ABSTRACT

This paper provides a summary of an ePortfolio approach in preservice teacher education based upon the belief that teacher education programs need to use ICT to enable the development of rich personal stories of learning. Often students still ‘do the course’ and see their courses disconnected from life experiences, and see their program as a set of disconnected, discrete courses. Through the conceptualisation of a mediated learning environment enabled by ICT, this paper summarises the design of a course called Learning with ICT guided by a mediated learner approach (MLA) and assessment for learning as key course design drivers. The course aims to prepare future teachers who demonstrate strong theoretical and practical understandings of designing effective ICT learning experiences, and are confident, proficient users of ICT. Central to the approach is the use of ICT connected by a metanarrative reflecting an understanding of ePortfolios as ‘story’. The ‘stories’ attempt to encourage learners to connect their formal study with life experiences as well as constructing a platform to connect with other courses of study using Preskill’s (1998) narratives of social criticism, apprenticeship, reflective practice, journey and of hope. While this paper focuses upon preservice teacher education, the account of this ePortfolio approach has implications for students developing their stories of personal learning in other educational settings.

INTRODUCTION

Most people are familiar with the Covey’s best selling work The 7 Habits of Highly Effective People (Covey, 1997). That book has sold more than 15 million copies in 38 languages. He was recognised by Time magazine as one of the most influential Americans. His more recent contribution The 8th Habit: From Effectiveness to Greatness (Covey, 2004) provides a simple outline or map of the 8th Habit which is Find your Voice and Inspire Others to Find Theirs. That map depicts two different roads of life which Covey suggests are either “the broad, well-traveled road to mediocrity” and the “other the road to greatness and meaning” (Covey, 2004, p. 26). He refers to and uses the lines from the poem by Robert Frost that:

Two roads diverged in a wood, and I –
I took the one less travelled by,
And that has made all the difference.
(Robert Frost, cited in Covey, 2004, p. 27)

Similarly, Barrett (2004a; 2004b; 2005) who researches, writes and theorises extensively about electronic portfolios, digital storytelling and deep learning, uses the Robert Frost poem in her personal digital story called Choices. Through the presentation of three models of technology-rich learning environments (see Trinidad, 2004), namely teacher-directed learning environments, learner-centred learning environments, and mediated learning environments, this paper provides a case study of the design and delivery of a course called Learning with ICT guided by a mediated learner approach (MLA) and assessment for learning as key course design drivers.
The course *Learning with ICT* aims to prepare future teachers who demonstrate strong theoretical and practical understandings of designing and creating effective ICT teaching and learning experiences, and are confident and proficient users of ICTs. The design and delivery reflects an ePortfolio approach and assessment for learning as key course design drivers. The course aims to prepare future teachers who demonstrate strong theoretical and practical understandings of designing and creating effective ICT teaching and learning experiences, and are confident and proficient users of ICT. Learning stories and reflections of students are presented through the use of student voice. Central to the approach is the use of ICT connected by a metanarrative reflecting an understanding of ePortfolios as ‘story’. The ‘stories’ attempt to encourage learners to connect their formal study with life experiences as well as constructing a platform to connect with other courses of study using Preskill’s (1998) narratives of social criticism, apprenticeship, reflective practice, journey and of hope. While this paper focuses upon preservice teacher education, the account of this ePortfolio approach has implications for students developing their stories of personal learning through an ePortfolio approach in other educational settings.

**NARRATIVES – REFLECTIVE PRACTICE, JOURNEY AND HOPE**

As young children, we loved stories, the stories we heard and read, and the stories read to us by those who took the time to share stories with us. As adults, we now look forward to opportunities to hear stories and opportunities to share our stories with others. We know that stories are distinguished from silences and, as Preskill (1998) indicates there are narratives which assist to provide representations of reality, and representations of culture. Hatch (2004) appropriately suggests that Preskill’s work on “teachers’ stories is valuable in understanding the motivated actions which keep the teacher coming to work” (p. 115). Subsequently, Hatch indicates that Bourdieu (1991) refers to teachers’ stories as cultural capital, as they provide “their knowledge, ideas, attitudes and values” (Hatch, 2004, p. 115), and notes that Preskill categorises the cultural capital into the narratives of social criticism, apprenticeship, reflective practice, journey and hope. Three of those narratives are emphasised in this paper – reflective practice, journey and hope.

The narrative of reflective practice, according to Hatch (2004), is also evident in the narrative of journey, “for without reflection, growth and change cannot occur” (p. 117). The narrative of reflective practice is integral to all teachers’ stories – what worked well in that lesson? How would I approach this unit of work differently next time? The narrative of journey “highlight how the teacher grows and changes throughout their years of teaching” (Hatch, 2004, p. 118). The narratives of reflective practice and journey align with Education Queensland’s *ICT Continua* framework which provides a self-reflective tool for teachers to identify where they are in terms of minimum, developmental, innovator and leader phases (Education Queensland, 2003). Student teachers undertaking the course *Learning with ICT* in the first semester of the first year of their 4 year program in the Bachelor of Education (Primary) at Griffith University are introduced to the *ICT Continua*. The narrative of hope is characterised by optimism, imagination and a sense of wonder. Hatch (2004) provides the example of Robin Williams’ role as John Keating in the film *Dead Poets Society* to illustrate that “Although he is surrounded by conservatism and ingrained practice, he embodies all that is fresh, new and exciting in teaching” (p. 118). One of the authors of this paper is a young student teacher in his second year of preservice teacher education, optimistic, willing to learn, and engaging in a potentially wonderful learning journey in becoming a teacher. The other two authors could be described as experienced but continue to convey the positive, optimistic message that teaching is the most important profession on the planet. This aligns with the argument that we need to add “hope-fostering as a crucial element to our re-imagining the transformational frames and functions that we must undertake for the outcomes we wish to attain” (Walker, 2005, p. 5). For the purposes of clarifying what hope means, we have adopted the definition of hope as:

> a multidimensional dynamic life force characterized [sic] by a confident yet uncertain expectation of achieving a future good which, to the hoping person, is realistically possible and personally significant. (Dufault & Martocchio, 1985, p. 378)

**DEFINING DEEP LEARNING**
Throughout this paper, we will refer to the term deep learning in ways consistent with the definition provided by Education Queensland’s *Productive Pedagogies* (Education Queensland, 2002a; 2002b). Deep learning is conceptualised as relating to deep understanding and deep knowledge. For example, “students develop deep understanding when they grasp the relatively complex relationships between the central concepts of a topic or discipline” (Education Queensland, 2002a). Knowledge is deep when it concerns the central ideas of a topic or discipline, which are judged to be crucial to it. “Deep knowledge involves establishing relatively complex connections to those central concepts.” (Education Queensland, 2002b). When both deep knowledge and deep understanding are combined, deep learning takes place. We argue that an ePortfolio can enhance deep learning.

**MODELS OF ICT - RICH LEARNING ENVIRONMENTS**

Trinidad (2003) notes that many leaders and policy makers “correlate the use of technology with pedagogical changes” (Trinidad, 2003, p. 101). Thus, there is the potential for educators to use ICTs to continue to teach with a subject centred approach, using traditional pedagogies. Trinidad (2003, pp. 102-107) theorises three conceptions of technology-rich learning environments – The Teacher-Directed Learning Environment, The Learner-Centred Learning Environment, and The Mediated Learning Environment. The following summaries of the characteristics of these models are drawn from Trinidad’s theorising.

**The Teacher-Directed Learning Environment – ICT integrated into existing approaches**

In this model, teaching, learning and assessment reflects a transmissive approach whereby the educator is expert with a specific knowledge base and the student is seen as a passive receptor of the knowledge to be taught, acquired and assessed. The implication of the use of ICT in this model is to support a teacher-directed approach. Drill and practice software, and low level use of the Internet as a means to obtain information, are good examples of this approach. Figure 1 below provides a visual representation of this model with the positioning of ICT as an adjunct resource for educators and students.

![Figure 1: ICT and the Teacher-Directed Learning Environment](Source: adapted from Albon and Trinidad, 2001)

**The Learner-Centred Teaching Environment – ICT transforming pedagogy, curriculum and assessment**

The learner-centred teaching environment reflects a more constructivist approach, as described by Roblyer (2004), whereby humans construct knowledge by participating in certain experiences which foster creativity, self-analysis, metacognition, promote problem solving, and group collaboration. In this model, according to Trinidad (2004), the educator can be involved in restructuring the learning activities and the curriculum to transform curriculum, pedagogy and assessment. As displayed in Figure 2, adapted from the work of Newhouse, Trinidad and Clarkson (2002), this learning environment highlights the central importance of a learner-directed approach, and the role of ICTs enables transformation.
The Mediated Learning Environment

In this model, according to Trinidad, ICT become the vehicle for communication, collaboration and the framework for mediated learning which provides for interactions to assist the development of new and self-sustaining communities of learners to exist alongside established, traditional approaches. Hence, it is essential that educators design courses which provide learning experiences using forms of communication and facilities to access information at a time and place of the learner’s choosing, beyond and in addition to the traditional timetabled face-to-face lectures and tutorials.

In MLAs, the ICT which drive the design of learning are complemented in the design approach by the assessment for learning, rather than assessment of learning. Assessment for learning, drives MLAs. Assessment is seen as more than knowing the content, but becomes integrally interwoven into stories of learning whereby students collect and select authentic and diverse evidence, drawn from a larger archive representing what a person or organization has learned over time, and on which the learner has reflected.

Figure 3 below builds substantially upon the model developed by Trinidad to theorise the importance of assessment for learning. The model attempts to acknowledge the learning experiences which students bring with them to the specified course. As displayed in Figure 3, this diversity was captured through the use of the ICT Continua (Education Queensland, 2003) which commences with a Minimum phase, proceeds to a Developmental phase, and is ongoing through the Innovator and Leader phases. Most students entering the program were identified as being at a Minimum level of ICT knowledge and skills.
DESIGNING THE COURSE LEARNING WITH ICT – DEVELOPING AN ePORTFOLIO APPROACH

The course conceptualisation was guided by the need for the entire suite of four first semester courses to have an integrated assessment item so that students could make connections between the four courses rather than the courses being delivered as four discrete courses. Also guiding the conceptualisation of all four courses was a central question – Who are we as learners? Subsequently, the expectation was that students who were entering their first semester of the teacher education program would undertake personal and group investigations around that central question through the theoretical perspectives, learning experiences, content, and assessment of each of the four courses as well as through making the connections among those courses. For Learning with ICT, three assessable tasks were designed; namely, Problem Set, Website Development, and ePortfolio. The course was web enhanced through the provision of the Blackboard™ platform adopted by Griffith University. Students were provided with additional online learning resources in the form of summaries of lectures, weblinks to useful websites, and a range of tools such as the Discussion Forum. The Discussion Forums were established by the lecturer around key topics related to the central concepts of the course and students were expected to engage in these regularly.

The Problem Set

The Problem Set was undertaken by students using ICT to formulate their answers to a range of problematic scenarios. Students were scaffolded into the Problem Sets through their engagement with the textbook, lectures, discussions in workshops, and through the establishment of online Discussion Forums. The Discussion Forums were designed using the Blackboard™ platform and students were allowed to make new threads, and respond to other students’ ideas.

The Website – Who are we as learners?

The assessment task directly linked with the other courses and required students, working in pairs, to design a website. Students created their websites around a suggested structure which included the homepage titled Who are we as Learners?, and pages called Personal Learning Journeys, Why Teach?, What makes a Good Teacher?, and Our Professional Futures. Artefacts in the form of assignments from the other courses, as well as additional information using a variety of media were collected as ‘assets’ by students. The variety of media enabled students to develop interactive multimedia and digital video stories of learning. Students then selected and organised those assets for inclusion in the websites. The design of this assessment enabled the website to be a central vehicle for the development of students’ personal stories of learning and to become an integral part of their ePortfolio.

The ePortfolio

The web-based ePortfolio was conceived initially as a showcase portfolio to demonstrate basic and advanced ICT skills through developing samples using a variety of software. However, guided by MLA, students were encouraged to develop the ePortfolio more as a personal story of learning through the notion of an ICT Journey consistent with the ICT Continua (see Education Queensland, 2003). Similarly, Paulson and Paulson (1994) use the metaphor of ‘story’ and ‘journey’ which aligns with the MLA model (see Figure 3).
Subsequently, the ePortfolio task was established as a foundation for an ePortfolio which students will continue to contribute to throughout the four years of their program; i.e. to continue as their journeys continue. During this time we are continually investigating how the ePortfolio might enhance students’ personal learning journeys and how the format and use of ICT supports this process. The following discussion provides insights into the design of the ePortfolio. From a review of the literature, four major types of portfolios were identified.

**TRADITIONAL PORTFOLIOS**

In 1991, Valencia (cited in Chatel, 2003, p. 33) stated that a portfolio is a collection of student work which provides the means for “collecting evaluative information formatively as well as summatively” giving it the unique characteristic of always being a work-in-progress. It is a collection of physical artefacts that reflect a student’s development and progress. See Figure 4 below. In the traditional portfolio, the emphasis is on the collection of artefacts with the final product usually presented as a paper copy for assessment.

**REFLECTIVE PORTFOLIOS**

Barrett (2005) advocates that a portfolio should be more than just a collection of data and recommends that the role of reflection in the portfolio is important for promoting deep learning. Figure 5 shows that the emphasis is within the reflection phase of the process.
Figure 5: Reflective Portfolio Process – Emphasis is on Reflection
(adapted from Barrett, 2005)

ePORTFOLIOS

Barrett (2005) notes that ePortfolios, also known as digital portfolios or electronic portfolios are defined by the National Learning Infrastructure Initiative (NLII, 2003) as

- a collection of authentic and diverse evidence,
- drawn from a larger archive representing what a person or organization has learned over time
- on which the person or organization has reflected, and
- designed for presentation to one or more audiences for a particular rhetorical purpose.

The traditional process which involved collecting, selecting, reflecting, directing and celebrating is enhanced through the use of ICT, according to Barrett (2004a) through the use of multimedia and hypermedia to enable archiving, linking and thinking, storytelling, collaborating and publishing. Figure 6 diagrammatically portrays the enhanced process of creating a portfolio with the added ICT enhancements. This extends the ability to communicate the stories of learning from the restrictions of a predominantly paper or print publication to multimedia, digital stories using video, audio, graphics and text in a web-based portfolio.

Figure 6: e-Portfolio Process – Enhancing the process through ICT

HIGHER EDUCATION PORTFOLIOS

In the context of higher education, the term portfolio “denotes collections of evidence assembled by students, faculty members, or entire institutions to enhance the effectiveness of teaching and learning, to assess learning effectiveness, and to demonstrate competence to external stakeholders” (DiBiase, 2002). Several types of academic portfolios have received attention in the literature, however, there are three that have become prominent, according to Ketcheson (2001, p. 84):

- **Student learning portfolios** – which are purposeful collections of examples of student work annotated (ideally) with students’ reflective commentary.
- **Teaching portfolios** – which consist of course syllabi, assignments, student work, and other artefacts, collected by practising or aspiring teachers with the intent of fostering self reflection and peer review of teaching; and
- **Institutional portfolios** – which contain examples of [an] institution’s activities, programs, and initiatives, each expressing an element of reflection and self-assessment. (Ketcheson, 2001, p. 84)
The ePortfolio approach adopted focuses on assessment for learning, using a process which is learner-focused, and uses ICT to enable the use of multimedia and hypermedia for students to collect, select, reflect, direct, publish and celebrate their stories of learning within an MLA. The key emphasis in the following analysis is to relate stories of personal learning in that course. This is consistent with Barrett’s theorising that any portfolio should be a story of learning which promotes deep learning. Her thoughts are that a part of the portfolio needs to incorporate a section within the reflection phase that focuses on storytelling. As an institution, we need to meet both certification and accountability requirements as well as promote personal growth and development of students.

**NARRATIVES – PERSONAL STORIES OF LEARNING**

As suggested by Holloway and Wheeler (1996), “Narratives and life histories are stories which individuals tell about their condition, work or life” (p. 59). While these are not new forms of data collection as there is evidence of the use of these, Holloway and Wheeler suggest that previously narratives were not analysed systematically, but more recently they have found a place in naturalistic enquiry for studying “the phenomena of development and transition in people’s lives” (Josselson and Lieblich, 1993, p. ix). This approach is adopted here to gain access “to the world of participants and share their experiences” (Holloway and Wheeler, 1996, p. 60). This aligns with the *Productive Pedagogies* (Education Queensland, 2002c) reference to the use of narrative in lessons encouraging the use of personal stories, biographies, historical accounts, and literary and cultural texts. In contrast, an “expository teaching style places more emphasis on written, nonfiction prose, and scientific and expository expression, by both teacher and students.” (Education Queensland, 2002c).

Students’ personal stories of learning were gained from the artefacts collected and selected by them for inclusion in their websites developed around the focus question – *Who are we as learners?* as well as for their ePortfolios. When the paper is presented at the ACEC 2006 Conference, student examples of ePortfolios will be provided to illustrate students’ powerful, personal stories of learning.

**Website – Who are we as learners?**

Generally, students were challenged early in the course with the task of having to design and present a website. However, after some scaffolding into the website construction process, the websites were designed and constructed to provide a means for the collection, selection and presentation of student artefacts related to the focus question and the required questions framed for each of the webpages. Students used a variety of media and created ‘assets’ and ‘images’ folders for archiving their artefacts. A course, *Sociocultural Understandings*, being undertaken simultaneously by students required students to provide an autobiographical account of an experience in their lives and analyse this through a sociocultural lens. Students included this in their websites as a link from their *Personal Learning Journey* webpage.

That website included a rich suite of images of students throughout various stages of learning and growth, together with reflections of those personal learning journeys, key events in their lives, including the struggles and the achievements, their reasons for wanting to become teachers, their thoughts on what makes a great teacher, and their visions for their professional futures.

**ePortfolio – a student sample**

The ePortfolio process as described earlier in this paper required students to portray their personal stories of learning in terms of ICT skills and knowledge through the creation of ICT samples to demonstrate basic and advanced skills and knowledge using a wide range of software. Students were provided with the theoretical background of ePortfolios derived largely from the work of Helen Barrett, and were shown examples from her website (see [http://electronicportfolios.org](http://electronicportfolios.org)), including *Full Circle* and Helen’s Barrett’s personal collation called *Choices*. Figures 7 and 8 respectively portray the homepage of a student’s ePortfolio and 2 students’ website – *Who are we as Learners?*. Evident on those pages is the navigation to the samples and stories of learning. This ePortfolio
presented not only a means for the archiving, linking, and publishing of evidence of learning unable to be demonstrated through a single essay or end of semester exam, but it provided the means for linking with the other assessment undertaken in this course, such as the Discussion Forum contributions, the website development, and enabled links with other assessments in other courses being undertaken by the student. As indicated earlier in relation to the website, the e-Portfolio also enables a powerful means for using it as a platform for linking with future learning.

Figure 7: A Screen Capture of a page from Website – Who are we as learners?

Figure 8: ePortfolio Homepage
STUDENTS TALKING ABOUT THEIR LEARNING

Throughout the course, students participated in online Discussion Forums, consistent with the MLA model (see Figure 3). The Discussion Forums were perceived as being extremely effective by students for assisting them to gain confidence in articulating ideas, and to interact with other students.

The Challenge of Designing a Website

Students enrolled in this course came with a wide range of ICT skills and knowledge. Very few had designed and constructed websites. The course required students to use Macromedia Dreamweaver to develop a web-based means for collecting, selecting, reflecting and publishing artefacts related to the central question of Who are we as learners? Many responses from students highlighted the challenge this created, which they overcame and felt great personal satisfaction with their learning. As one student commented, she felt in taking up this challenge, she took the road less travelled.

For me, this course has been an absolute treasure, I started off thinking, they are kidding right – design a website! After cursing and grumbling, we started; we made mistakes; we grumbled some more; we continued; we made more mistakes… the final design is ready now. But you know, the road I have travelled to get to where I am with my web design has been the most stimulating, educational experience I have had since starting my degree. … thanks for the challenge and the learning experience, this is precisely why I want to teach, to offer challenge, stimulation and excitement – which you clearly set out and attained with this student. (Student A, June 2005)

Stories of Inspiration to Teach

Powerful stories were presented by many students related to becoming inspired to teach from the learning experiences provided in this course. Underlying these reflections were often messages of the importance of the human dimension in teaching the course and the relationships between the lecturer, tutors and the students. The following are examples of student comments reflecting their desire to teach in ways which inspire students:

I have learnt that anyone can dictate information to students and say learn this, but good teachers inspire deeper learning. They encourage students to explore what they know, explore the unknown and explore what their peers know. (Student B, June 2005)

What has been the deep learning for me this Semester? It has been making the connections with the various course contents, with the tutors and lecturers, the students, and how I can use these experiences in my future role as a primary school teacher. But above all, it has been about connecting with me and the deep personal reasons for wanting to enter the profession. (Student C, June 2005)

CONCLUSION - THE JOURNEY CONTINUES...

Based upon the students’ stories, the ePortfolios provide the platform for the personal stories of learning to continue. The continuing collecting, selecting, reflecting, directing and publishing will continue as students proceed through their higher education program on their journeys as future teachers. The ICT Continua (Education Queensland, 2003) will continue to provide the self-reflective device for documenting and guiding that journey.

Continuing research and investigation is needed to theorise ePortfolios to promote deep learning by students in higher education. Considerable development is required to further explore the ways in which students can collect, select, reflect, direct, publish and celebrate their learning. For example, why might students see some attempts at using ePortfolios as simply another requirement or assessment of learning rather than assessment for learning.
This paper has summarised the design and delivery of a course for future teachers undertaking a higher education course Learning with ICT, which was guided by a mediated learning approach in which the design was driven by ICT and by assessment for learning. Through describing the assessment undertaken, complemented by samples and student voice, the paper has provided some guidance and insights into the potential for the role of ePortfolios being theorised as enabling personal stories of learning using multimedia and hypermedia.

References


