

Student Teachers' Attitudes toward Collaboration in ePortfolios Built with Web 2.0 Tools

by Gemma Tur and Victoria Marin

Abstract

This article presents the research carried out on student teachers' attitudes towards collaboration in ePortfolios at the Ibiza campus of the University of the Balearic Islands. An on-going ePortfolio project was implemented in September 2009 throughout our different Teacher Education programmes. Changes have been introduced to the project design based on initial research findings. Data collection is carried out with the first and the last graduation classes that have worked on the ePortfolio project. This research allows us to observe any changes in student teachers' attitudes towards collaboration in ePortfolios due to improved scaffolding as the project progresses.

Keywords: *ePortfolio, collaboration, Web 2.0, Personal Learning Environment (PLE), Teacher Education*

Introduction

Collaboration is a skill to be developed by teachers of all levels (Rubia, Anguita & Ruíz, 2006). Information and Communication Technologies (ICT) can empower the new spaces created by collaborative learning (Basilotta and Herrada, 2013) and can offer the possibility to adopt new collaborative models that change paradigms and the relationship between students and teachers (Taspcott & Williams, 2010). Computer Supported Collaborative Learning (CSCL) is based on group work that is interactive and collaborative (Johnson & Johnson, 1996; Lipponen, 2002). The learning tasks are designed so that solutions do not have a single correct answer, but include different ways to find a solution so that students and teachers must reach agreement; a fact that helps students become more independent and socially and intellectually mature (Bruffee, 1995). To achieve these solutions, one important element is sharing new acquired knowledge that enriches the whole group ("we are better by sharing", @catherin-cronin, 2013).

This collaboration leads us to ICT spaces where sharing and interacting is empowered by openness and participation. In fact, Couros (2010) has claimed that openness is the movement that enhances collaboration in order to share and achieve greater access, inter-operation and

transparency. In this sense, Web 2.0 tools, which are different from Web 1.0 with regard to the user interaction and participation component (Wesch, 2007), seem to fit quite well. Web 2.0 may be crucial for universities to introduce more collaborative and innovative methodologies (Conole & Alevizou, 2010; Buchem & Hamelmann, 2011). Web 2.0 tools are open in the sense that they allow individuals to work with open standards and content, and are accessible and searchable on the net by default, of which anyone can take advantage (and learn from it) (Anderson, 2007).

The introduction of Web 2.0 tools in education has empowered Personal Learning Environments (PLEs). A PLE has been defined as the set of activities, resources and people that one has for learning. The digital part of PLEs is made up of tools to access information, create new knowledge and finally, share and collaborate with others (Adell & Castañeda, 2010; Castañeda & Adell, 2013). Lubensky (2006), for his part, considers that the PLE is the facility for the user to access, aggregate, configure and manipulate the digital artefacts in their own learning experiences. In this conceptualization, the author places the PLE at the junction between the VLE, the ePortfolio and Web 2.0 services. It has also been argued that ePortfolios can be methodologically integrated in institutional Virtual Learning Environments (VLE) (Salinas, Marín & Escandell, 2011) and that they are a part of students' PLEs (de Benito,

Escandell, Ordinas, Salinas & Sastre, 2012). Wheeler (2009), after defining the PLE's functions (managing information, generating content and connecting with others), places the ePortfolio and its function (recording and sharing achievement) at the junction of the three PLE functions.

Theoretical Framework

Collaboration is one of the three portfolio processes defined by Zubizarreta (2009), which are documentation, reflection and, collaboration and mentoring. The following picture shows how the interaction of the three processes represents maximum learning:

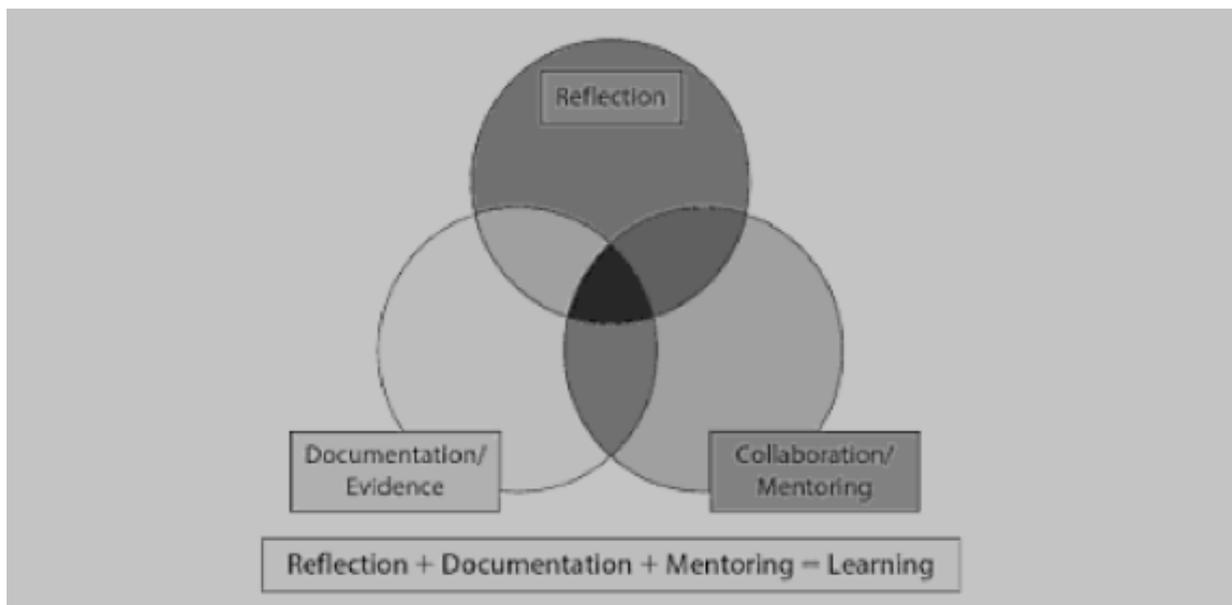


Figure 1. Graphic Model of a Learning Portfolio (Zubizarreta, 2009, p. 25)

Zubizarreta (2009, p. 48) argues that although collaboration has not been a defined aim in many ePortfolio designs, it is part of its nature and ePortfolio “presupposes a sense of authorship that suggests audience”. The collaboration can come from many - teachers and peers in and outside the classroom and, in face-to-face lessons, or online. The mentorship from the teacher is a kind of collaboration and both the teacher and the student depend on each other to keep reflection dynamic. Collaboration between students is more challenging but also “transformative” (Zubizarreta, 2009, p. 49). The role of peers is to enhance reflection and help the process of evidence selection to document learning.

Other authors have also defended collaboration in ePortfolios from diverse points of view. Lin (2008) argues that communication, interaction and collaboration are crucial for dealing with technical issues. Barbera (2009) defines the concept “netfolio” where collaboration is carried out for peer and co-assessment. This net of ePortfolios increases students’ revisions among themselves, and the role of teachers is that of the silent observer, making his or her presence a guarantee of correction. Garrett (2011) has criticised that most ePortfolio tools, being aware of security and privacy issues, have neglected social learning because of the lack of

facilities for exchange and collaboration. Therefore, the paper argues that “collaboration should be reflected in systems’ design as more than an afterthought” (Garrett, 2011, p. 189). Garret (2011) concludes that ‘ease of use’ software can enhance student collaboration and that it should be designed for social exchange instead of rigorous assessment. Cambridge (2010) states that the lack of collaboration in ePortfolios is a consequence of paper-based portfolios which were mainly individual projects. Oner & Adadan (2011) point out that ePortfolio construction is a collaborative task. As for teaching portfolios, Klenowski (2007) stated that its construction is a collaboration process in which colleagues share and have dialogues that enhance reflection about their own teaching.

Barrett (2011, p. 296) has argued that collaboration is the heart of social networking:

Technology creates new opportunities for collaborating and publishing, especially with Web 2.0 tools. Social networks involve connecting or “friending”, listening or reading posts, responding or commenting and sharing through linking or tagging. Social networking has the underlying foundational concepts of interactivity and collaboration.

Therefore, it can be argued that the use of Web 2.0 tools can empower the collaboration process in ePortfolios. Actually, networking has become a key process for our present day ePortfolio landscape (Attwell, 2012). Cambridge's (2009, 2010) network self is mainly based on connecting with others thanks to the use of Web 2.0 for the construction of ePortfolios. Barrett (2009, 2011) has also referred to collaboration in the second and third step of her ePortfolio model, that is, in the collection of evidence and its presentation.

The ePortfolio Project

In the Teacher Education Programme of the Balearic Islands University, Ibiza campus, an ePortfolio project has been in progress since September 2009. The ePortfolio is based on Web 2.0 - blogs as ePortfolio platforms and a diverse range of Web 2.0 tools for the construction of artefacts. All the ePortfolios of each graduation class are joined together in a kind of ePortfolio net, built with the tool Netvibes, following the idea of Barbera's (2009) netfolio.

The project has three main aims: students document their growth and identity as future teachers; students empower their PLEs due to the use of diverse social media; and students 'live' a learning experience that can have future impact on their teaching.

During their first semester at university, students are asked to write weekly on their learning in a pedagogy course. Their writings are assessed weekly with the use of a rubric.

Due to some drawbacks uncovered by initial research (Tur, 2011, 2013) some changes have been introduced in the ePortfolio implementation. For example, the first graduation class was free to open the blogs they needed as well as to write at the frequency they chose. Also, students were invited to comment on their colleagues' writings, but no help was provided. Having observed the low frequency of student writings and the difficulties for collaboration and networking with so many blogs (Tur, 2013), the following graduation classes were introduced to progressive changes.

Therefore, the last graduation class had to keep in mind the following three rules: one blog per student, weekly writings and comments on classmates' blogs. One of the main changes has been the scaffolding of the collaboration process as it was compulsory for the comments to be written on student blogs, and students were given suggestions for the comments; expanding and contrast-

ing ideas and content, giving advice for future learning processes, and recommending technical tools.

Methodology

A descriptive methodology is used for this study with the measurement of students' attitudes towards ePortfolios and technology in education carried out with a five-point Likert scale that ranged from 1 – totally disagree to 5 – totally agree, in order to measure and describe student teachers' perceptions. This methodology allows the researcher to be as objective as possible by describing facts and the sample's characteristics. It also enhances data collection, problem identification, conducting of comparisons, future changes, planning, and decision-making (Van Dalen & Meyer, 1981). Also, Likert scales allow for the observation of attitude tendency of subjects who have been surveyed (Pérez Juste, 1997).

This type of descriptive method is called the survey method. In this kind of method, participants answer questions on a questionnaire (in this case) or an interview. The answers are afterwards described by the researchers (Jackson, 2009) in terms of how the total sample has been distributed on the different answer alternatives for a questionnaire item (marginal tabulations), and can also be compared and analyzed at a deeper level. Marginal tabulations are common in survey research in education (Nelson Knupfer & McLellan, 2001).

The Participant Groups

The participants are divided into two groups: the first and the last graduation classes involved in the ePortfolio project to date. All students participating in the project implementation are pre-service teachers in different programmes. The first graduation class, from the school year 2009-10, was a group of students in the Bachelor of Arts Program in Early Childhood Education. The last graduation class, from the school year 2012-13, was a group of students in the Master of Arts Program in Secondary Education.

Table 1 Participant Groups

The tutor was helpful. (n=47)	Male	Female
Bachelor Group	2	23
Master Group	8	14

¹ Netvibes site of the first graduation class: <http://www.netvibes.com/eportafoliodestudis#General>

² Netvibes site of the last graduation class: <http://www.netvibes.com/gemmamaster#PIC-2012>

All students were born in the eighties, and none of them had ever kept a blog or an ePortfolio, although most of them are network users (mainly Facebook).

Research Questions

Initial research observed a lack of collaboration among students despite the usage of open tools for the construction of ePortfolios (Tur, 2011, 2013). Certain negative attitudes towards the impact of collaboration in student teachers' learning were observed; and, after having implemented some changes to improve the collaboration process, our research questions were:

1. Will student teachers who have collaborated in a more systematic way have a positive attitude towards collaboration?
2. What are the topics about which students collaborate through their ePortfolios?

Research Instruments

The instrument for data collection is based on a Likert scale built by Lin (2008) from which we will only show results on the two concrete items related to collaboration (items 15 and 17 of a total of 18). On a Likert scale, every

item can be rated with a value from 1 to 5, the first value being 'totally disagree' and the last one, 'totally agree'. Value number 3 is 'neither agree nor disagree' which means a rather indifferent attitude.

To see the topics students discuss in their comments, a text analysis has also been performed. This analysis is based on the scaffolding students were given, and it considers three main topics: content, technology and reflection. However, while the analysis was being done, it was considered necessary to also observe two more topics: comments to encourage classmates and dialogues where the main aim was expressing appreciation for the comment given.

Apart from that, we are also giving data about student activity within their ePortfolios, a number of blogs and evidence written to see the proportion of comments also made.

Results and Discussion

Data offered is based on three elements: number of comments made by each group of participants; results of the Likert scale items on collaboration; and the topics of the comments are reviewed in order to see the aim of collaboration.

Number of Comments								
	BLOGS	EPORTF EVIDENCE	NUMBER OF COM.	AVERAGE NUMBER COM-BLOG	AVERAGE NUMBER COM-EVID.	AGENT OF COMMENTS		
						TEA.	STUD.	OUT.
2009-10	77	247	16	0.2	0.06	9	6	1
2012-13	22	154	37- 41	1.9	0.27	0	37	0

Table 2. Number of Comments and Other Elements in Students' ePortfolios

As can be observed, the number of comments is not really high in any of the groups, although it is much higher in the second group (37) than in the first (16). Students of the first graduation class were not asked to comment on their ePortfolios although exchange among them had been fostered. The number of blogs did not help at all because students did not know where to focus their collaboration task as has been reported (Tur, 2013) –students were free to open as many as they needed. Thus, the average number of comments per blog (0.2) and per evidence (0.06) seems insignificant. However, the total number of comments in the second group is more relevant to the number of blogs, nearly two of them

(1.9) –students were not allowed to open more than one blog- and of evidence (0.27). These results mean that every student received at least one comment on their blog from one colleague and that there was a comment for every four pieces of evidence. As for the agent, most of the comments were made by teachers in the school year 2009-10, and only a few were made by students themselves, whereas in 2012-13 all the comments were made by students. Among all the comments only one was made by a person who was not a part of the group – neither a student nor a teacher - in the first school year, which did not happen in the second school year.

Topics of comments							
	ENCOU	THANK	CONT	TECH ISSUES	TECH REFL	REFL	ARTEF
2009-10	5	2					
2012-13		2	39		3	3	1

Table 3. Topics of Comments in Students' ePortfolios

In the first school year only seven comments were made by students and most of them were about encouraging, valuing effort and time spent and being proud of the colleague's work. There were two short dialogues whose aim was to say thanks for the comment received. Whilst in the second school year, all of them were made by students and none was as emotional as in the first graduation class. Instead, the vast majority of the comments (91%) were about the pedagogical content shown in that evidence. The other 5% was a reflection on the affordances of technology for learning and teaching.

There were some comments that were based on more than one topic, being content, reflection on technology and on one's own learning and artefacts. An item about technical issues was also observed due to the previous literature review where it was observed that this was a topic for collaboration; but data collected does not allow the observation of this topic in our sample. The techno-

logical reflection includes comments on the importance of concepts such as, the empowerment of the PLE and the reflection on one's own learning makes remarks on the innovative experience they have lived, and the affordances it has for lifelong learning. Finally, there was only one comment on an artefact, which was valued because it made clear what the text was describing. It is relevant to say that this artefact was built by others or other authored (Cambridge, 2010, 122) and was chosen to symbolize the students' learning, and that no comment was about artefacts created by students themselves. This fact is quite contradictory because in face-to-face lessons, discussions often started commenting on students' artefacts and the pride they felt after having published them in their own ePortfolios. Finally, there were only two short dialogues on the ePortfolio mainly to give thanks for the comment, although in one ePortfolio an attempt at conceptual discussion can also be observed.

Student Teachers' Attitude				
- I learned a lot from communicating, interacting and collaborating with peers.				
Value	Number of students 2009-10	% 2009-10	Number of students 2012-13	% 2012-13
5= totally agree	3	12	7	32
4= agree	10	40	12	54.5
3= agree nor disagree	8	32	1	4.5
2= disagree	2	8	1	4.5
1= totally disagree	0	0	0	0
NA	2	8	1	4.5

Table 4. Likert Scale: Item on the Learning Impact of Collaboration

Results from the first group were not totally negative as only 8% of the group rated in disagreement concerning the impact of learning with others. Also, half of the group answered "agree" or "totally agree". However, results from the last group show a more absolute positive

attitude. Thus, 86.5% of the group rated the item with options 1 and 2, and only 1% rated the item with the option 2. Another relevant point is that 32% chose the neutral option (neither agree nor disagree) in 2009-10 while only 1% chose it in 2012-13.

- I learned from reviewing my peers' ePortfolios online.				
Value	Number of students 2009-10	% 2009-10	Number of students 2012-13	% 2012-13
5= totally agree	2	8	5	22.7
4= agree	6	24	11	50
3= agree nor disagree	10	40	3	13.6
2= disagree	6	24	2	9.1
1= totally disagree	0	0	0	0
NA	1	4	1	4.6

Table 5. Likert Scale: Item on the Learning Impact of Reviewing Colleagues' ePortfolios

In 2009-10 opinions for and against are quite balanced, as results for values 2 and 4 are the same. Eventually, positive answers are greater because no student answered the item with value number 5, and a few answered with value 1. The value with higher results is number 3, which indicates a rather indifferent attitude. The difference with results in 2012-13 is noticeable. Nearly 78% of students were "agree" or "totally agree" and only 9% were "disagree", although 14% of the group were also rather indifferent to the impact of learning from others.

Both groups show general positive attitudes towards collaboration in ePortfolios. However, considering the results of the Likert scale, it is obvious that the second group presents more positive levels of attitude towards collaboration and its impact on students' learning.

Conclusion

Openness is one of the main characteristics of Web 2.0 tools. With open tools for the construction of ePortfolios we aim to foster collaboration among student teachers. Nonetheless, the fact that open tools were chosen for the construction of ePortfolios did not guarantee actual exchange and peer learning (Tur, 2013; Tur & Urbina, 2013). Thus, due to this drawback uncovered by previous research, it was necessary to enhance the collaboration process.

At this point, we can confirm that students who have written comments on their classmates' ePortfolios rank higher the items about the impact of collaboration in their own learning. It seems that scaffolding the collaboration process, guiding topics of review, has enhanced the peer review among students. This research conclusion aligns with the findings of Cheng & Chau (2009) and Bartholomew, Jones & Glassman (2012) that point out the importance of comments on an ePortfolio to empower social exchange in ePortfolios.

As for the second research question, the topic which was the main object of collaboration among students was mainly the content and purpose of their pieces of writing. This result contradicts some previous research that pointed out that the main purpose of collaboration among students was based on the technical level (Lin, 2008; Barbera, 2009; Tur, 2013). Also, it can be observed that during the school year when the teacher made comments there were very few comments made by students. However, during the school year when the teacher limited herself to encouraging more students' comments, student comments increased. Therefore, these conclusions contradict the findings of Deng & Yuen (2012) who argue the importance of teachers' and lecturers' comments to foster students' exchange.

Finally, it is necessary to point out that this research lacks the observation of the impact of collaboration on students' learning and performance. Therefore, further research is needed to collect data and analyse if collaborative learning through ePortfolios gives the opportunity for deeper learning. Furthermore, it would also be necessary to analyse the transformation of the teaching and learning process in classrooms and thus, educational institutions in general.

References

- Adell, J., & Castañeda, L. (2010). Los entornos personales de aprendizaje (ples): Una nueva manera de entender el aprendizaje. In R. Roig Vila & M. Fiorucci (Eds.) Claves para la investigación en innovación y calidad educativas. La integración de las tecnologías de la información y la comunicación y la interculturalidad en las aulas. Stumenti di ricerca per l'innovazioni e la la qualità in ambito educativo. La tecnologie dell'informazione e della comunicazione e l'interculturalità nella scuola. Alcoy: Marfil - Roma TRE Università degli studi.
- Anderson, P. (2007). What is Web 2.0? Ideas, technologies and implications for education. Retrieved from <http://www.jisc.ac.uk/media/documents/techwatch/tsw0701b.pdf>

- Attwell, G. (2012). Who owns the e-portfolio? Pontydysgu. Bridge to learning. Retrieved from <http://www.pontydysgu.org/2012/09/who-owns-the-e-portfolio/>
- Barbera, E. (2009). Mutual feedback in e-portfolio assessment: An approach to the netfolio system. *British Journal of Educational Technology*, 40(2), 342-357. doi:10.1111/j. 1467-8535.2007.00803.x
- Barrett, H. (2009). Balancing 2 faces of ePortfolios. Retrieved from <http://electronicportfolios.com/balance/index.html>.
- Barrett, H. (2011). Balancing the two faces of ePortfolios. In S. Hirtz, K. Kelly (2011)(Eds.). *Education for a digital world. Innovations in education*, vol. 2(pp. 291-310). British Columbia Ministry of Education. Retrieved from http://www.openschool.bc.ca/info/edu/7540006133_2.pdf
- Bartholomew, M., Jones, T. & Glassman, M. (2012). A community of voices: Educational blog management strategies and tools. *TechTrends*, 56(4), 19-25. doi: 10.1007/s11528-012-0583-3
- Basilotta, V. & Herrada, G. (2013). Aprendizaje a través de proyectos colaborativos con TIC. Análisis de dos experiencias en el contexto educativo. *EDUTEC, Revista Electrónica de Tecnología Educativa*, 44. Retrieved from http://edutec.rediris.es/Revelec2/Revelec44/aprendizaje_proyectos_colaborativos_TIC_experiencias.html
- Bruffee, K. (1995). Sharing our toys - Cooperative learning versus collaborative learning. *Revista Change*, 27(1), 12-18. DOI: <http://dx.doi.org/10.1080/00091383.1995.9937722>
- Buchem, I., & Hamelmann, H. (2011). Developing 21st century skills: Web 2.0 in Higher Education. A case study. *Elearning Papers*, 24. Retrieved from http://www.elearningpapers.eu/index.php?page=docidoc_id=18234idoclng=7ivol=24
- Cambridge, D. (2009). Two faces of integrative learning online. In Cambridge, D.; Cambridge, B. & Yancey, K (2009) (eds.): *Electronic Portfolios 2.0. Emergent Research on Implementation and Impact*. Virginia: Stylus.
- Cambridge, D. (2010). *EPortfolios for Lifelong Learning and Assessment*. San Francisco: Jossey- Bass
- Castañeda, L. & Adell, J. (2013). La anatomía de los PLEs. In L. Castañeda y J. Adell (eds) *Entornos personales de aprendizaje: claves para el ecosistema educativo en red* (pp. 11-28). Alcoy: Marfil
- @catherinecronin (2013, August 23). RT @education_right: @catherinecronin we are better by sharing. #easc13"[Tweet] Retrieved 23 August 2013 from <https://twitter.com/catherinecronin>
- Conole, G., & Alevizou, P. (2010). A literature review of the use of Web 2.0 tools in Higher Education. HEA Academy, York, UK. Retrieved from <http://oro.open.ac.uk/23154/>
- Couros, A. (2010). Developing personal learning networks for open and social learning. In G. Veletsianos (Ed.). *Emerging technologies in distance education* (pp. 109-128). Athabasca: Athabasca University Press. Retrieved from <http://www.aupress.ca/index.php/books/120177>
- De Benito, B., Escandell, C., Ordinas, C., Salinas, J., & Sastre, C. (2012). El e-portfolio como herramienta para la construcción de los Entornos Personales de Aprendizaje en la materia de Tecnología Educativa. *Proceedings of Edutec 2012, Las Palmas de Gran Canaria*. Retrieved 24 July 2013 from <http://gte.uib.es/pape/gte/publicaciones/el-e-portfolio-como-herramienta-para-la-construccion-de-los-entornos-personales-de-apr>
- Van Dalen, J. & Meyer, W. J. (1981). *Manual de técnicas de investigación educacional*. Buenos Aires: Paidós.
- Deng, L., & Yuen, A. H. K. (2010). Towards a framework for educational affordances of blogs. *Computers & Education*, (56) 2. doi:0.1016/j.compedu.2010.09.005
- Cheng, G. & Chau, J. (2009). Digital video for fostering self-reflection in an ePortfolio environment. *Learning, Media and Technology*, 34(4), 337-350. doi:10.1080/17439880903338614
- Garrett, N. (2011). An e-portfolio design supporting ownership, social learning, and ease of use. *Educational Technology & Society*, 14(1), 187-202. Retrieved from www.ifets.info/journals/14_1/17.pdf
- Jackson, S.L. (2009). *Research Methods and Statistics: A Critical Thinking Approach* 3rd edition. Belmont, CA: Wadsworth.
- Johnson, D. & Johnson, R. (1996). Cooperation and the use of technology. In M. J. Spector, D. M. Merrill, J. Van Merriënboer & M. P. Driscoll (Eds.), *Handbook of research for educational communications and technology* (Vol. 1, pp. 785-812). New York: Routledge
- Klenowski, V. (2007). *Desarrollo del portafolios para el aprendizaje y la evaluación: Procesos y principios*. Madrid: Narcea Ediciones.
- Lin, Q. (2008). Preservice teachers' learning experiences of constructing e-portfolios online. *The Internet and Higher Education*, 11(3-4), 194-200. doi:10.1016/j.iheduc.2008.07.002
- Lipponen, L. (2002), Exploring foundations for computer-supported collaborative learning, CSCL '02 Proceedings of the Conference on Computer Support for Collaborative Learning: Foundations for a CSCL Community, pp. 72-81, Retrieved from <http://dl.acm.org/citation.cfm?id=1658627>
- Lubensky, R. (2006). The present and future of Personal Learning Environments (PLE). Blog Entry in *Deliberations*. Retrieved July 05, 2011, from <http://www.deliberations.com.au/2006/12/present-and-future-of-personal-learning.html>
- Nelson Knupfer, N. & McLellan, H. (1996). Descriptive Research Methodologies. In D. Jonassen (Ed.), *Handbook of Research for Educational Communications and Technology*. New York: Simon & Schuster McMillan.
- Oner, D., & Adadan, E. (2011). Use of web-based portfolios as tools for reflection in preservice teacher education. *Journal of Teacher Education*, 62(5), 477-492. doi:10.1177/0022487111416123
- Pérez Juste, R. (1997). *Pedagogía experimental*. Madrid: UNED.
- Rubia, B., Anguita, R. & Ruíz, I. (2006). Evolución de un proyecto colaborativo en la formación práctica interdisciplinaria de Magisterio en un entorno tecnológico: dos años de experiencia. *RELATEC. Revista Latinoamericana de Tecnología Educativa*, 5(2), 309-323. Retrieved from [http://campusvirtual.unex.es/revistas/index.php?journal=relatec&page=article&op=view&path\[\]=255](http://campusvirtual.unex.es/revistas/index.php?journal=relatec&page=article&op=view&path[]=255)
- Salinas, J., Marín, V. I., & Escandell, C. (2011). A Case of an Institutional PLE: Integrating VLEs and E-Portfolios for Students. *Proceedings of the The PLE Conference 2011*. Southampton, UK. Retrieved 26 July 2013 from <http://gte.uib.es/pape/gte/publicaciones/case-institutional-ple-integrating-vles-and-e-portfolios-students>

Tapscott, D. & Williams, D. (2010). Innovating the 21st Century University: It's time!. *EDUCAUSE Review*, 45 (1). Retrieved from <http://www.educause.edu/ero/article/innovating-21st-century-university-it%E2%80%99s-time>

Tur, G. (2011). EPortfolios and PLEs in Teacher Education. First results. In *Proceedings of the The PLE Conference 2011* (pp. 1-10), Southampton, UK.

Tur, G. (2013). Projecte de portafoli electrònic amb eines de la Web 2.0 als estudis de Grau d'Educació Infantil de la UIB a la Seu d'Eivissa. Estudi de cas. Thesis. University of the Balearic Islands. Retrieved from <http://www.tdx.cat/handle/10803/111339>

Tur, G. & Urbina, S. (2013). Blogs and Web 2.0 tools to open student teachers' ePortfolios: student teachers' perceptions on

ePortfolio openness. Proceedings fo the ePortfolio and Identity Conference 2013. Retrieved from <http://www.epforum.eu/proceedings/epic-2013>

Wesch, M. (2007). The Machine is Us/ing us. Youtube. Retrieved from <http://www.youtube.com/watch?v=6gmP4nk0EOE>

Wheeler, S. (2009). It's Personal: Learning Spaces, Learning Webs. Blog entry in *Learning with "e"s*. Retrieved August 01, 2012, from <http://steve-wheeler.blogspot.com.es/2009/10/its-personal-learning-spaces-learning.html>

Zubizarreta, J (2009). *The Learning Portfolio. Reflective Practice for Improving Student Learning*. San Francisco: Jossey Bass.



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