JISC Final Report

1.1 Project

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1.5 Acknowledgements

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Project Partners

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2 Executive Summary

The overall aim of the project was to pilot the use of Next Generation Technologies to enable students to collect and present multimedia artefacts to facilitate reflective learning.

Four case studies were performed across a range of disciplines. A variety of Next Generation Technologies were used to obtain digital multimedia artefacts to facilitate reflective learning. Two studies evaluated the approach with first year undergraduate students: Medicine and Performance and Cultural Industries at the University of Leeds. Two studies evaluated the approach with postgraduate students: ICT in Education at the University of Leeds and Dietetics at Leeds Metropolitan University.

There was mixed student opinion of the value of using a digital storytelling approach for reflective learning. This appears to be related to several important aspects, including previous experience and preference for written approaches for reflection. The opportunity to be creative was identified as being important and the use of multimedia was also considered to aid the reflective process. Students used a variety of approaches to create their reflective digital story and the chosen approach appeared to be related to individual preferences.

Tutors also considered that digital storytelling enhanced reflective learning, especially for students who did not have a preference for written approaches.

Increasing familiarity with the process, with the opportunity to practice the creation of a reflective digital story, and the opportunity to view a completed reflective digital story was considered to be useful. Students liked to have a clear brief and expectation of what they were expected to produce. There were student concerns about the use of reflective digital stories for summative assessment, preferring to use the approach for formative purposes only.

Technology can be a barrier that inhibits the flow of reflective activity. Students had a preference for using technologies that they were familiar with and the mobile aspects of institutionally provided technology was currently found to be time consuming and frustrating.

In conclusion, the collection and presentation of digital multimedia artefacts to facilitate reflective learning offers a practical pedagogic application of Next Generation Technologies. The approach appears to engage Net Generation students in reflective learning and it also appears to stimulate deep reflection. This new approach can be a significant challenge to Higher Education institutions and educators, both in control of the learner experience but also assessment procedures.

2.1 Background

The importance of reflective learning within Higher Education has been highlighted in a wide range of policies and practices, including personal development plans (PDP) and portfolios. The aim has been to promote personalised and lifelong learning for all learners, irrespective of discipline. Reflective learning is particularly important for young people since this is the crucial time for the development of both personal and future professional identity (Niemi 1997).
However, engaging learners in reflective learning is a major concern for all educators (Boud and Walker 2007). For example, Grant et al (2006) noted that medical students appreciated the importance of reflective learning for their personal and professional development but they did not engage in the process since it did not match their preferred learning style. The approach in Higher Education is predominantly text based rather than using multimedia (Kezar 2001). However, most current students in Higher Education are members of the Net Generation and this group of students have grown up in a world that is not only dominated by technology, including next generation technologies, but it is also a multimedia rich world (Gauntlett 2007).

2.2 Next Generation Technologies for reflective learning

Next Generation Technologies, such as blogs, social networking sites and media sharing sites, offer a low technological entry level for learners to use technology to easily create and share multimedia creative products. These technologies may be offered through institutional VLEs but learners often prefer to use technologies outside formal systems (White 2007). In addition, young people are high users of mobile phones and these devices can be used to collect a range of media that can be used for reflective learning (Parks and Dransfield 2006). But recent research by JISC suggests that students are reluctant to use these technologies for learning unless they see a direct benefit (JISC 2007). Our hypothesis was that the digital story provides a direct tangible use of next generation technologies to enhance learning.

2.3 Reflective learning enhanced by multimedia

Digital storytelling is an approach to reflective learning that makes extensive use of multimedia. It is a collection of pictures, music and words that describes an event or story from an individual’s point of view. Barrett (2006) argues that this technique ‘is a highly motivating strategy that can make reflection concrete and visible’. This approach to reflective learning has been used extensively in schools and teacher training in the US. Creation of the story allows numerous opportunities for personal reflection and the sharing of the creative product allows feedback from others, thereby providing further opportunities for reflection.

In conclusion, our hypothesis was that digital storytelling has the potential to motivate learners to actively engage in reflective learning and that next generation technologies and practices have an important role in facilitating this process. We found no studies that describe this approach within a HE context in the UK.

3 Aims and Objectives

The overall aim was that students from across a range of disciplines (education, health sciences and performing arts) will pilot the use of Next Generation Technologies to collect and present multimedia artefacts to facilitate reflective learning.

The objectives were:

1. Piloting Next Generation Technologies for social networking, collaborative writing and, collecting user generated content to develop high quality digital stories using mobile devices to collect and deliver content.

2. Evaluating the experiences of students and teachers in using the tools within the projects to develop user requirements and case studies of user experiences in using emergent Next Generation Technologies
3. Help demonstrate solutions that integrate the use of Next Generation Technologies with institutional virtual learning environments and with student’s own devices. This will demonstrate the effectiveness of Next Generation Technologies by

- making it easier for students to collect rich multi-media evidence of learning
- using digital storytelling to add value to the use of these tools
- demonstrating the impact on student’s own reflective learning abilities

4. By engagement with other potential Emerge projects in Leeds Metropolitan and Bradford University and within the wider community and through existing close collaborative projects with Leeds Met and Bradford University through the ALPS CETL and JISC ELP.

4 Methodology

The overall approach followed the Users and Innovation Development model that was required for the project:

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5 Technology Framework

The project proposed a mix of case studies evaluating different Next Generation Technologies and their use for reflective learning. The proposal was that Case 1 and 2 will use institutionally supported web 2.0 technologies, and cases 3 and 4 will use user selected tools from a range of social networking, social book-marking and media sharing resources e.g. facebook, Flickr, youtube. All cases will use a range of mobile technologies to collect and upload multi-media artefacts for reflection. Cases 1 and 2 will use institutionally provided devices with free data connectivity; Cases 3 and 4 will use student’s own devices. Students will develop, share and reflect on digital stories that are created using a mixture of next generation and desktop tools. We will evaluate the usability and integration of these tools with the Institutional VLEs.
6 The need for the project

This project supports the University of Leeds Learning and Teaching Strategy emphasis on the use of technology to enhance learning and teaching- (‘increasing the innovative ways in which technology is used’ and ‘championing the use of technology through innovative pilot projects’) and it furthers the University strategic goals by enhancing the University’s capacity for high quality blended learning.

Leeds Metropolitan University aims to offer learning environments that maximise choice, flexibility and student success (Corporate plan 2004-2008). It is committed to “identifying best practice in the use of e-portfolio systems” and offering “enhanced facilities to support e-learning on and off site and explore opportunities to introduce innovative subject material …into our students learning experiences” (Assessment, Learning & Teaching Strategy 2005-2008).

In October 2006, we performed a survey of all first year Leeds medical students (N=213) and found that 75 per cent were active users of social networking sites, 20 per cent used media sharing sites and 8 per cent had their own blog.

In November 2006, two focus groups (N =24) of second year Leeds medical students identified their attitudes and barriers to reflective learning. This research is part of a collaborative research project with six northern medical schools. Important themes were the need to share experiences with others, to be allowed to use a range of media and the recognition that they were doing this already, albeit often informally between groups of peers.

Tutors at course review meetings in medicine have noted the high motivation of students in Student Selected Components when they are given the opportunity to use multimedia and new technologies, such as setting up a course blog or clinical skills teaching video.

As an ALPS CETL partner site, Leeds Metropolitan University undertook a pilot project, involving pre-registration dietetic and physiotherapy students, to deploy mobile technologies into placement settings and to develop appropriate pedagogic approaches that exploit the technology to deliver an enhanced student learning experience. mediaBoard was used to set up web-based multimedia message boards.

Students and tutors contributed via SMS (text), MMS (text, picture, audio), from their mobile devices allowing the recording of immediate “real time” experiences within the placements setting. These artefacts formed a reflective multimedia blog including information about observations and learning experiences, especially pivotal incidents that support critical analysis of learning that underpins reflection (Dearnley et al, 2008). In addition the PebblePad e-portfolio has been extensively piloted within the Faculty across a range of courses, including dietetics, for reflective learning and personal development planning.

PebblePad has been evaluated as part of the JISC funded ELP1 project and work is in progress as part of the JISC ELP2 project to extend the flexibility and choices for personalised learning via the use of blogs and social networking software.

Piloting of e-portfolios, designed to offer a platform for the documentation of diverse, ephemeral practice in theatre design and performance, has been implemented at Level 3 by staff in the School of Performance and Cultural Industries (PCI). The school is committed to refining the mechanisms for reflective practice and documentation to make them fit for purpose in a digital age and beginning at Level 1.
7 Implementation

Four case studies were performed:

- Two cohorts of performing arts students on a first year Theatre and Performance course at Leeds University. This is an undergraduate course and the students could choose their own media collection device and presentation approach. Students were offered training with Photo Story 3. A reflective digital story was produced for formative personal development and was not formally assessed. The completed story was shared with other learners.

- One cohort of first year medical students at Leeds University. This is an undergraduate course and all students were provided with a T-Mobile 3G PDA (with camera) and they could choose their presentation approach. Students were offered training with Photo Story 3. The reflective digital story was produced for formative personal development and was not assessed. The completed story was shared with other learners.

- One cohort of students on a MA Education and ICT course at Leeds University. This is a full time and distance learning part-time postgraduate course. Students could choose their own media collecting device and presentation approach. Students were offered training with Photo Story 3. The reflective digital story was shared with other learners.

- One cohort of students on the Postgraduate Diploma in Dietetics at Leeds Metropolitan University. This is a postgraduate course in which students had previous experience with written reflection in their course. All students were provided with a T-Mobile 3G PDA (with camera) and were required to use an institutional e-portfolio tool (Pebble Pad) to create a reflective digital story for summative assessment. The completed reflective digital story was not shared with other learners as it formed part of the summative assessment.

7.1 Evaluation

The project proposed to evaluate the experiences of students and teachers in using the tools within the projects and the impact of digital storytelling and mobile devices on the use of social software by students and tutors to develop reflective learning skills.

The project evaluated:

- How learners use a range of Next Generation Technologies for digital storytelling, including the use of technologies outside formal systems
- How learners use digital storytelling for reflective learning
- How tutors respond to the use of digital storytelling to develop reflective learning by the use of Next Generation Technologies.
Evaluation will answer the following questions:

- What are the student perceptions to this new approach? Do the students feel that it enhances their reflective learning? What are the perceptions of tutors?
- How do students engage with the process of creating and reflecting on the digital story? What are the constraints (technical, organisational and pedagogic) and enablers? What are the training requirements for students and tutors?
- What is the evidence of reflective learning? Has deep learning been achieved?

**Deliverables**

- A training guide for learners and tutors on the use of digital storytelling to promote reflective practice, supported by training guide
- Refinement of evaluation model and data collection methods by project team with presentation of new and refined model to three focus groups of students and tutors.
- Templates of suggested ways that learning experiences can be standardised, structured and reused containing concrete examples that link both the technology and pedagogy strands of the use of Next Generation Technologies.
- Case studies for dissemination and discussion to inform best practice and further research.

### 7.2 Integration

The project will help integrate the use of Next Generation Technologies with institutional virtual learning environments and with student’s own devices

**Deliverables**

- Evaluation of issues and benefits of using Next Generation Technologies and mobile technologies with institutional virtual learning environments.
- Exemplar development of Digital Stories through Institutional Virtual Learning Environments using next generation technologies and mobile devices to influence future use of VLE within institutions.
- Case studies for dissemination and discussion to inform best practice and further research.

### 7.3 Engagement

**Deliverables**

- Project reports as required to JISC outlining progress and interim findings.
- Workshops and publications demonstrating the effective combination of innovative pedagogy and technology encouraging the future take up of Next Generation Technologies by other academics in other HE and FE institutions.
• A link from the JISC website to the project website to raise awareness of the project and facilitate dissemination of the project outputs and documentation
• Engagement with relevant Higher Education Academy Subject Centres for Education (ESCALATE), Health Sciences & Practice (HSAP), Medicine, Dentistry and Veterinary Medicine (MEDEV), PALATINE - Dance, Drama and Music,
• Submission of articles to sector and curriculum-specific journals
• At the end of the project a free workshop style event will be held in Leeds that will be publicised and open to the wider community.

8 Outputs and Results

8.1 Case Studies

A summary of the four case studies is available in Appendix 1.

8.2 Cross-Case Synthesis and Analysis

The synthesis is based on data obtained from the four case studies:

Two cohorts of performing arts students on a first year Theatre and Performance course (n = 6). Data included a semi-structured questionnaire and a focus group of the learners (cohort 1 only), as well as a semi-structured tutor questionnaire.

One cohort of first year medical students (n = 15). Data included a semi-structured questionnaire with the learners, as well as a semi-structured tutor questionnaire.

One cohort of students on the MA Education and ICT course. Data was limited by the number of students returning consent and included a face to face focus group (n=5) and an online synchronous seminar chat (n=6), as well as a semi-structured tutor questionnaire.

One cohort of students on the Postgraduate Diploma in Dietetics (n =25). Data included a semi-structured questionnaire and two focus groups, as well as a semi-structured tutor questionnaire.

Engagement with the process of digital storytelling

Overall, there were mixed opinions about the use of digital storytelling for reflective learning.

“It was useful to help us with our reflective practice, although it is a personal choice as to how we express/communicate our reflections.” [Dietetics Student]
The creative approach that was offered by the use of reflective digital storytelling was appreciated by students:

“Think it was enjoyable because it was something different to what we normally do and can be more creative.” [Dietetics Student]

“It was nice to have the opportunity to be creative and see where you could go with it, and if you could make it funny or really good.” [Performing Arts Student]

"I think that it was good to have a different thing to do as opposed to an essay but personally using photos to represent my emotions is not something I would choose to do. I did however enjoy it as a one off experience (sic)." [Medical student]

However, there was scepticism about the reflective digital storytelling approach and this appeared to be related to the student’s preferred approach to learning:

“Uncomfortable with the concept as am science minded.” [Dietetics Student]

“I thought it was a bit weird!” [Medical student]

The opportunity to use the process without the pressure of assessment appeared to help students to engage in the process:

“I was just getting bogged down with the marks –how much marks it was worth. If it was worth less I would be able to have more fun with it. But I suppose I just tend to worry a lot, just worrying about where I’ll get the marks so...if I had or not. If it was worth less I think it would have been better. I just feel I couldn’t enjoy myself doing this... because it if worth 25% of the module.” [Dietetics Student]

“Think this time because we knew we weren’t going to get marked on it we had quite a vague brief, it was like more fun and ... yeah we had more freedom.” [Performing Arts Student]

There was concern that the tutor who assesses the work may not understand the significance and meaning of the reflective aspect of the digital story:

“ don’t know the person that’s reading it though will view the pictures the same way as I did so just a bit annoying when you are thinking about getting it assessed that you think I’ve took ages to think about this picture but someone else might look at it and it might not mean as much to them.” [Dietetics Student]

Students preferred to have a clear vision of the required structure, the opportunity to produce a draft digital story and to view an example of a completed reflective digital story:

" I’m not creative at all ..I found it quite difficult because I was worrying about what I was going to be using and things like that ..it felt like something I was having to do and go out of the way to find things to put in there kinda thing ... I felt under pressure
to put them (images) in kinda thing. …I think if we had done it before, we were being assessed on it, we would have become a bit more comfortable with it..knowing what we were doing.. we weren’t given any examples..I think that would have helped … giving examples of what other students had done…..just like a sample…a lot of us were worried because all the symbolism you know and applying that to out reflections was just a bit new to us.” [Dietetics Student]

“maybe if we did a practice one after A placement then assessed on this one”. [Dietetics Student]

“I think you could still be creative but you would need definitely a specific brief.” [Performing Arts Student]

Use of the digital storytelling process to facilitate reflective learning

The digital storytelling process of using visual images to create a digital story appeared to facilitate reflection:

“I enjoyed the experience; I had been more honest and creative – unafraid to include more obscure ideas that could be better understood when accompanied by image/sound.” [Performing Arts Student]

“It’s more personal as well, you’re trying to give in an essay but you’ve got a word constraint so you’re trying to say how you did something, whereas with a picture you can say you did this and it’s just a picture and you can show it, it takes less work – I don’t know its’ just”[Performing Arts Student]

“presentations allow you to have many references (sound, image, etc) thus provoking imagination, logical consequence and comprehension” [Education Student]

The additional use of audio media was considered to be useful to facilitate reflection:

“I think the voice recordings were good to show that really like you could feel ..you could express your emotions how you feel and that.” [Dietetics Student]

“Gets the emotion out a little bit more sometimes when you are reading it you miss out bits but when you’re hearing someone’s voice you can engage more.” [Dietetics Student]

Creating the digital story took longer than students had anticipated. Obtaining and selecting an appropriate image, writing the narrative and producing the digital artefact were time consuming. Taking a variety of images throughout the experience was considered to be useful since it can ease the process of choosing appropriate images for use in the digital story:
“We should have just taken pictures from the start then I would have had loads to choose from, rather than trying to suit what I was saying to a particular picture because I didn’t have enough”. [Performing Arts Student]

A variety of approaches were used to create the digital stories. Students began by either writing a reflective narrative and selecting illustrative images or using the selected images to stimulate their narrative. During both processes further images were obtained and chosen to represent thoughts and emotions:

“because I’d already got a reflection and thought about it before I knew what my feelings were and I knew the kind of pictures that I wanted to put to that.” [Dietetics Student]

“I don’t really think with images so I mean I could find images that related to how I felt but it did take a while and I wouldn’t look at a picture and think that’s exactly how I felt really. Wrote everything first and then I kinda fit images around it.” [Dietetics Student]

The creativity of the process appeared to increase reflection:

“and so I took my little PDA out and just took not brilliantly artistic photographs but …I took a picture of a brick wall because I felt the patient had just put up a brick wall …picture of barriers because I felt we weren’t overcoming the barriers and things like that” [Dietetics Student]

“After initially feeling anxious about this assignment I really did enjoy completing it. I think I was anxious as I had never undertaken anything like this before but when I started my reflection and what messages I wanted to get across I found that the images and artefacts were quite useful to portray these messages, when I had my story completed I thought that it looked well with the artefacts added. By looking for evidence to collect in my portfolio this helped me to carry out deeper reflection. I now look back on my experience in a more positive way and can identify where to go in the future.” [Dietetics Student]

“It’s more personal as well, you’re trying to give in an essay but you’ve got a word constraint so you’re trying to say how you did something, whereas with a picture you can say you did this and it’s just a picture and you can show it, it takes less work – I don’t know its’ just” [Performing Arts Student]

There were mixed opinions of students about using the use approach again for reflective learning.

“There was angst all the way through but now looking back I can see the benefit of it and I was proud I did enjoy it the final thing.”[Dietetics Student]

“ I ’d say that I’d still prefer that [digital stories] … than writing an essay though, because I say time consuming but it only really did take me like a day to do it, whereas an essay would take me like 2 weeks to do so.” [Performing Arts Student]
A reason for the reluctance was that students may have a personal preference for written reflective accounts:

Speaking about essays: “it’s a safer option, so yeah it’s definitely safer for people who, who up until now have always used that method of writing things, so that’s what we used, that’s what we’ve been tested on at GCSE” [Performing Arts Student]

Presenting the digital stories to others was considered to be useful:

“I thought it helped me reflect a little bit deeper …. and think about things more in how I was feeling at the time and then try to relate those feelings to an image that would maybe help somebody else conjure up those feelings as well.” [Dietetics Student]

“In our presentation we thought not only ourselves but what would be interesting for the people who are going to see it.” [Education Student]

Viewing the digital stories produced by other students in their group was also stated as being useful.

**Use of technology for digital storytelling**

A variety of technologies were used by the students in the case studies. Students preferred to use familiar and own technologies, such as digital cameras and mobile phone cameras. Images were also obtained from the internet, such as Google, and clip art. PowerPoint was also used in addition to Photo Story 3 and Mac software.

The technical limitations that students experienced limited the educational potential. Time was spent becoming familiar with the technologies and also in making contact with tutors and fellow students to resolve the issues:

“Even though I have quite a lot of experience with technology, I found the PDA’S fiddly, unreliable and spent a great deal of my time sorting out issues with the PDA, meaning that the time spent on my story suffered.” [Dietetics student]

Students were frustrated by the technological limitations of the institutionally supplied T-Mobile 3G PDAs with cameras:

"Quite enjoyed the experience at first, but frustrated by PDA not working to upload images/files – had to contact helpdesk, download software etc and took much longer than expected." [Dietetics student]

Students were also frustrated with other software that they used, especially the technological limitations for their desired method of presentation:

you can’t incorporate movies …….. I would have preferred to use a more sophisticated piece of software, but don’t own a Mac computer etc (sic). " [Performing Arts Student]
“Using narrative alongside sound was not difficult to establish on Photo Story 3, but it was problematic in the fact that to hear your voice the music was too quiet or having the music loud, meant you couldn’t hear.” [Performing Arts Student]

“I chose to use movie maker because it allowed me to use movies which showed our rehearsal process.” [Performing Arts Student]

“I found working on iMovie quite time consuming and I did get frustrated at times. I used iMovie just because I have an Apple mac (sic) book.” [Performing Arts Student]

However, despite the frustrations, students valued the opportunity that technology offered to create digital stories:

“I liked the fact that creating this digital artefact meant that you could make your story more imaginative or creative. However it was very fiddly at times getting to grips with the PebblePad (sic) layout and as a result I felt I took longer than I needed to.” [Dietetics student]

"I was very happy with the PS software very easy to use and work with. Had fun doing it and would love to do such an experience again." [Medical Student]

The tutor experience

Tutors considered that digital storytelling has the potential to enhance reflection by the students, especially through its creative approach that can engage learners who have different learning styles and had English as a second language:

“Can only really compare this to a different cohort of students who completed a similar assignment but using a text based format. The student’s involved in digital storytelling demonstrated much deeper reflection. It helped them to get started- some students using images, audio recordings to instigate the reflective process, whilst others used it to develop narrative providing more depth to the reflective process. Selection of images in itself made students think more deeply about their learning experience. The main learning point for me was in understanding the learning from the student’s perspective and the intensity of their learning experience which I don’t think I had appreciated previously.” [Dietetics Tutor]

“Digital Storytelling (DS) can encourage students to sidestep habitual approaches to reflection and engage in a more intuitive and creative way of considering past achievements or experiences. It appeals to the visually literate and does not need a massive amount of technical skill to produce very compelling results.” [Performing Arts Tutor]

“I feel that it creates a more ‘level playing field’ for those students who, though highly intelligent, do not have strong verbal writing skills and for those whose first language..."
is not English. It also seems to capture the imagination and interest of students which helps them to fully engage with the learning.” [Medicine Tutor]

Tutors noted that there was also value in students sharing their reflective digital stories within a group:

“I am generalising here, but on the whole I felt that students went deeper when exploring their feelings about a particular experience. They used pictures and images as powerful metaphors for how they were feeling about the various issues that cropped up for them and were able to describe in more vivid detail what a particular experience had meant for them. This allowed for some discussion as to which emotions were universal and which were more individual. I felt that in particular the students gained enormous benefit from being able to view each others experiences. It would have been much less practical to get them to read each others’ written reflections. [Medicine Tutor]

Tutors were enthusiastic about using the approach again in the future:

“Because the compositional skills .............. are highly appropriate for performance students – and it draws on some of the natural skills these kinds of students have. Also - as a mechanism for reflection - it helps avoid uncritical, diary-like, responses.” [Performing Arts Tutor]

A two phase approach for students was suggested:

“They all produced interesting digital stories within 45 minutes of being introduced to the package. I think it would be even better to have a second level (intermediate) workshop, to which students bring draft digital stories and where they can be discussed and possible improvements suggested.” [Performing Arts Tutor]

Tutors would also like the opportunity to create their own reflective digital stories, both to understand the reflective digital storytelling process and to increase their confidence in using technology:

“I would welcome the chance to have some peer group training where tutors could be guided through the process of producing their own reflective digital stories to enable them to fully understand the process.” [Medicine Tutor]

“It would have benefited me to feel more confident/competent about the technology involved and I would have appreciated the opportunity to discuss and feedback with other tutors whose students had produced digital stories.2 [Medicine Tutor]

Students creatively used the technology but tutors also suggested that technology support is essential to allow students to maximise the use of the technology, otherwise the technology can inhibit the digital storytelling process:

“Students using PDA’s to collect digital artefacts struggled with equipment failure and poor synchronisation between the device and related accounts. This tended to detract from the reflective process and I was concerned about how much time some
students were taking to put their story together given some of these technology issues.” [Dietetics Tutor]

“The students themselves needed little encouragement to experiment with the software and to make it work for themselves. They were constantly pushing the boundaries of what could be done.” [Performing Arts Tutor]

Conclusions

The case studies were across a diverse range of students and contexts using a variety of different technologies. However, there were several common themes across all of the case studies.

There was mixed student opinion of the value of digital storytelling for reflective learning. This appears to be related to several important aspects, including previous experience and preference for written approaches for reflection. Tutors also considered that digital storytelling enhanced reflective learning, especially for students who did not have a preference for written approaches.

Increasing familiarity with the process, with the opportunity to practice the creation of a reflective digital story, and the opportunity to view a completed reflective digital story was considered to be useful. Students liked to have a clear brief and expectation of what they were expected to produce.

There were student concerns about the use of reflective digital stories for summative assessment, preferring to use the approach for formative purposes only.

The opportunity to be creative was identified as being important and the use of multimedia was considered to aid the reflective process. Students used a variety of approaches to create their reflective digital story and the chosen approach appeared to be related to individual preferences. It was suggested that students should be able to choose their own approach.

Technology could be a barrier that inhibited the flow of reflective activity. Students had a preference for using technologies that they were familiar with and institutionally provided technology was time consuming and frustrating. Tutors would like the opportunity to create their own reflective digital stories so that they can become familiar with the process and technology.

8.3 Study Guides

- A study guide for learners and tutors on the use of Next Generation Technologies and mobile phones to support creation and sharing of the multimedia digital story.

- A training guide for learners and tutors on the use of digital storytelling to promote reflective practice
8.4 Website

The project Website is [www.reflect2.0](http://www.reflect2.0). There is a related Web site [www.ireflect.org](http://www.ireflect.org) which is a community site for people interested in the use of digital storytelling for reflection in Higher Education.

8.5 Assessment tools

There are several problems with an assessment of reflective learning when using multimedia digital stories. The current educational system is heavily biased towards text based assignments and the use of a multimedia digital artefact is unlikely to be acceptable for summative assessment, especially for high stakes assessment. Learners appear to dislike the notion of assessment of their reflective activities, regarding their entries as private but they are also sceptical about whether the assessment approach can be valid and reliable. Validity considers whether the assessment is measuring what it is intended to measure and reliability that the result of the assessment is consistent between markers and time.

Formative, or developmental, assessment allows the learner to explain and discuss their use of digital artefacts with peer group members and their tutors. The use of assessment in these circumstances appears to be less problematic. The exact assessment rubric will depend on the intended use of the digital storytelling approach for reflective learning. There may be an emphasis on the use of multimedia to express emotions and thoughts but there may also be the requirement to demonstrate a change in perspective, so-called transformative learning.

We identified three main approaches:

**The storytelling approach**

Individuals tell stories to convey their experiences to others and these stories include information, opinions and emotions. It is a natural step for storytelling to be used for reflective learning since an integral aspect of many stories is reflection on an experience with the development of new insights. The process of telling a story, whether written or oral, requires the teller to notice and make sense of an experience. The presentation of the story, either private or within a group, appears to have an important therapeutic aspect which allows the learner to release emotion, an essential part of the reflective process.

A typical sequence for a story is a beginning, a middle and an end. Usually the beginning sets the scene and this is followed by a middle component in which the “drama unfolds” and the main aspects of the story is presented and discussed. The end of the story usually contains an important message that the storyteller wishes to convey to the audience. There are close parallels of these stages with the phases required for effective reflection.


- Story Finding
- Story Telling
- Story Expanding
- Story Processing
- Story Reconstructing
The “levels of reflection” approach

Most assessments will incorporate “levels of reflection” and this approach is based on the concept of depth of reflection. Superficial reflection is considered to occur when there is only description of events but deeper reflection includes a “stepping back” from events and actions with evidence of challenge, and possibly change, to existing beliefs and perspectives. This deeper level is equivalent to when “transformative learning” takes place.


Grade A: Experiencing an event(s) has changed, or confirmed, how you experience an event(s). You may wish to change how you respond to similar event(s in the future. You provide an explanation, including references to other literature, eg articles or books.

Grade B: Involves judgement - what went well, or less well and why.

Grade C: Describing an event – recognising how it affects your feelings, attitudes and beliefs and/or questioning what has been learnt and comparing it to previous experience.

Grade D: Describing an event - recognising that something is important but not explaining why.

Grade E: Describing an event - repeating the details of an event without offering any interpretation.

Grade F: Describing an event - poor description of an event.

The use of multimedia in reflective learning

The following example combines several assessment rubrics available at http://rubistar.4teachers.org/

The Story

Grade A: There is a clear focus and purpose

Grade B: There is some attempt to create a focus and purpose

Grade C: There is limited attempt to create a focus and purpose

Use of images and media

Grade A: The images and media create an atmosphere or tone that matches the story

Grade B: The images and media create an atmosphere or tone for some points in the story

Grade C: There is limited use of images and media to create an atmosphere or tone
### Economy
Grade A: The story is told with exactly the right amount of detail throughout

Grade B: The story requires more detail in some sections

Grade C: The story requires a lot more detail

### Emotional content
Grade A: The story clearly demonstrates engagement with the emotions of the creator

Grade B: The story demonstrates engagement in some sections with the emotions of the creator

Grade C: The story has limited engagement with the emotions of the creator

### Reflection
Grade A: The creator has clearly reflected on the experience

Grade B: The creator has reflected on the experience in some sections of the story

Grade C: The creator shows limited reflection on the experience

In conclusion, the assessment approach to reflective learning when using multimedia digital storytelling will depend on the institutional assessment requirements and the intended outcomes of the use of digital storytelling.

#### 8.6 Events

At the end of the project we intend to offer a free workshop style event in Leeds that will be publicised and open to the wider HE and FE community. We are planning to offer this as an online Elluminate workshop to maximise dissemination.

Events planned and delivered so far:

- Pre conference workshop on use of multimedia for reflection at ALT-C 2008 (September 2008).
- Post conference workshop on digital storytelling at ALT-C 2008 (September 2008) with Active Learning CETL, University of Gloucester.
- Tutor development session in School of Medicine.
- Internal Leeds Met Staff development “Tell me a Story: Using Digital Storytelling for Reflective Learning. (January 2009)
8.7 Articles


**Forthcoming book chapter:**


**Submitted articles in Medical Teacher**

**Accepted forthcoming publication**

Sandars J AMEE Guide no 44 Reflection in medical education

Sandars J Reflection in medical education

**Under review**

Murray C, Sandars J The use of digital storytelling to enhance reflective learning by medical students: evaluation of a pilot study *Medical Teacher*

8.8 Engagement with the Wider Community

- Development of i-reflect website as a portal for interested people ([http://www.ireflect.leeds.ac.uk/](http://www.ireflect.leeds.ac.uk/))

- Engagement with relevant Higher Education Academy Subject Centres for Education (ESCALATE), Health Sciences & Practice (HSAP), Medicine, Dentistry and Veterinary Medicine (MEDEV), PALATINE - Dance, Drama and Music Forthcoming MEDEV and Subject Centre seminar and practical workshop in June 2009

- Contact with other JISC and JISC EMERGE projects.
9 Outcomes

9.1 Impact on teaching and learning

Local
It is anticipated that use of Next Generation Technologies for reflective learning will become embedded across the disciplines at University of Leeds and Leeds Metropolitan University. The participants intend to continue with the use of digital storytelling in their courses and are willing to act as champions to their academic colleagues. Wider dissemination will occur by the development of a special interest group at the University of Leeds and there have also been presentations at the annual Teaching and Learning Conference and in the Teaching and Learning Newsletter at the University of Leeds.

National and International
We have already achieved international awareness through the peer reviewed publications and this has led to invited workshops in South Africa at the Medical School in Pretoria. We are running a national workshop that is supported by MEDEV in July 2009 and this will include advertising to other Subject Centres and also the University of Leeds.

9.2 Impact on research
It is expected that as the work of the project becomes more widely disseminated that there will be community of interest and this will be supported through the ireflect web site – www.ireflect.org.

10 Conclusions

Digital storytelling offers a practical pedagogic application of a variety of Next Generation Technologies. Our initial work supports the use of this approach to engage Net Generation students in reflective learning but it also appears to stimulate deep reflection. In addition, it empowers students as learners and it has the potential to develop the multiple literacies that are required for lifelong learning.

11 Implications

Further development and research is required to see if our experiences can be more widely applied in the various contexts in which the genre of digital storytelling is used for reflective learning. We realise that this new approach can be a significant challenge to higher education institutions and educators, both in control of the learner experience but also assessment procedures.
12 Sustainability

We will build on the existing highly successful partnership developed through EMERGE to ensure that the impact of this project is maximized. The outcomes of this project will be embedded into the long term strategic plans of the partner HEIs as project aims have a close fit within existing institutional learning and teaching strategies

- The University of Leeds is committed to “Deliver excellent and inspirational teaching and learning” (T7 Strategy Map) and an integral part of this is the use of personal development planning and e-portfolios. This vision informs the University wide approach to curriculum development, tutor training and funding to support these activities.

- Leeds Metropolitan University aims to offer learning environments that maximise choice, flexibility and student success (Corporate plan 2004-2008). It is committed to “identifying best practice in the use of e-portfolio systems” and offering “enhanced facilities to support e-learning on and off site and explore opportunities to introduce innovative subject material …into our students learning experiences” (Assessment, Learning & Teaching Strategy 2005-2008).

Project leads will ensure embedding of project outcomes within each discipline. This will be achieved as each discipline is committed to developing and enhancing a reflective learning model which is fit for the digitally-aware and technologically adept student cohorts we are now seeing enter the university.

Medicine and Dietetics are part of the successful ALPS CETL and the outcomes of this project will help support ALPS in its aim to develop and use mobile technologies to support students in work-based learning.

The steering group will assist with developing plans for continuing the work and partnerships beyond the time-span of the JISC funding

13 Recommendations

13.1 Training

- Clear statement of the purpose and expected output of the reflective digital storytelling.

- Opportunity for both students and tutors to become familiar with how to create a reflective digital story, including both the creation of the reflective story and the use of technology. This was important before creating a final reflective digital story. A two phase process with an initial opportunity to produce a draft was suggested.

- Allow students to use their own personal approach for the creation of the reflective story, either narrative or image first.

- The process of creating the reflective digital story is more important than the final product.

- Avoid the use of reflective digital storytelling for summative assessments.
• Presenting and viewing the completed reflective digital story to a peer group appears to deepen the reflective aspect of the digital story.

13.2 Technology

• Allow students to use their own familiar technologies to obtain media, assemble the media to create a reflective digital story and to present the reflective digital story.

• Institutional systems need to be more responsive to the needs of students, including devices, software and interfaces.

14 Future trends

The use of Next Generation Technologies for digital storytelling appears to be a valuable pedagogic tool to stimulate reflective learning in the present Net Generation of students and we feel that our experiences have wider application in higher and lifelong learning. Our experience has identified several challenges. The rise in popularity of Web 2.0 and Next Generation Technologies for “leisure and pleasure” by young people has resulted in a view by many tutors that these technologies are trivial and not to be used in educational settings. This appears to be compounded by the frequent news stories of misuse by young people. Overcoming this barrier requires strong educational leadership by programme directors. Further research to identify the extent and nature of the views of tutors is recommended.

There is also a tension between the use of Web 2.0 technologies and Next Generation Technologies within formal education contexts, especially in higher education, and the more informal public use of the same technologies (Dron, 2007). Students may not be willing to use an institutional VLE but continue to use alternative public approaches that they are already familiar with (White, 2007). The popularity of Web 2.0 and Next Generation Technologies approaches by young people is not only the ease of access and usability of the technologies but the important social dimension in which networks of users can be easily developed. An important aspect of reflective learning, especially for young people, is the development of self-identity and this has an essential social dimension (Brown, 1998). Most VLEs have limited ability to provide a similar type of service. The actual constraints, both organisational and technological, of institutional VLEs, and the perceptions of students to institutional systems is important to understand for the further use of digital storytelling and this is an area for further research.

The assessment of reflective learning using multimedia digital stories creates a problem for the current educational system which is heavily biased towards text based assignments (Jackson, 1995, pp 154-167). It appears to us that this is divisive for the present generation of learners. One argument that we frequently hear from teachers is that writing is an essential skill for lifelong learning but the theory of multiple literacies suggests that this can be achieved through other activities, such as essays on various topics (Hull & Nelson, 2005). There is an argument that the process of writing a story is important to organise thoughts and to stimulate reflection but our experience suggests that many students who create multimedia digital stories go through a similar rigorous process. An area for further research is to compare the student experience and depth of reflection using both approaches. Further
research is also required to develop methods of assessment that are more closely aligned with the multimedia aspects of digital storytelling. Collaboration may be required with performance and artistic educators to consider aspects such as how the content is organised and presented to represent a particular experience.

A recent trend in higher education and lifelong learning is the development of e-portfolios in which a variety of artefacts can be collected and presented (Klenowski, Askew, & Carnell, 2006). Digital stories can become one of these artefacts, although most e-portfolios still rely heavily on the collection of text based materials (Barrett, 2006). The use of digital stories in e-portfolios is an area for future research.

Recent literature on multiple literacies has highlighted the need for all lifelong learners to be competent across a range of literacies (Hull & Nelson, 2005). Traditionally, being literate only related to skills in reading and writing in text based media but this notion has now widened to include media and digital literacy. Media literacy refers to the skills required to identify, appreciate and utilise the vast variety of new media, especially visual and audio, that surrounds any learner. There are additional digital literacy skills that are required to ensure that media literacy can be useful to an individual, such as accessing media sharing sites, but there are wider aspects, such as the ability to use the internet and computers. The contribution of digital storytelling to the development of multiple literacies is an area for future research.

There appears to be scant use of Web 2.0 technologies, Next Generation Technologies and mobile camera phones in the wide genre of digital storytelling. There are a wide variety of participants, often older than technology savvy Net Generation students, in a wide variety of contexts. The use of these new and emergent technologies for digital storytelling appears to be an area that is ripe for further development and research.
15 References


http://www.jisc.ac.uk/media/documents/publications/studentexpectations.pdf
accessed 01/10/07


## Appendix I. Case Studies

### Appendix I.1 Case Study - Medicine

<table>
<thead>
<tr>
<th>Case study title</th>
<th>Reflect 2.0: Using Digital Storytelling to Develop Reflective Learning by the Use of Next Generation Technologies and Practices: Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution name</td>
<td>University of Leeds</td>
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<tr>
<td>Background</td>
<td>Data for the case study is taken from a selection of first year MBChB (Bachelor of Medicine and Bachelor of Surgery) students who participated in a compulsory Personal and Professional Development (PPD) module. 15 students produced reflective digital stories (RDS) on their personal experience of visiting a patient in their own home and presented it to the class.</td>
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</table>
| Tools            | All (n=15) students were provided with a Nokia 3G Personal Digital Assistant (PDA) with camera and data transfer  
Photo Story 3 (PS3) was given as the suggested software and made available on a selection of PCs within the University  
Support on how to create a reflective digital story was available via the project website |
| Evaluation data: |  
- RDS created using Power Point or PS3 $^1$ (n=15)  
- Student questionnaires requiring qualitative and quantitative responses (n=12)  
- Tutor questionnaire (n=1) |

---

$^1$ Students declined to offer their DS for evaluation by not responding to the request
### Financial incentive:
No financial incentive was given

### Presentation Formats:
- RDS using Power Point (n=13), PS3 (n=2).
- Images taken using digital camera (n=5), Internet for images (n=6), mobile phone (n=2), PDA (n=6)
- Internet for music (n=0)
- RDS created at home (n=10)
- RDS created on University campus (n=1)

### Intended outcome(s)
To facilitate the development of reflective learning utilizing technology.

To ascertain whether or not this group of students encounter the same technical and learning difficulties as the other participating groups.

### The challenge
Previously students on this PPD module have been primarily assessed through written work. Although formative assessment is used throughout the medicine course, student engagement is low in comparison to summative assessed work. Therefore the main challenge was to engage students used to text based, exam driven work in a creative process which would only be formatively assessed.

### Established practice
Previously 500 word reflective accounts of the first patient visit. In December 2007 a pilot study (see ELP2 case study) was initiated in which students were given the option of creating a Power Point presentation of up to 3 minutes.

### The e-learning advantage
Further development of IT skills
The main e-learning advantage was the potential for students to improve their digital and media literacy skills. However, in practice we encountered reluctance
from students to fully engage with using media as a reflective tool.

<table>
<thead>
<tr>
<th>Key points for effective practice</th>
<th>Engagement</th>
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<tbody>
<tr>
<td></td>
<td>It is important to engage students from the beginning and clearly explain the professional and personal necessity of reflection in academic practice. This is helped if the tutors are aware of this necessity, and as such, it is advantageous to involve tutors at an early stage.</td>
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Opportunities for practice and discussion are effective ways to gain and keep tutor support.

Although the students did not fully engage in the process of creating a DS, practitioners should be aware that they did find sharing the stories with each other valuable. Students reported that the use of images helped them to feel more engaged in other’s experiences. Sharing and discussing DS allows further opportunities for reflection and engagement.

<table>
<thead>
<tr>
<th>Conclusions and recommendations</th>
<th>Clear working definitions</th>
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<tbody>
<tr>
<td></td>
<td>When working with students who are not used to thinking reflectively and using technology to mediate reflection it is important to provide clear and consistent information on how to reflect and how to create a DS</td>
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<table>
<thead>
<tr>
<th>Additional information</th>
<th>Project Officer Natasha Pyne <a href="mailto:prsnidp@leeds.ac.uk">prsnidp@leeds.ac.uk</a></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Project Officer Delia Muir <a href="mailto:d.p.muir@leeds.ac.uk">d.p.muir@leeds.ac.uk</a></td>
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## Appendix I.II Case Study - Performance Arts

<table>
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<tr>
<th>Case study title</th>
<th>Reflect 2.0: Using Digital Storytelling to Develop Reflective Learning by The Use of Next Generation Technologies and Practices: Performing Arts</th>
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<tr>
<td>Institution name</td>
<td>University of Leeds</td>
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### Background:

Two cohorts of students took part in the project. All participants were first year BA Theatre and Performance students at The School of Performance and Cultural Industries.

Cohort 1: 12 students agreed to create an un-assessed reflective digital story (RDS) based on their self-directed performance piece. The RDS were then presented for informal discussion and peer review.

Cohort 2: 6 students agreed to create an assessed RDS on a piece of practice undertaken in the past year. These were not shared with peers.

### Tools:

Both cohorts could choose their own preferred technology for digital artefact collection and digital story creation.

Workshops on how to use Photo Story 3 (PS3) were provided for students and tutor.

The second cohort had access to support on how to create a reflective digital story via the project website.

### Evaluation Data:

Cohort 1
- Digital stories (2-4 minutes long) using PS3, Microsoft Movie Maker or iMovie (n=11)
- Focus group (n=11)
- Paper based student questionnaire (n=11)

**Cohort 2**

- RDS (2 minutes long) using PS3, Microsoft Movie Maker or iMovie (n=7)
- Paper based student questionnaire requiring both qualitative and quantitative responses (n=3)
- Paper based tutor questionnaire (n=1)

**Financial incentive:**
Both cohorts were given a one off payment of £50.

**Presentation Formats:**

**Cohort 1 (n=11)**

- RDS using PS3 (n=9), iMovie (n=1), Windows Movie Maker (n=1).
- Images taken using digital camera (n=8), Internet for images (n=4), mobile phone (n=3), PDA (n=0)
- Rehearsal photographs, location shots, action clips were also included.
- Internet for music (n=5) including one commissioned original piece of music
- RDS created at home (n=11)
- RDS created on University campus (n=0)

**Cohort 2 (n=3)**

- RDS using PS3 (n=2), iMovie (n=0), Windows Movie Maker (n=1).
- Images taken using digital camera (n=3), Internet for images (n=2), mobile phone (n=1), PDA (n=0)
- Internet for music (n=0)
- RDS created at home (n=2)
- RDS created on University campus (n=1)
| Intended outcome(s) | To facilitate the development of reflective learning by utilising technology.  
| | To see how students who may not be confident with next generation technology but who use reflection as part of their study techniques use technology to show reflection in their learning.  
| | To ascertain whether or not this group of students encounter the same technical and learning difficulties as the other participating groups.  
| The challenge | The main challenge was to overcome student anxiety surrounding using technology to create a reflective account. Frustration with PS3 software caused students to seek alternative RDS software.  
| | Student self perception surrounding their computer skills ranged from “techno-phobic” to “good” and this affected their ability to embrace some of the more technical aspects of creating a RDS.  
| Established practice | Established practice for the module is a 2500-word assessed essay including reflection on rehearsals, group work and final performance piece.  
| The e-learning advantage | The main e-Learning advantage is giving an opportunity for students who are performance based to reflect using NGT in order to draw on the creative skills used in other areas of the course. This meant that students had to further technological skills such as using microphones and uploading audio files.  
| | Creativity  
| | Creating RDS gives an alternative method to channel creative energies into an academic end product using NGT.  
| Key points for effective practice | Engagement  
| | Sharing RDS with peers is important as students were more engaged in the subject matter when presented with a RDS than when watching a Power Point |
Presentation or reading a short précis.

**Time management**
It is important to impress upon students how long a RDS can actually take to create and the same amount of time should be allocated to creating a RDS as a written account.

**Accompanying Literature**
It is important to provide enough information and examples about how to reflect in an academic environment.

**Good quality sound microphones**
Inserting and creating clear audio files was problematic for students not using an Apple Mac. Making good quality microphones available to enable clear sound recording and playback is essential to the overall presentation and quality of a RDS.

<table>
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<tr>
<th>Conclusions and recommendations</th>
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<tbody>
<tr>
<td>Using RDS Theatre and Performance students were encouraged to develop skills which can be used in other aspects of their course, such as, the use of juxtaposition, of layering and of using found sources in new ways.</td>
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**Clear working definitions**
It is important to be consistent and clear when providing definitions of reflection. Confusion on this topic increases student anxiety and can cause confidence in IT skills to lessen which in turn creates more anxiety.

**Recommendations include**

**Training**
Giving students enough time in their training sessions to explore the strengths and limitations of the software behind creating a DS. As well as increasing computer skills this will enable students to first encounter technical problems in a supported environment.
In addition to the initial RDS training a second intermediate level workshop would allow students to refine their skills once they had experimented and familiarised themselves with the software.

An information pack should be provided with clear and simple pictorial directions on how to use DS software and interactive documents on how to reflect meaningfully using images and digital artefacts. A good study guide should contain guidance on how to reflect in an academic context as well as guidance on how to use the appropriate software and resources.

**Assessment**
It is important to provided clear guidelines and boundaries if RDS are to be formally assessed.

**Additional information**
Project Officer Natasha Pyne prsnldp@leeds.ac.uk
Project Officer Delia Muir d.p.muir@leeds.ac.uk

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**Appendix I.III Case Study – Education and ICT**

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<tr>
<th>Case study title</th>
<th>Reflect 2.0: Using Digital Storytelling to Develop Reflective Learning by The Use of Next Generation Technologies and Practices: <strong>Education and ICT</strong></th>
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<tr>
<td>Institution name</td>
<td>University of Leeds</td>
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| **Background**   | **Background:**
Education and ICT is an MA full time and distance learning part-time postgraduate course in the School of Education |
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<tr>
<th>Intended outcome(s)</th>
<th>Description</th>
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<td></td>
<td>To facilitate the development of reflective learning by utilising technology.</td>
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<tr>
<td></td>
<td>To see how students who are already personally or professionally familiar with next generation technology</td>
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(NGT) use that technology to show reflection in their learning.

To ascertain whether or not this group of students encounter the same technical and learning difficulties as the other participating groups.

The challenge

The main challenge was to gather enough information and gain consent from postgraduate students who have other full-time commitments, such as families, jobs, etc., and from students who are not based in the UK.

**Training**

Although training was offered as to how to use Photo Story 3 (PS3) the majority of students couldn’t take part in face-to-face training due to being long distance learners. This was overcome by providing an online guide to using PS3 and creating meaningful images which was made available via the project website.

Established practice

Established practice for the module is a paper based reflective account to inform the final essay.

The e-learning advantage

**Further Developing IT Skills**

The main e-Learning advantage was an opportunity to develop already established IT skills by creating images to exemplify an emotion or reflective response in their work.

**Flexibility**

The second e-Learning advantage concerned the portability of PDA’s and laptops. This enabled students to upload images and documents outside of the home environment.

Key points for effective practice

**Engagement**

Education and ICT students were primarily engaged by the flexibility and creativity of using images in their work and this was perceived as an e-Learning advantage.
The long distance learners in the group emphasised the importance of engaging in each other’s presentations as the sharing of information is integral to their learning. The use of images also aided communication across language barriers.

**Use of Technology**
It is important that students are made aware that creating, locating and uploading digital artefacts can take longer than anticipated and the same amount of time must be allocated as would be to an essay.

**Language Barriers**
Specific to this cohort were cultural and language difficulties due to the high percentage of students whose first language is not English. Presentations can be doubly problematic for such students and extra care needs to be taken that all the students understand how to reflect using digital artefacts.

---

**Conclusions and recommendations**

**Conclusions**
Engagement in using NGT was high in this group as they were already familiar with using IT in their professional capacities.

**Recommendations include**
When working with students who are primarily based outside of the UK it is important to provide clear and consistent information regarding project outcomes.

In a learning environment in which little or no face to face contact is available clear working definitions need to be given and adhered to.

It is important that students fully understand the process of reflection before they apply it to NGT.
### Appendix I.IV  Case Study – Leeds Met – Dietetics

<table>
<thead>
<tr>
<th>Case study title</th>
<th>Reflect 2.0: Using Digital Storytelling to Develop Reflective Learning by The Use of Next Generation Technologies and Practices: Dietetics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution name</td>
<td>Leeds Metropolitan University</td>
</tr>
<tr>
<td><strong>Background</strong></td>
<td><strong>Background:</strong> Data for the case study is taken from a selection of Post Graduate Diploma in Dietetics students who took part in a compulsory module entitled ‘Current Issues in Professional Practice – Part 1’</td>
</tr>
<tr>
<td></td>
<td>25 students produced reflective digital stories (RDS) on the topic of their personal and professional development over the past year.</td>
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<tr>
<td></td>
<td>The stories were summatively assessed and formed 25% of the final grade for the module</td>
</tr>
<tr>
<td><strong>Tools:</strong></td>
<td>All students were provided with a Nokia 3G personal digital assistant (PDA) supplied by the ALPS CETL. Pebble Pad was installed on the PDAs and students also used PCs in conjunction with the mobile devises.</td>
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<tr>
<td></td>
<td>The project officer gave an interactive presentation with examples on how to use digital artefacts to create a reflective account</td>
</tr>
<tr>
<td></td>
<td>Further support on how to create a reflective digital stories was provided by the project officer.</td>
</tr>
</tbody>
</table>
story was available via the project website.

Technical support on the use of Pebble Pad was provided in house.

**Evaluation Data:**
- Reflective digital stories (n=25)
- Paper based student questionnaires requiring qualitative and quantitative responses (n=25)
- Focus groups (n=5); (n=5)
- Tutor questionnaire (n=1)

**Financial Incentive:**
No financial incentive was given

**Presentation Formats:**
- RDS using Pebble Pad (n=25), PS3 (n=1)
- Images taken using digital camera (n=10), Internet for images (n=18), mobile phone (n=4), PDA (n=4)
- Internet for music (n=3)
- RDS created at home (n=21)
- RDS created on University campus (n=4)
- Students used a wide variety of digital artefacts including scanned documents, voice recordings, sound clips and narratives.

### Intended outcome(s)

To facilitate the further development of reflective learning utilising mobile technology in the form of PDAs and Next Generation Technology (NGT) in the form of Pebble Pad.

To ascertain whether or not this group of students encounter similar technical and learning difficulties as the other participating groups

### The challenge

The main challenge was to overcome students’ initial anxieties surrounding the use of creative digital artefacts as a vehicle for reflection.
Dietetics course evaluation occurred Jan 31st 2009. Although this was unavoidable and known in advance, it meant that data had to be collected and evaluated in a very short space of time.

<table>
<thead>
<tr>
<th>Established practice</th>
<th>Established practice for the module is a paper based reflective account</th>
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<table>
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<tr>
<th>The e-learning advantage</th>
<th>The main e-Learning advantage was to encourage post graduate students, who as part of their course are already familiar with using Pebble Pad, to use NGT in conjunction with reflection and creativity.</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th>Key points for effective practice</th>
<th>Engagement</th>
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<tbody>
<tr>
<td></td>
<td>The technology and devises used must be able to process the data required to create and present an effective RDS. We found that the use technical problems with institutional systems, such as the problems encountered with Institutionally provided PDAs can lead to disengagement with reflection and hostility towards the process as a whole.</td>
</tr>
<tr>
<td></td>
<td>It is important to make the link between the task and the course outcomes explicit. In order to engage with the process students must understand the relevance of reflection and RDS to their chosen studies and ultimately their chosen profession.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conclusions and recommendations</th>
<th>It is important to emphasise to students that the same amount of time needs to be allocated to the creation of a RDS as would a written account.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Additional information</th>
<th>Project Officer Natasha Pyne <a href="mailto:prsnldp@leeds.ac.uk">prsnldp@leeds.ac.uk</a></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Project Officer Delia Muir <a href="mailto:d.p.muir@leeds.ac.uk">d.p.muir@leeds.ac.uk</a></td>
</tr>
</tbody>
</table>
Appendix II. Dietetics Assessment Criteria

CURRENT ISSUES IN PROFESSIONAL PRACTICE (PART 1) ASSIGNMENT

USING PDP TO PROGRESS LEARNING & SKILLS DEVELOPMENT - YOUR REFLECTIVE STORY

INTRODUCTION

As part of the summative assessment for this module, you are required to complete a critically Reflective Story using digital and written artefacts. Through critical discussion in your Story, you should evidence how you have applied your personal and professional development over the last year, to progress your Professional Practice, learning and skills across the academic/practice setting. This work should draw on digital evidence from your PDP/Portfolio, learning objects/assessment tools, sound recordings, images (real and abstract) which has been used to guide and inform your reflective practice and learning to date.

You should aim to complete your Reflective Story in no more than 1500 words (excluding digital evidence). This assignment will contribute 25% of your final mark for the module. The story should be posted to the PG Diploma Pebble pad gateway by 13:00 hrs on Friday 30th January 2009.

GUIDANCE ON COMPLETING YOUR REFLECTIVE STORY

Before you undertake your Reflective Story, it is essential that you spend some time reflecting on your personal and professional development over the last year. A useful starting point is to ask yourself, “What do I do differently now compared to what I did at the beginning of the course, and how has this change occurred?” Although there may be several areas of practice and/or development in which you can identify change, you should focus on your own personal and professional development, skills and learning.

Think about:

- What has happened in your practice?
- How has progress occurred?
- Why has this progress resulted in a change in practice or contributed to your personal development?

Critical Reflection is the key element to your Reflective Story, as it is through this process that you will be able to identify the changes and development in your practice. To guide your Reflective Story, you should draw on one of the models for reflection, which you prefer to use. Whilst the different models for reflection vary, some of the common themes are detailed below:-

- What was your “starting point”? What was it that led to an awareness of the need to change your practice? Was it, for instance the result of a critical incident (e.g. a specific patient consultation, talking to colleagues about dietetic practice, self-evaluation of strengths and weaknesses, feedback from your practice supervisor or going on a course)?
• Have you acquired new knowledge and skills? - You may have acquired these through experience, as a result of completing a practice placement or through more formal channels such as reading or attending a course.

• How have your new knowledge or skills, changed what you do? Has this led to a direct change in your practice or the development of a new area for you?

• What was your strategy for changing your practice and how did you implement this?

• How have you evaluated the results of this change? What was the outcome and was this expected?

• On reflection how successful has the change been? Did it match what you had planned and with hindsight would you do things differently next time?

• What are your future plans? Have you already or do you plan to; apply your learning to practice? Can you use your learning gained over the last year to develop further or can it be applied to a different area of practice?

• Have you shared your experiences or participated in reflective discussions with colleagues? Have they contributed any ideas for development? Have there been any “knock-on” effects?

YOUR EVIDENCE AND DIGITAL ARTIFACTS.

Your Reflective Story should draw on a range of evidence and digital artefacts that you have used to guide and/or are outcomes of your PDP and reflective practice. You are encouraged to be creative and select evidence that best underpins your learning. The emphasis should be on quality of well selected and appropriate evidence that supports your learning rather than, the volume of evidence used. This format of your evidence may include:-

• Digital images either real life photos or abstract images that portray or sum up your emotions/how you were feeling at a particular time or demonstrate an outcome from a piece of work.

• Sound Recordings for example an excerpt from a reflective discussion with your dietetic supervisor or feedback from a peer on your contribution to practice tutorial/group work or music that reflects your emotions.

• Written format such as application and learning from reflective tools e.g. reflective diary excerpts, reflective discussions, critical incident analysis, assessment tools and other portfolio evidence.

You may wish to draw on some of the following evidence to inform your Reflective Story selecting the most appropriate format (see above):-

• Reflecting on your experiences from placement B and SWOT analysis, HEB, RPB and LOB forms, aims and learning outcomes for placement B

• Your Portfolio– how it has developed? Evidence generally and specifically your reflective writing to evidence learning outcomes P10 and P12 for placement B

• HEA, RPA and SAA forms and reflective learning from placement A. This may be helpful to draw on to demonstrate how your skills and learning have progressed throughout your academic and practice experience.

• Work products and assignments from academic and placement settings.

• PDP work lectures and tutorials e.g., application of learning styles analysis, SWOT analysis, skills analysis, PDP plan and identified/reviewed objectives.

• Key academic references and reference to relevant portfolio evidence.
COMPLETING YOUR REFLECTIVE STORY

You will be expected to use the Pebblepad webfolio format to present your Reflective Story with digital artefacts. Sessions will be included in the Current Issues in Professional Practice Module (MC7) in January 2009 to support you in the development of your digital story. These will include for example guidance on the use of digital images and technical support with developing your Pebblepad webpage.

You are recommended to think about and start to collect evidence in an appropriate format using your PDA before the Reflective Block in January 2009.

Please note there are penalties for work handed in late and for exceeding the word limit therefore:-

- Please approach your tutor if you require further advice regarding the assignment
- Please discuss with the module tutor/course leader if you require an extension of the handing in date due to mitigating circumstances

Katie Peck Course Tutor - K.Peck@leedsmet.ac.uk Room C701
CURRENT ISSUES IN PROFESSIONAL PRACTICE (MC7)
REFLECTIVE STORY MARKING SCHEME

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>Maximum mark</th>
<th>Allocated mark</th>
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<tbody>
<tr>
<td>1) Selection of an appropriate topic area &amp; focus for the reflective story</td>
<td>3 marks</td>
<td></td>
</tr>
<tr>
<td>2) Evidence of drawing on a model for critical reflection &amp; to include elements from those listed below:-</td>
<td>12 marks</td>
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</tr>
<tr>
<td>- What was the starting point e.g. critical incident?</td>
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<tr>
<td>- Acquisition of new skills &amp; knowledge?</td>
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<td></td>
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<tr>
<td>- Have new skills &amp; knowledge changed practice?</td>
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<td></td>
</tr>
<tr>
<td>- What was the strategy for changing practice?</td>
<td></td>
<td></td>
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<tr>
<td>- Evaluation of this change?</td>
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<tr>
<td>- How successful has the change been?</td>
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<tr>
<td>- Has the learning been applied to practice, next stages?</td>
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<td>- Sharing of experience with colleagues?</td>
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<tr>
<td>3) Evidence of creativity, application &amp; learning drawn from a selection of digital (images/ sound) &amp; written artefacts from some of the following:</td>
<td>5 marks</td>
<td></td>
</tr>
<tr>
<td>- Reflective tools e.g. reflective diary, reflective discussions, critical incident analysis, assessment tools &amp; other portfolio evidence.</td>
<td></td>
<td></td>
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<tr>
<td>- Reflection on experiences from Placement B &amp; SWOT analysis, HEB, RPB &amp; LOB forms, aims &amp; learning outcomes from Placement B.</td>
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<tr>
<td>- Portfolio- general evidence &amp; specifically reflective writing/images/sound</td>
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<tr>
<td>- HEA, RPA &amp; SAA forms &amp; reflective learning from placement A</td>
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<tr>
<td>- Work products &amp; assignments from academic &amp; placement settings in appropriate media</td>
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<tr>
<td>- PDP work, lectures &amp; tutorials e.g. application of learning styles analysis, SWOT analysis, key skills self-evaluation, personal objectives,</td>
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<td></td>
</tr>
<tr>
<td>- Key academic &amp; Portfolio references</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Evidence of key points of learning from reflective story &amp; recommendations for further practice</td>
<td>5 marks</td>
<td></td>
</tr>
<tr>
<td><strong>Total mark and final percentage</strong></td>
<td>25 marks</td>
<td>Marks %</td>
</tr>
</tbody>
</table>
Appendix III. Impact on Institutional Systems

Whilst undertaking the process of developing and piloting Digital Storytelling the team learned about a number of factors which would affect the long term embedding of Digital Storytelling into the University Infrastructure. These finds and recommendations are detailed here.

Appendix III.I Technology and Systems

Within each University there are a number of systems which are part of the infrastructure of supporting Teaching and Learning. Examples of these are:

The VLE – Virtual Learning Environment;

In our case both our partners had versions of the Blackboard VLE. Our Education in ICT partner ran their courses using a different VLE because of its suitability for supporting distance learners. Other Universities have VLEs, such as Moodle, Desire2Learn and Sakai. In principle these are places in which course material is made available to students by their tutors.

The Assessment System

Both the University of Leeds and Leeds Met use Banner as the Student Information System that acts as the formal repository for marks or grades. This is closely linked with the VLE and the course modules where most assessment takes place. Where Digital Storytelling is summative, then it could be important to set up the appropriate administrative systems to ensure that the mark or grade is captured against that specific module.

Technology for developing the Digital Story

The choice of Technology used by the student to develop their digital story can be mandated but has proved far more effective to allow the Students to choose their own technology. Within some of our partner projects we specified Microsoft Photo Story 3 or Microsoft Office PowerPoint as options. In term of generating the images Students used their own mobile phones with cameras, their own digital cameras and other University provided devices. Some students recorded their own sound tracks to accompany the stories.

The Leeds Met students used their Mobile Devices with cameras (provided by the ALPS CETL ) and, using PebblePDA, sent images to the pebblePad asset store to use in their reflective digital stories. As a project team we gave students access to the Microsoft Technologies in the Student Clusters. Some chose to use their Apple Mac devices and the technology associated with these platforms to create videos. The freedom of choice and the opportunity to use their own technology helped the creative process.

Storing the results and reflecting on the experience.

The project at first thought that the VLE would play an integral part in storing, submitting and organising the output from the digital story telling work. Our experience through the project led us to change our views on this and look toward e-portfolio systems to support this part of the work. The reasons for this were:

- The current VLE systems do not readily interface with the mobile devices we were using.
The reflective process is better suited to an environment where students can deposit their stories, their reflections and develop these before formally submitting the work. The work of ALPS CETL in linking mobile learning and assessment to a MyKnowledgeMap Multiport portfolio has also provided evidence to support this.

The role of the VLE is limited to providing the course material in the first place and providing a submission process for work that has been summatively assessed.

Providing Client devices

As discussed earlier, students had the option to use University Technology or their own. Where this technology was provided it was done as follows:

- Cluster desktop PCs with the appropriate software (Photo Story 3 and Powerpoint)
- Mobile Devices (mainly through the ALPS CETL programme).

There were three aspects that needed to be considered by the project:

- How to get the software loaded on to a cluster PC when it was not part of the University Standard build. Our experience is that this has to be planned well in advance.
- How to ensure the PebblePDA client and correct version of the dot net file was installed on the PDAs.
- How to distribute the devices to the students and provide them with experience of the device and how to prevent the technology issues from getting in the way of the creative process.

There is usually minimal institutional support for either of these processes.

Appendix III.II Support

Providing support to the Students was also a key element. The Students in Medicine and Performing Arts were given training on Photo Story 3 as an introduction to creating a digital story. The students at Leeds Met had a training session on the use of pebblePad especially how to build a webfolio and also had one-to-one training on the use of pebblePDA. The students using mobile devices (Medicine and Leeds Met dietetics) were supported through a shared help desk for mobile learning that the ALPS CETL had established for their mobile learning programme. Generally Universities do not yet provide support to students for mobile devices and mobile learning.

Support for the staff involved with each of the student cohorts was also considered vital and should be seen as an integral part of the training and support programmes.

Appendix III.III Ethical Practice

Several areas need to be considered when undertaking these projects.

1. Ethical consent needs to be obtained to do this work. Although it is focussed on Curriculum development, if the work needs to be published then full consent is necessary.
2. If one partner agrees to the ethical proposal, then other institutions will usually follow suite after their own review.
3. Do not underestimate the difficulties of gaining consent from students especially when they are not present at focus groups in person. The Education for IT students were nearly all distance learners and could only be approached through their departments systems (VLE) or by e-mail. It is difficult to encourage them to respond.
4. Using mobile devices in some settings (e.g. Medicine and Healthcare) is problematic. Some healthcare settings are still quite prohibitive in their rules on mobile phones and even when the rules are more relaxed the practice cultures has not caught with the government guidelines. Using the experience of ALPS CETL, the project provided a “terms of use” agreement for mobile devices which students were asked to sign. This ensured that they understood the framework in which images and devices could be use in Health and Social care practice.

**Appendix III.IV Assessment**

The generation of digital stories has proved an excellent process for reflection. It has however been easier to implement as a formative rather than summative experience. The students expressed concern about how the story would be assessed compared with an essay style of response. Similarly staff expressed a concern about how they should assess a digital story or any non-text based submission. This is clearly a matter for development of both the pedagogy and methods of assessment for both the artefacts themselves and the reflective narrative that accompanies them. There are some tools which could help in this process and would point readers to the video annotation tool, SYNOTE, produced by a parallel JISC Emerge project MACFoB. The tool allows a tutor to review and annotate a video object and step through that review in a one-on-one session with a student. We have not used this tool as it was developed during parallel timescales but from the demonstrations that we have seen then we would recommend its evaluation. Details can be found at:

[http://www.synote.ecs.soton.ac.uk/](http://www.synote.ecs.soton.ac.uk/)

**Appendix III.V Recommendations**

There are some key recommendations arising around the technological impact of using Digital Storytelling for reflection on the Institution. These are:

1. Consider the ethical implications of what you are asking of the students – especially in a health and social care environment.
2. Decide if you are engaging with a formative or summative exercise. The summative exercise has greater impact on central systems such as the VLE and Student record systems.
3. Use an e-portfolio system for the students to deposit their material, organise their reflections and eventually post their outputs.
4. Give students freedom of choice in terms of the client technology they use but don’t underestimate the training and support implications of this decision. Currently central university systems are unlikely to offer this support.
5. Discuss with both staff and students how they are going to assess the stories and what tools you can make available to assist this process.
Appendix IV. Study Guide

This is available as a separate Document