from digital recordings in video format to comics and even computer slides.

We would particularly like to mention the 'Free personal expression' node. This referred to aspects connected with personal posts that, while they had little to do with the e-activity, gave the e-portfolio an experiential touch with its own personality. "*El día fue muy largo ya que estuvimos grabando hasta por la tarde noche ya que también hubo muchos momentos de risas ya que ninguno de nosotros éramos actores por ello que hubo que grabar más de una que otra escena falsa*" [It was a long day because we were still recording until late in the evening. There were a number of times when we had a good laugh because none of us were actors, and that's why there was more than one false take, which we had to record again] (document 1, reference 3. 78268-78492).

Likewise, the data analysis also provided information about the assessment that the participants made of their own multimedia project. This is reflected in the following post: "*Bajo nuestro punto de vista la nota que nos corresponde es un notable ya que hemos tenido muchas dificultades a la hora de montar el vídeo, por un lado hemos cambiado varias veces su contenido con el fin de que quedara bien*

Table 11. Strengths and weaknesses of the educational practical exercise.

Doc.	Node: Advantages	Caracteres	Node: Disadvantages	Caracteres
1	<p>Ref. 1</p> <p><i>En cuanto a los aspectos positivos del portafolio, podemos decir que este nos permite tener una mejor planificación del trabajo que hay que realizar y que es una forma de evaluación para nosotros mismos y para el profesor que facilita el proceso de mejora, ya que nos permite darnos cuenta de los errores y subsanarlos a tiempo.</i></p> <p>[Regarding the positive aspects of the e-portfolio, we could say that it allows us to have a better plan of the work that needs to be done, and that it's a means of assessment for us and the lecturer, which helps to improve the process because it tells us where we've made mistakes so that we can sort them out in time.]</p>	53125 - 53444	<p>Ref. 1</p> <p><i>Haciendo referencia a los aspectos negativos de este, podemos destacar que el portafolio, en cierta medida, hace perder algo más de tiempo, aunque sigue siendo muy útil para la facilitación del trabajo que hay que realizar.</i></p> <p>[Referring to its negative aspects, we would point out that the e-portfolio wastes a bit more time, although it is still useful for facilitating the work that needs to be done.]</p>	53461 - 53677
2	<p>Ref. 2</p> <p><i>Como aspecto positivo que hemos encontrado en la elaboración del portafolio tenemos en primer lugar, y coincidiendo con muchos de nuestros compañeros, que es muy útil para planificar todas las sesiones. A la hora de ponerse a trabajar ayuda mucho porque los imprevistos han sido predichos y por lo tanto surgen menos contratiempos.</i></p> <p>[Of the positive aspects that we've found in producing the e-portfolio, the first – as many of our fellow-students will agree – is that it is very useful for planning all the sessions. When you get down to work, it helps a lot because any potential setbacks have already been considered, so fewer actually arise.]</p>	57697 - 58029	<p>ef. 2.</p> <p><i>Como aspecto negativo cabe señalar que la planificación requiere tiempo y dedicación, además de una coordinación, ya que a veces resulta difícil quedar todo el equipo de trabajo. Llegar a un consenso también implica un esfuerzo y un diálogo a fin de hacer un buen trabajo en equipo.</i></p> <p>[Of the negative aspects, it's worth noting that planning requires time, effort and coordination, since it's sometimes hard for the whole work team to meet up. Reaching consensus also involves effort and dialogue to do good teamwork.]</p>	58029 - 58311
2	<p>Ref. 3</p> <ul style="list-style-type: none"> • <i>Sirve para poder hacer un diario de toda la grabación y ver así los logros obtenidos.</i> • <i>Promueve la participación del estudiante al evaluar su propio aprendizaje.</i> • <i>Promueve la autoevaluación y el control del aprendizaje.</i> • <i>El portafolio es un trabajo personalizado, por lo que no hay dos iguales.</i> • <i>El portafolio sirve para observar las situaciones de problemas, los aspectos positivos del aprendizaje y el proceso de elaboración de tareas.</i> <p>[• It's useful for keeping a diary of the whole recording to see the results obtained.</p> <ul style="list-style-type: none"> • It promotes the student's participation by assessing his/her own learning. • It promotes self-assessment and learning control. • The e-portfolio is a personalised work, so no two are alike. • The e-portfolio is useful for observing the circumstances surrounding problems, the positive aspects of learning and the process of carrying out tasks.] 	70084 - 70542	<p>Ref. 3</p> <ul style="list-style-type: none"> • <i>Gasto de tiempo por parte del profesor y del alumno que puede ser utilizado en otras actividades.</i> • <i>Falta de seguridad por no estar haciéndolo bien.</i> • <i>Implica un alto nivel de autodisciplina y responsabilidad por parte de los alumnos.</i> <p>[• A waste of time for lecturers and students, which could be better spent on other activities.</p> <ul style="list-style-type: none"> • A feeling of insecurity, of not doing things right. • Requires a high level of student self-discipline and responsibility.] 	70542 - 70800

y por otra parte creemos que se adecúa bastante bien con los objetivos que se quieren alcanzar ya que creemos puede servir como un gran recurso didáctico al tratar un tema como la anorexia masculina, no muy conocida socialmente" [In our view, we deserve a B grade because we had a lot of problems editing the video; on the one hand, we changed the content several times to make it look good and, on the other, we feel that it is pretty much in keeping with the objectives of the task because we believe that it could be used as a great didactic resource given that it deals with male anorexia, a socially little-known topic] (document 2, reference 3.69629–70071).

In this respect, we noted several shortcomings in the self-assessment, because most of the students self-assessed their work on the basis of the MEM they had produced while forgetting about the indicators explained in the classroom and shown in the e-portfolio's rubric (Table 2).

Finally, in the last session, the students were also asked to give their opinions on the digital experience of e-portfolios. These appear in the 'Advantages' node and the 'Disadvantages' node. Table 11 shows some of the most relevant posts.

7. Conclusions and study limitations

The first conclusion that can be drawn from the results obtained – thus corroborating the findings of Todorova, Arati and Osburg (2010) – is that e-portfolios are very useful for recording learning processes, planning upcoming tasks and assessing learning. At the same time, one of the main objectives of the study was achieved. To be precise, the use of e-portfolios enabled the learning process connected with the design, development and assessment of a MEM in a university context to be established.

Likewise, the use of university e-portfolios allows a lecturer to find out about learning processes, his/her class's working methods, tutoring processes, the level of students' competency acquisition and the problems that students encounter while working in teams, etc. In short, e-portfolios help to monitor the teaching-learning process.

From the students' perspective, the main conclusions that can be inferred are that e-portfolios enable groups to find out about their own and their fellow-students' learning progress, help to structurally plan the object of study/topic, and foster joint responsibility, decision-making and conflict resolution.

Moreover, apart from the particular features of his study (focusing on the use of an e-portfolio in the specific context of a practicum), it is possible to agree with Cebrián (2011) on the fact that e-portfolios can foster a formative and holistic assessment because educators are able to perform detailed monitoring of the evolution and didactic problems that a group of students encounters. Thus, such educators can take action and provide the feedback that they deem appropriate. In this respect, e-portfolios can help with formative assessment and constructivist approaches to teaching and learning.

One of the potential weaknesses of e-portfolios in this study, as expressed by most of the students, is that too much time needs to be spent on building them. And besides a weak assessment culture among students, a lack of good study habits was also found in some groups.

Among other limitations, it is necessary to underscore the massification of university classrooms, the isolation of lecturers and the little involvement of the educational institution in didactic strategies underpinned by e-portfolios. Indeed, the studies by Guasch, Guàrdia and Barberà (2009) – connected with e-portfolio practical exercises in Spanish universities and based on a sample of 81 experiences – highlight the fact that it is generally a lecturer or a group of lecturers that promotes the setting-up of e-portfolios, and that educational institutions have very little involvement (only 16.46% of the experiences in their sample has institutional involvement). Likewise, it is important for students to be able to intervene in the structural design of e-portfolios and in the development of hetero-assessment processes for the students' group e-portfolios in order to reinforce a more reflective and enriching kind of assessment.

By way of a general conclusion, and in keeping with the findings of Rodríguez Sánchez (2011), an e-portfolio is a didactic method that integrates teaching, learning and assessment because it allows an orderly collection of evidence about students' work to be gathered. This enables lecturers and students to establish not only what has been learnt, but also how the learning has taken place.

We would like to close this article by highlighting the fact that the quality of university systems is one of the most prominent concerns of countries committed to advanced social policies (Imbernón, Silva & Guzmán, 2011) and, as several studies show (Johnson & DiBiase, 2004; Garis, 2006; Mansvelder, Beijaard & Verloop, 2007), it is necessary to integrate e-portfolios into the university culture to enable educational innovation and reflection in the context of training future teachers.

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About the Authors

Dr José Ignacio Aguaded Gómez
aguaded@uhu.es
Professor, University of Huelva

Professor of Media Literacy and Educational Technology. He holds a doctorate in Educational Psychology, a master's degree and a bachelor's degree in Education Sciences and in Philosophy, and he is the founding president of *Grupo Comunicar*, a long-standing Media Literacy collective in Spain. He is also the editor-in-chief of *Comunicar*, an Ibero-American scientific journal of education and communication, which is distributed in Europe and the Americas; he is a scientific advisor to various national and international journals. He is the director of the *Ágora* research team that forms part of the Andalusian Research Plan (HUM-648), which conducts a range of research projects (R&D for the Spanish Ministry of Science and Technology; 2004; 2011), Interreg III and e-Learning (for the European Union, alongside Italy, Belgium and Portugal), INTI (EU), Alargamento (EU), etc. He has taken part in numerous training and research activities in the field of media use for didactic purposes, he has given papers in forums and conferences at national and international universities, and he has given lectures on master's degree courses at various Spanish universities and overseas research centres in many countries: Argentina, Chile, Portugal, Venezuela, Brazil, Belgium, Sweden, Mexico and Italy, among others.

<http://www.uhu.es/agora>

Universidad de Huelva
C/ Dr. Cantero Cuadrado, 6
21071 Huelva
Spain

Dr Eloy López Meneses

elopmen@upo.es

Contracted Doctor Lecturer, Pablo de Olavide University, Seville

Tenured lecturer, Department of Social Sciences, Pablo de Olavide University. He holds a doctorate in Education Sciences. Special award for his doctoral thesis. Scientific reviewer: *Comunicar; Enseñanza & Teaching*. Scientific Board: *RELATEC, @tic, Hekademos, REDEX, NAER, Aletheia Mayor* (Chile). Investigator on more than 22 competitive projects, 42 articles and more than 30 books in the field of Education and ICTs. Coordinator of the international teaching group *INNOVAGOGIA*®: <http://innovagogia.jimdo.com/miembros/españa/>. Personal edublog: <http://eloy3000.blogspot.com>. Lines of research: university MOOCs, ICTs in training contexts, MEM design and training teachers in ICTs.

<<http://eloy3000.blogspot.com>>

<<http://twitter.com/#!/eloyntt>>

Universidad Pablo de Olavide
Ctra. de Utrera, km 1
41013 Seville
Spain

Dra. Alicia Jaén Martínez

ajaemar@upo.es

Contracted Doctor Lecturer, Pablo de Olavide University, Seville

An educational psychologist, she holds a doctorate in Education Sciences and is a lecturer in ICT-related subjects on the double degree in Social Education and Social Work at Pablo de Olavide University. She is a member of the Pablo de Olavide Education Research Group (*Grupo de Investigación de Educación Pablo de Olavide*, GEDUPO), and a training manager in Geforán, in charge of designing training actions for businesses as part of their continuing education plans. She has been the training director of the Association for Training, Leisure and Employment (*Asociación para la Formación, el Ocio y el Empleo*, AFOE) since 2001, in charge of designing and planning training actions within the context of the teaching staff's lifelong learning. These actions are approved by the Ministries of Education of the Governments of Spain, of Andalusia, of the Canary Islands and of Cantabria. She is a member of the editorial board and the scientific board of the online education journal *Hekademos* (<http://dialnet.unirioja.es/servlet/revista?codigo=12558>). She is currently an investigator on the R&D Project EDU2010-19272 (sub-programme EDUC): 'Orient@cual': design of a programme and a virtual platform for guidance on the production of professional projects in the education system's professional training. Among her ICT-related books is *Nuevas tecnologías en el aula* (2010), Seville: AFOE.

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Universidad Pablo de Olavide

Ctra. de Utrera, km 1

41013 Seville

Spain



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