M-portfolios: Using Mobile Technology to Document Learning in Student Teachers' E-portfolios

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We briefly analyse the enhancement of eportfolio processes defined by Zubizarreta (2009) with the introduction of mobile technology. We give some examples of appropriation of mobile device usage in eportfolio processes carried out by student teachers. These examples become the evidence of the enhancement possibilities of one of the portfolio processes defined by Zubizarreta (2009), that of documentation.

1. Introduction: Zubizarreta's portfolio model

Zubizarreta (2009) defines learning portfolios as a tool that engages students into collaborative processes of reflection and learning documentation. There are three processes in Zubizarreta's (2009, 23-25) portfolio model: documentation, reflection and collaboration. The learning portfolio achieves its maximum level when the documentation of learning is improved by reflection and teacher and peer collaboration.

2. Enhancement of Zubizarreta's eportfolio model by mobile technology

It seems that currently, efforts are centred on developing mobile-friendly eportfolio systems, as Stewart (2011) claims. But we also think that there is a need to develop a pedagogical approach to eportfolios that includes mobile technology. So, in order to develop our own model, to which we can refer in our practical work with our own students, we posit that mobile technology can empower the three processes defined by Zubizarreta (2009).

There is a wide interest in tools and apps that can be used to document learning. Barrett (n.d.) and Rate (2009a, 2009b), for example, have cited numerous of tools and apps to document learning with mobile devices. The process of documentation learning can be enriched by the documentation on the move, in real contexts. Taking photos of evidence, recording videos and audios in real context are examples of this documentation process. This process can also be the answer to the inclusion of informal learning for formal learning processes.

Reflection has also been studied by Barrett (2012) from the point of view of mobile technology. We argue that the possibilities of taking brief notes as reflection on the move, whether written or audio recorded, which allow us to return to them later, can improve the whole process of reflection on learning (Camacho and Tur, 2012).

There is an important line of research that analyses the impact of social networking with mobile technology. In fact, this is a way to improve collaboration with mobile technology too. We argue that these sociocultural practices of networking, which are currently under study, could be transferred to the collaboration process in an eportfolio model empowered by mobile technology.

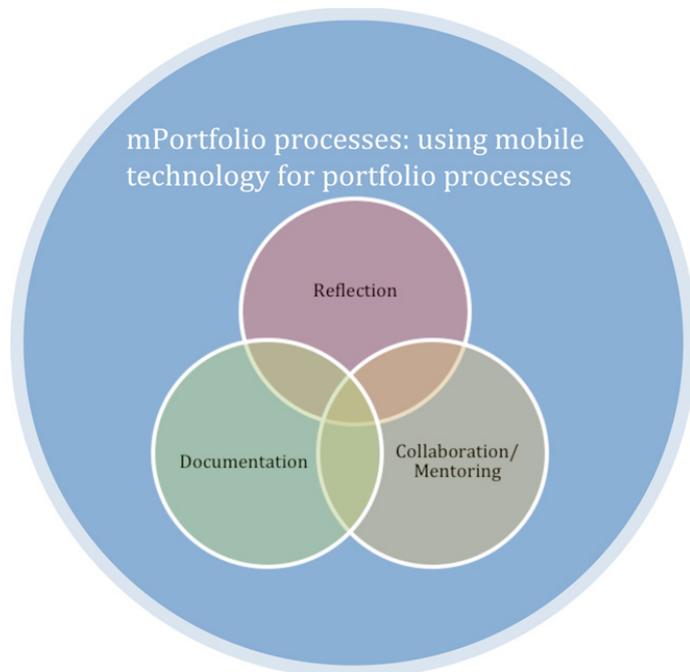Thefore, all these means that Zubizarreta's learning portfolio model can be enhanced by mobile devices.

Figure 1: Adaptation of Zubizarreta's learning portfolio model. Integrating mobile technology in the model of learning portfolios

3. Examples of uses of mobile devices in eportfolios processes

At the University of the Balearic Islands, Ibiza headquarters, an eportfolio project is being developed based on Web 2.0 tools. Mobile technology for learning has been introduced as a non-compulsory component in the eportfolio design we are developing. The University is not providing mobile devices to students which is one of the reasons why we considered it could not be compulsory for students to carry out assignments with mobile technology. However, we are encouraging students to apply their own sociocultural uses of their mobile devices, following Pachler, Bachmair and Cook (2010), to their learning processes and eportfolios. Therefore, they are encouraged to use their own mobile devices such as mobile phones and

cameras to document their formal and informal learning. They are encouraged to use them both for taking graphic and textual evidence of learning in everyday and real contexts.

4. Mobile technology usage in formal education context

Some students have used their cameras to document with multimedia artefacts the assignments they handed in non-technology subjects. For example, student 1 took photos of mushrooms in the forest to document a text-based assignment in a subject based on teaching natural sciences. Awareness of the affordances of using mobile technology to document learning has enhanced her activity as she built a multimedia artefact afterwards to empower a traditional text-based assignment.

This evidence eportfolio can be found here: http://tercer-nieves.blogspot.com.es/2012/02/la-ruta-dels-pebrassos-eivissencs.html

Drama students were asked to build a poster with the Web 2.0 tool Glogster. They were asked to take photos of the process of creating a theatre play and videos of some parts of the final show. All these multimedia objects were finally to be joined in a poster as a summary of how to create a theatre play for their future teaching careers. Student 2 blogs it and reflects on the pro-

Figure 2: Video presentation by student 1

cess as well as observing some characteristics of the tool such as its visual impact. This evidence, based on personal reflection on a group assignment, can be seen here: http://larepresentaci-oescenicacira.blogspot.com.es/2011/05/reflexio-6.html

5. Mobile device usage in informal contexts.

Some students have also used their mobile devices in an informal context to document their learning on their eportfolios, which for us is the most powerful example of the possibilities of introducing mobile technology into eportfolio processes. A re-flection carried out in a real context is made visible in an eport-folio built within a formal learning context. For instance, student 3 built a video from a video she recorded while being with some students in a trip in the country. She reflected on the value that recording spontaneous students' dialogues would have for her as an in-service teacher. She also documented some videos where she appears playing the flute in a concert as evidence of their music competence. These two blog posts can be found here:

http://segonanyeducaciomarta.blogspot.com.es/2011/05/va-daprenentatges.html

http://segonanyeduca-ciomarta.blogspot.com.es/2011/04/va-de-musi-ca.html

6. Conclusion

Parry (2011) says that teachers "have responded by banning this new technology from the learning space" so we think that giving a model to use mobile technology for the construction of learning portfolios is giving teachers reasons to allow mobile technology in the learning space. Moreover, using mobile devices to document learning on eportfolios would be a way to appropriate socio-cultural practices (Pachler, Bachmair and Cook, 2010) in formal contexts that may motivate teachers to introduce mobile technology in their lessons.

We have shown how students integrate mobile devices in the construction of eportfolios based on their daily life usages.

Figure 3: Evidence of learning by student 2: group artefact + reflection

They simply take advantage of the uses they have integrated from their current life into their learning process. Based on Merchant (2011) this is a way of making advantageous usage of mobile devices for learning. Santos and Ali's (2012) research shows that the activities of audio and video podcasting are not so usual among students, so it is a key aspect to foster this kind of activity by encouraging their already appropriated sociocultural practices.

However, maybe because of their previous sociocultural usages, our students have only started using their own mobile devices to take visual evidence of learning on the move, so further work will be needed to enhance reflection processes with their mobile devices as well. Finally, more research is also needed to see how the other two portfolio processes defined by Zubizarreta (2009), collaboration and reflection, can also be empowered through the integration of mobile technology. mPortfolios are still a challenge for teachers and educational technologists.

Figure 4: Evidence of learning by student 3: reflection + video artefact

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