Evaluating the effectiveness of digital storytelling for student reflection

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This paper reports on the use of digital storytelling as a means of encouraging student engagement and reflection; consideration is also given to developing an appropriate mechanism to measure student reflection using this medium. Digital storytelling, the combination of still images with an audio track, was piloted in different learning contexts at the University of Gloucestershire, including: a students' transition into higher education program; student presentations; and capturing reflections on personal development. Evaluations show that staff and students have found this approach to be a positive experience for encouraging student creativity; however, the very personal reflective nature of the stories created has raised issues about how student reflection and progression is adequately captured using this approach. The paper will report on the use of different models to assess this progression and the issues raised.

Keywords: digital storytelling, reflection, student engagement

Introduction

The technique of digital storytelling has been piloted at the Centre for Active Learning (University of Gloucestershire) in a number of different learning contexts, particularly to encourage student reflection. Digital stories are media artefacts combining still images and sound, created and edited by individuals or groups using cameras and computers. This technique combines the use of technology with the benefits and skills of storytelling, e.g. 'selecting, comparing, inferring, arranging and revising' (Robinson & Hawpe, 1986), and provides the potential for an engaging student-centred approach.

Digital storytelling within the University of Gloucestershire

The different learning contexts at the University of Gloucestershire in which digital storytelling have been piloted include:

- Student induction (transitions into higher education) activity (Jenkins & Lynch, 2006).
- Landscape Design, where the tutor was interested in encouraging reflection on developing design ideas and the use of models.
- Accountancy, as a means of presentation for a first year skills module.
- Second year Sports Development students reflecting on how their chosen sport has influenced their own personal development.

The student induction and use by Landscape Design students examples provide the main focus for this analysis. Central to the use of digital storytelling in both cases was the desire to encourage and capture student reflection.

The process of induction is intended to help students make social networks and develop skills within their discipline groups, and beyond, to help them with their transition to becoming independent learners. The intent is to "embed[s] students in a rich … learning community built around a practice" (Brown, 2005: 25) where students can share artefacts and enthusiasms enabling the early formation of communities and the beginnings of 'learning-to-be' alongside 'learning-about' (Brown, 2005: 26). Digital storytelling was introduced as a technique to encourage and embed student reflection on the activities in which they were engaged, recognising that reflection can be enhanced as a collaborative process (McDrury & Alterio, 2003). The induction week activities culminate in a day's field work where the students gathered data related to their given scenario; this field based activity was the focus of their group reflections. In total 29 stories were generated.

For the Landscape Design case study digital stories were used to capture students' reflections on the development of their design and their own skills, allowing staff to understand the student experience. Such ideas on reflection are heavily influenced by Schön (e.g. Schön, 1983; 1987) and Dewey's ideas of engaging in productive inquiry, defined as "deliberately seeking what we need in order to do what we want to do" (Dewey et al 1988). Brown (2005) specifically describes digital storytelling as a tool for engaging in such productive inquiry. In this instance only five stories were submitted by students.

Feedback on the use of digital storytelling was collected from students by questionnaire and staff by questionnaire and interview. The results of this feedback has been positive for both the induction (Jenkins & Lynch, 2006) and its use with the Landscape students (Lonsdale, 2007). These evaluations have shown that both staff and students view digital storytelling as providing a new and different approach on reflection and helping to understand the learning processes.

Impact on student reflection

Whilst positive feedback was received on the use of this technique, the intent in the use of digital stories was to encourage student reflection. To evaluate the extent to which this was achieved the stories from these two cases were rated against both Moon's Map of Learning (1999), and McDrury & Alterio's Model of Reflective Learning through Storytelling (2003). Table 1 shows the different categories for both models.

Table 1: Categories for Moon's map of learning and McDrury and Alterio's model of reflective learning

Moon's map of learning	McDrury & Alterio's model of reflective learning
Level 1: Noticing	Story Finding
Level 2: Making Sense	Story Telling
Level 3: Meaning Making	Story Expanding
Level 4: Working with Meaning	Story Processing
Level 5: Transformative Learning	Story Reconstructing

Moon's Map of Learning was developed as a means of 'analysing the events of learning in order to locate reflection' (Moon, 1999: 152). The different levels provide a means of representing reflection in the learning processes of the students. Mapped against this, McDrury & Alterio's model represents how individuals identify, tell and build on their story. Important in this model is the way that stories can be expanded and amended through collaborative processes; these are represented by the latter stages of the model (McKillop, 2005). These two models have provided a means of categorising the stories that have been created by the level of reflection that has taken place.

Of these two models Moon's Map of Learning (1999) was found to be the most useful in categorising the level of reflection demonstrated through the stories. This reflects the nature of the way that the digital stories were created, with students creating them as completed packages. The McDrury & Alterio (2003) model recognises the collaborative element of storytelling and how stories can be processed and developed. It is recognised that the process of developing and creating the digital stories can itself be reflective. However, these two case studies did not capture the collaborative discussion that would have taken place in generating the stories and is something that may need to be considered in future activities. The analysis below will therefore concentrate on comparison against Moon's Map of Learning. The number of stories in each category is shown in Table 2.

Table 2: Number of stories per category rated against Moon's map of learning

Level	Induction (Group stories)	Landscape students (individual)
Level 1: Noticing	13	
Level 2: Making sense	12	1
Level 3: Meaning making	3	
Level 4: Working with meaning	1	3
Level 5: Transformative learning	0	1

The five individual reflective digital stories examined achieved much higher levels of reflection demonstrating clear evidence of reflection on personal development and their design process. Of these five, three were classed as level 4 'Working with Meaning' (Moon 1999) where students were clearly

engaged in reflective processes, clarifying and developing strategies to solve problems with a heightened awareness of their personal development and views on future practice contexts. One of the digital stories was classed as having reached level 5, 'Transformative Learning', clearly demonstrating the ability to evaluate their own frames of reference and an awareness of the specific learning processes they were engaged in. As was expected, the group stories from the students' induction activity showed less reflection; however, given that these students were only on their fourth day at university when completing this activity, the fact that there was evidence of 'making sense', and in some cases greater reflective processing, was heartening.

Through this analysis of the extent of student reflection in the process it was recognised that other factors were also potentially important. These included: the number of speakers, how engaging the voice was, whether appropriate and / or discipline language was used, how well the story was structured, how centred on the task the students were and how relevant the images chosen.

Using these criteria it was found that of the group stories used only three used multiple voices. These examples used a more conversational style of delivery. This did not necessarily enhance engagement, particularly where this was associated with lack of structure or scripting. The individual landscape design stories used their personal voice to great effect which made them engaging and emotional. Most of the stories were well structured, though this did not necessarily demonstrate greater reflection, although where this was combined with deeper reflection the story did become more powerful. Some of the groups used humour to enhance their stories; this sometimes made their stories more engaging but became a distraction in others. One group also used digital graphic techniques to add some missing members of their group, which was innovative.

The choice of images and their association with the audio is important to the impact of the story. For the induction event students selected images from a pool taken with cameras and mobile phones in their group. This did mean that wholly appropriate images were not always available. The individual stories produced later by some of these students showed a good use of images, linked both to their workbook / portfolio / models and final pieces of work, which did assist reflection.

Many groups were well-focused on the activity task set within their discipline; however, this did highlight the importance of ensuring that the design of the task is appropriate to encourage reflection. Having now used the Map of Learning as a means of analysis it is recognised that this should be shared with students to make explicit the reflective processes that are expected through such activities.

The students were provided with guidance that the stories should be a maximum of two minutes and 250 words maximum. Comparing the length of stories with their 'Map of Learning' score is difficult to draw any firm conclusions, though a crude analysis of average scores indicates that the level of reflection increases with length of story. More examples are needed to start to draw conclusions on whether our recommendations are appropriate.

Encouraging social reflection

The digital stories could be seen as a discipline resource to enable further reflection and storytelling to encourage deep learning. The individual stories showed much deeper reflection but were part of a learning process that traditionally uses a studio model, where learning is both social and public. The showing of the digital stories in this peer-learning forum might give students a chance to connect with the thought processes of others, and may allow for 'scaffolding' to occur. Where formal critiquing of these stories takes place, the possibility of enhanced reflective learning could occur, and may allow the voicing of tacit understandings. This point was reinforced in one of the other cases of digital storytelling use in the University, where they were used by accountancy students for presentation purposes. This provided the students with an opportunity to critique their own work alongside their peers. The tutor for this module observed:

> I think it was quite useful actually for the students who did it then to almost watch it again with our eyes because they were commenting on it as well which is not something that normally happens in the traditional way – they just stand up and get it over with and don't really want to think about it again, but they were quite critical, more so than was appropriate actually. Like – if we did it again, we'd do this bit differently – and so on. Yes, it was very good from that point of view it forced them, well not forced them, it encouraged them all to reflect on what the purpose of such a thing might be and how it could be used so.

Where digital stories are used for reflection the learning may not always be apparent as "narrative models of knowing are models of process in process" (Josselson & Leiblich, 1995, 35). Thus, although the group stories evidenced some, but not high levels, of reflection they were useful as an engaging focus for collaborative reflection. Such a group process at induction is seen as a means of assisting individual students both in reflecting and in entering the higher education student community, although its use does need to be carefully integrated and sufficient time allowed.

McDrury & Alterio (2003: 111) contend that "it does seem that sharing stories encourages a reflective process, especially when storytelling is accompanied by dialogue and occurs in formalised settings". Thus, the reviewing of the digital stories in a formal setting would help "bring about thoughtful and reasoned change to practice" (McDrury & Alterio, 2003: 59). Such a setting, based on the studio / communities of practice model, would allow multiple perspectives to be explored to enhance not only reflective learning, but also assist with the establishment and enrichment of discipline-based cultural learning communities. In such cases the McDrury & Alterio model is likely to provide a more useful means of analysis than has been the case for these examples.

Conclusions

The use of digital storytelling in higher education is still in its infancy but does offer new ways for students to present their work and to reflect upon it. The straightforward technology used does not seem to hamper even the 'digital immigrants' (Prensky, 2001) and students appear to like the product as something that is engaging and something to be proud of. As McDrury & Alterio (2003: 47) note "students find stories appealing if they connect with their own experience" and this technique does offer an opportunity to enable this.

The digital nature of these stories makes them ideal for storage and easy retrieval, thus making them available for review at regular intervals to make personal and group development explicit, and become part of an organised collection of evidence of reflection. This would encourage the acquisition of "learning-about" and "learning-to-be" skills (Brown, 2005) for lifelong learning and the development of skilled twenty first century citizens.

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References

Brown, J.S. (2005) *New learning environments for the 21st Century* http://www.johnseelybrown.com/index.html [Accessed 21 March 2007)

Dewey, J., Boydston, J.A., Baysinger, P. & Murphey, M.G. (1988). *Human nature and conduct*, 1922. Carbondale [etc.]: Southern Illinois University Press.

Jenkins, M. & Lynch, K. (2006) I want to tell you a story …, Proceedings of the 23rd annual ascilite conference, Who's Learning? Whose Technology?, 3–6 December 2006, The University of Sydney, Sydney, Australia

Josselson, R. & Lieblich, A. (1995) *Interpreting experience: the narrative study of lives*. California: Sage Publications.

Lonsdale, J. (2007) Enhancing learning through reflection: experimenting with digital storytelling, Sixth Conference of the CLTR, Research, Development and Innovation to Enhance Learning and Teaching: The First Year University Experience, Edge Hill, 10th May 2007

McDrury, J.& Alterio, M.G. (2003) *Learning through storytelling in higher education: using reflection and experience to improve learning*. London: Kogan Page.

McKillop, C. (2005) *Storytelling grows up: using storytelling as a reflective tool in higher education*. Paper presented at the Scottish Educational Research Association conference (SERA 2005), 24-26 November, 2005, Perth, Scotland

Moon, J.A. (1999) *Reflection in learning and professional development: theory and practice*. London: Kogan Page Ltd.

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*. NCB University Press, 9 (5).

Robinson, J.A. & Hawpe, L. (1986) Narrative thinking as a Heuristic process in Sarbin, T.R. (ed) *Narrative psychology: the storied nature of human conduct*, New York: Praeger.

Schön, D. (1983) *The reflective practitioner: how professionals think in action*. New York: Basic Books.
Schön, D. (1987) *Educating the reflective practitioner*. New York: Jossey Bass.

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