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Exploring learners'practices and perceptions on the use of mobile portfolios as methodological tool to assess learning in both formal and informal contexts

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Abstract

In the last years, with the advent of Mobile Learning, there has been a growing interest from educationalists and researchers to find eportfolio systems that are mobile-friendly, that is, accessible and reliable from mobile devices as Stewart (2011) claims. At the same time, there is an increasing number of articles on tools and applications suitable for mobile devices that help to update eportfolios or build evidence of learning. However, there is a lack of studies that address this issue from a methodological approach which links mobile learning and its pedagogical strengths, that is enabling spontaneous, personalised and situated learning, promoting collaboration and encouraging autonomous, lifelong learning (Dyson et al., 2008; Traxler, 2009) to the use of eportfolios. The objective of this paper is to present a research experience presently being carried out with postgraduate students from the Universitat de les Illes Balears (Spain) and Universitat Rovira i Virgili (Catalonia) regarding **learners'practices and perceptions on the use of mobile portfolios as a methodological tool to assess learning in both formal and informal contexts**.

Keywords: Mobile_Learning, eportfolios, mobile_portfolios, Higher Education

1. Some pedagogical issues with eportfolios

There are different kinds of portfolios according to Barberà and De Martín (2009), depending on the sender, receiver, content, platform or purpose of the portfolio. In this article we refer to a very concrete kind of eportfolios: academic portfolios focused on the process of learning. Zubizarreta (2009:20) defines learning portfolios as "a flexible, evidence-based tool that engages students in a process of continuous reflection and collaborative analysis of learning. As written text, electronic display, or other creative project, the portfolio captures the scope, richness, and relevance of students' intellectual development, critical judgment, and academic skills. The portfolio focuses on purposefully and collaboratively selected reflections and evidence for both improvement and assessment of students' learning".

Based on the work of Hornung-Prähauser, Geser, Hilzenhauser and Schaffert (2007), Christen and Hofman (2008) say that eportfolios are the tools that "contain a broad digital collection of personal artifacts, controlled by the owner, documenting self organised learning processes and/or learning products as well as the description of the

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development of professional competences over a certain period of time in relation to a predefined aim." (Christen and Hofmann, 2008, 1). Students document their learning on their eportfolios through the presentation of evidences where they publish their artifacts and reflect on their learning. Barrett and Wilkerson define eportfolio evidence as follows:

> "Evidence in an electronic portfolio is not only the artifacts that a learner places there; to be considered evidence of learning, the artifacts need to be accompanied by the learner's rationale, or their argument as to why these artifacts constitute evidence of achieving specific goals, outcomes or standards. Furthermore, just because a learner makes the claim that their artifacts are evidence of achievement, in "high stakes" environments, the evidence needs to be validated by a trained evaluator, using a well-developed rubric with identifiable and specific criteria. This process can be represented by a simple formula: Evidence = Artifacts + Reflection (Rationale) + Validation (Feedback) (Barrett, 2003)." (Barret and Wilkerson, 2004).

2. Mobile learning and the use of eportfolios

Nowadays there is some research into what Mobile Learning (mlearning) can contributue to eportfolios. While most articles are focusing on eportfolio systems and other tools, which can be used from mobile devices to create evidence of learning, in this article we want to focus on some issues of the theoretical framework of eportfolios from the point of view of mlearning. In recent times, the increasing interest in mlearning for eportfolios can firstly be observed in the lists of the ideal requirements for an eportfolio system. Some time ago, when listing such requirements there was no condition related to mobile devices, but recently there has been a growing interest in trying to find an eportfolio system that is more mobile-friendly. In this way, Stewart (2011) claims an accessible eportfolio system from mobile devices. Secondly, there is a large number of articles on tools and apps for mobile devices that help to update eportfolios or build evidence of learning. But, over and above the accessibility from mobile devices to eportfolios, and all their tools, we think that there are some aspects that can be improved with the incorporation of mobile learning. Here we would like to briefly review eportfolio literature about the construction of eportfolios and other aspects such as collaboration and access.

However, can mlearning improve all types of eportfolios? There is a wide range of eportfolios depending on the owner, the audience, the support or the aim. But when talking about learning eportfolios, there are two main types of eportfolios: learning portfolios and showcase portfolios. Different possibilities of mlearning for each different type can be observed. Learning and showcase eportfolios can be considered as independent types of portfolios or can be considered as the "the two faces of eportfolios" (Barrett, 2009, 2010). Learning eportfolios focus on the process of learning while showcase eportfolios focus on the presentation of achieved learning. Although we understand the differences between them, we agree with Barrett (2009,2010) in considering them the different steps in the construction of eportfolios, where the learning portfolio is the second step and the showcase portfolio is the third. If we consider the three steps of Barrett's scheme in the construction of eportfolios, we can see that mlearning can enhance the construction of eportfolios in the first two steps.

The first step is about creating and archiving evidence of learning. There is no doubt that this step can be especially empowered with the incorporation of mobile devices. Learners building their learning eportfolio are building the process of their learning, giving evidence and reflecting on every step carried out. Moreover, any step in the process of learning can be carried out anywhere. So, wherever we are, our mobile devices can help us to get instant evidence of our learning, both textual and graphic. Although Livingston (2009) says that mobile technology has not introduced any improvement into education, we strongly believe that once mobile devices become tools for students' construction of learning, mobile learning will make a difference. One special task is the construction of artifacts to show learning.

The second step is about collecting and reflecting on evidence of learning. Reflection is a cognitive process that requires calm and patience but it can also be begun as an instant brief idea suggested by a situation in our everyday life. So we can use our mobile device to make a short note on it and come back to it later to develop the idea. Reflection is essential to eportfolios, and there are many models, but the one created by Helen Barrett (2011), is one of the few that also include, implicitly, mportfolios when she coins the expression "capture the moment".

One of the aspects in the construction of eportfolios both as a process or as a showcase that could be improved through mlearning is collaboration. Zubizarreta's model of learning portfolios focuses on three aspects for learning portfolios which are documentation, reflection and mentoring and collaboration. We have previously referred to the first two so we are now focusing on the third, to which Barrett's model does not refer explicitly. Empowering collaboration with more accessibility and ease of sharing and commenting is empowering learning as Zubizarreta (2009, 25) says that "the maximum learning occurs when reflection, documentation, and collaborative mentoring come together in the center of the design". Integrating mlearning in order to foster collaboration in eportfolios must be carefully planned, following Garrett who claims that "collaboration should be reflected in systems' design as more than an afterthought" (Garrett, 2011, 189).

The Study

2.1. Method

The approach used to design a mobile learning course can be best described as action research. Action research is also known as participatory research or contextual action research. What is characteristic for this type of research is the emphasis on problem identification, problem solving and design of an intervention reflected by theoretical considerations. The mportfolio project is anchored in the problem-solving paradigm with students progressively working on solutions to problems. Action research also focuses on involving end-users as researchers. The m-portfolio project is co-designed with students taking responsibility for developing a solution. The practical part of the research includes a needs detection on the students part regarding the use of mportfolios as a learning tool and the exploration of the possibilities of Mobile Learning and a process that includes the creation of a mportfolio to reflect how the learning process takes place in both formal and informal contexts. The research includes qualitative instruments to gather significant data.

2.2. The sample

The participants are a group of twenty-six students with a BA in different subjects such as Biology, Languages, Social Sciences and Architecture. They are doing a teaching postgraduate course to become Secondary Education teachers in Spain. They have no experience in teaching and they have limited experience of learning with technology.

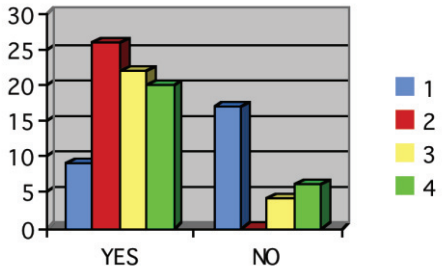
2.3. *The instrument*

All our students answered a very short questionnaire, which was validated by experts, and intended to retrieve data regarding their attitude towards technology in education, the construction of electronic portfolios for learning and the use of mobile devices in the learning process. In addition they were asked to create an artifact with the help of their mobile phones in order to reflect about their learning process and to express their opinions regarding **the use of mobile portfolios as methodological tool to assess learning in both formal and informal contexts**.

2.4. Findings

When asked about the previous knowledge of portfolios, over half of them, 57% acknowledged that they knew of them, whereas 6% recognized having developed a teaching portfolio. 100% had never created an eportfolio as students and 95% of them acknowledged they agreed with the statement that maintaining an eportfolio can empower their students' learning. Regarding mlearning, 65% of the participants stated they knew of it and almost 96% agreed with the fact that mlearning can be applied to education. However, when they were asked specifically about their own students, the question: "Do you think mlearning can empower your students' learning?" the opinions were

slightly different and 75% answered yes. Finally, 70% of participants answered yes to the question: "Can mobile devices empower your students' learning portfolio".



1 Did you know about m-learning? Yes- No
2 In general, do you think m-learning can be applied to education? Yes – No
3 Do you think that m-learning can empower your students' learning? Yes - No.
4 Do you think that mobile devices can empower your students' learning portfolio?Yes-No

Figure 3. Students' answers

The second part of the research included the creation of artifacts which could explain their learning processes and the different artifacts had to be created with the help of their mobile phones. Thus, students recorded a short piece of reflection through their mobile phone, and uploaded them to their blogs. Here are the blog posts where artifacts can be found:

Student 1:
http://albamaster.blogspot.com/2011/11/el-sistema-educatiu.html
Student 2:
http://myblogmasterfp.blogspot.com/2011/11/como-clasificamos-nuestra-manera-de.html
Student 3:
http://mariaplanellsperez.blogspot.com/2011/10/las-tic-tac-en-la-educacion.html
Student 4:
http://secundariaxnuriaporta.blogspot.com/2011/11/finlandia-en-el-punt-de-mira.html
Student 5:
http://diaridunprojectedeprofessor.blogspot.com/2011/11/lescola-sha-considerat-tradicionalment.html
Student 6:
http://elblocdedidacticadenagemma.blogspot.com/2011/02/glogster-de-musica.html
Student 7:
http://www.youtube.com/watch?v=ZvaX4WX0sYI&feature=player_embedded

There was a student teacher who recorded a video of a group of children talking about some insects during a trip in the countryside. Then she was able to edit it and to add the explanation of the students' reflexion process. Finally, she embeded the video on her eportfolio and reflected on the whole learning experience Apart from reflecting on the children's dialogue, she also wrote about her role as a teacher using technology to improve her students' learning

Finally, it should be pointed out that the open questions were those which really shed light on the research questions. The following excerpts are part of students opinions on mlearning and the use of mobile devices for their own learning and their future teaching practices:

Using mobile devices in my learning process is an enriching experience that helps me to focus on the little events of everyday life that normally would be unnoticed but that can enhance learning in an extraordinary way. Also using these tools means that I can record and publish everyday learning experiences that otherwise, would

remain private and unknown to others. Finally, mobile devices help me to improve my "pedagogic point of view" by being able to see lots of learning experiences that can be very powerful in daily life.

In my future teaching, this technical learning is going to be very useful so I will be able to capture learning moments and use them as a starting point for a new learning project in the classroom ,to show the rest of the world their hypothesis and theories, their thinking processes, and their interests…. Therefore, we could say that this is going to help me to introduce what they learn informally in their leisure time in to the formal context of our classroom.

4. Discussion

Evidence from the data collected showed that most of the participants had a positive attitude towards technology, the construction of electronic portfolios and the use of mobile devices for learning. As was expected, results proved evidence on the use of mportfolios as a significative learning tool at the time that their use can lead us to a better understanding of the nature of learners' cultural and social experiences As was stated previously, Mobile Learning has a lot to offer to eportfolios. The increasing number of articles on tools and applications suitable for mobile devices that help to update eportfolios or build evidence of learning demonstrates this fact. However, the lack of studies that address this issue from a methodological approach which links mobile learning and its pedagogical strengths to eportfolios are still to be researched in greater depth.

From our students' answers, it can be determined that the introduction of mobile devices in teacher education may improve their awareness of the learning process and also the implications of using eportfolios to keep track of such. Mobile technologies help them to show reflexion in their everyday life, a reflection that can be captured and included on their eportfolios to in order to improve learning. This also means that in this way informal learning is improving their formal learning. Moreover, it also seems that students are able to transfer their learning experience to their future teaching practice since they are starting to consider how important these tools are going to be in their future teaching careers.

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