Investigating university students' adaptation to a digital learner course portfolio

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ABSTRACT

Digital learner portfolios are of growing importance in higher education as the sector seeks new teaching–learning–assessment methods which promote students' autonomy as managers of their own virtual learning environment. The purpose of this study was to analyse descriptively the undergraduate students' perceptions, attitudes and behaviour when using an eportfolio to support their learning and assessment in practice based courses at two traditional Spanish universities. The participants were 88 students, who were studying through a blended learning mode. Data were collected through questionnaires: a computer experience survey, another which examined the psychological, pedagogical and technological dimensions of eportfolios use. Further, an individual overall reflection was obtained from each student to help gain an understanding of their experiences of using the eportfolio. A mixed-method analysis was applied in order to study the impact of this technological innovation on students and their satisfaction. The results showed that the students had positive opinions and self-efficiency through the eportfolio as a tool to manage their learning and assessment during a semester, especially from the second month of use. However, the expected impact on their learning was not so significant. Nevertheless, the students emphasised that the eportfolio was valuable as a personal developmental learning tool.

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1. Introduction and literature review

Universities are implementing new strategies supported by technology for teaching, learning and making student assessment more learner-centred, in order to focus the educative process on a future lifelong and life-wide learner (Bates, 2003; Collis & Moonen, 2001; Cuthell, 2002; Kimball, 1998; Laurillard, 1993; Preston, 2005; Schank, 1997). This socio-educational change towards students' perspective has led to the implementation of strategies that promote students' personal development, and help them to plan for continuing education, based on an evaluation of their competences. Such skills include: learner autonomy, self-reliability, the ability to use a range of strategies to construct their competencies, and having the flexibility to adapt these strategies to new training contexts.

1.1. Digital learner portfolios

In this educative context centred on students' learning achievements, eportfolios appeared in the nineties as a pedagogical strategy based on monitoring students' competencies in order to accredit learning (Kankaanranta, Barrett, & Hartnell-Young, 2001; Niguidula, 1993).

In education, eportfolios are recognised as being a technological tool that allows the student to manage their learning experience. Simultaneously, it helps teachers to observe students' work and their processes of learning during a period of time. The main pedagogic potentiality of these systems is their role in assessment as students are able to manage their progress through learning tasks while being supported by their teachers through these sorts of technological devices. Therefore, teacher teams can use this technology to develop a facilitator role, and to support students' activities and help them to work through specific assessment schedule. In these terms, eportfolios are categorised as a course portfolio, supported by an electronic environment where the students are documenting and reflecting through the ways in which they achieve their outcomes, guided by teachers and the assessment criteria.

The concept of educative eportfolio or digital portfolio is used along with other similar terms such as: efolio (Cambridge, 2008), webfolio or web portfolio (Chen, Liu, Ou, & Lin, 2001; Kimball, 2003), virtual portfolio (Sorensen & Takle, 1999), etc. It refers to a private virtual space

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(usually in a web-based environment) which contains a collection of digital products (artefacts and reflections) to demonstrate competencies in a field of knowledge to a teacher, a colleague, a professional or a community. In the case of academic digital portfolios, Barrett and Knezec (2003) describe the learner eportfolio when the student is the owner of this virtual learning environment based on his/her own work. Barrett (2004) considers that there is a considerable difference between the eporfolio and the assessment management systems, as in the first case the locus of control is the student and in the second it is the institution. However, in a formal educational context which has a great number of students per course and learning is supported by a blended strategy, digital learner portfolios are usually a mid-term between traditional portfolios and sophisticated online assessment management systems. Specifically, its objectives are:

(1) to give the student a personal *web-based space* to store, classify and/or select his or her learning products (by logging with a user name and password),
(2) to offer the student *to be supported through the Internet* by a teacher team of facilitate that learning achievements based on scheduled assessment criteria,
(3) to enable the student *to self-manage* his or her academic assignments (in compulsory or optional modalities, individual or group mode, etc.) and communications (by email, forums or chats, etc.) in order to be more autonomous in their learning management.

1.2. Electronic platforms for digital learner course portfolios

Since 2000, few open source web-based platforms have appeared for implementing eportfolios. On the one hand, the first was OSPI ("Open Source Portofolio Initiative") in 2003, based on a model by University of Minessota (USA). This platform offered a personal eportfolio for North-American university students with three main options: enter (information), share (products) and view (other eportfolios). Nowadays it is called OSP and it maintains the open code but with a more complex web-based eportfolio system, similar to virtual campus structure. Another well-known open source portfolio software is ELGG created by Tosh and Werdmuller (2005), which is based on a social networking platform that offers blogging, networking, community, collecting and sharing features, but it is more addressed to an eportfolio used in a collaborative strategy (Tolsby, 2001). Recently, it has appeared MAHARA, an open source eportfolio created in mid 2006 for Massey University, Auckland University of Technology, The Open Polytechnic, and Victoria University of Wellington (New Zealand). It has a modular and extensible architecture, which could be integrated into a wider virtual learning platform as MOODLE ("Modular Object Oriented Developmental Learning Environment", Dougiamas and Taylor (2002)). On the other hand, open source virtual campus software has also been used adapted to eportfolios, several commercial, home-grown platforms and hybrids have been designed for higher education institutions, such as those obtained and described by ePortfolio Consortium in its ePortfolio White Paper (2003) and Handbook of Research on ePortfolio (Jafari & Kaufman, 2006). However, analysing these referential documents, few empirical investigations have been undertaken in digital learner portfolios for assessing university students in an academic course, and fewer still have been conducted with longitudinal or more controlled methodologically designs. One reason is probably the novelty of this educational phenomenon which facilitates descriptive research and study cases.

1.3. Student achievement with a digital learner portfolio

In 2000 scientific empirical research that focused on digital learner portfolios, started to be published (Cambridge, 2001; Chen et al., 2001). As another computer-mediated educative device, eportfolios have potential in the process of teaching, learning and assessment, and once the main technological platforms were implemented, the researchers focused their attention on the role of the teacher with this innovation, and in the process of instruction (Barrett, 2005). Little research has explored the student's perspective in order to examine how eportfolios affect their academic performance and course-related behaviour.

Chen et al. (2001) analyses a learning eportfolio as a tool to assess the learning process, and their results showed that for the students the application of ICT in the creation of eportfolios helped them to control their learning; in addition, the effectiveness of the communication channel and the media used in their results of learning were also valued. According to Chen, Ou, and Wang (2003), teachers could handle and guide with a digital learner portfolio a program of online learning, collaborative in type, in which a large number of students participate (approximately 100 per teacher). Hope (2005) considers that an optimal digital portfolio reflects the understanding and behaviour of the student and this is the reason for carefully doing the assessment. Del duca and Duque (2006) used the digital portfolios in medical education as a system of assessment based on the student work which required a reflective dynamic where they had to optimise the level of their abilities and attitudes thereby obtaining positive results, especially in reflection. Meeus, Questier, and Derks (2006), from Vrije Universiteit Brussel created an institutional digital portfolio to complement the evaluation of competences directed at educative innovations. They used an open-code platform and the results were positively evaluated by their students. Spendlove and Hopper (2006), from the School of Education of the University of Manchester, used the production of digital portfolios with their students as a technological activity in the curriculum of initial degree students. This development tool promoted creativity, reflective work, design practice with an educative structure, as well as the development of technological abilities.

In conclusion, the main results of the impact of eportfolios on universities address their vision, assessment, technology, logistics and cultures (Cambridge, 2001). However, in relation to their impact on students, the main role of eportfolios is to enhance learning through reflection. This innovation helps students to manage artefacts and learning outcomes, to select evidences to achieve standards, and to digitally produce a more enriched learning experience. In the last term, the eportfolios helps students to be self-awareness of the educative goals achieved over the duration of an academic endeavour (Zubizarreta, 2004: 4) and support personal development and reflective learning (Stefani, Manson, & Pegler, 2007).

2. Rationale of the empirical research

This research is focused using a pedagogical model of an academic digital learner course portfolio for a traditional university, supported by a web-based environment adapted as an eportfolio. This technological tool and the methodology for implementing it, aim to promote