Reflections on reflection: Blogging in undergraduate design studios

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In this paper we describe our experiences introducing weblogs as an online design journal into two design-based IT degrees. We introduced weblogs to support reflection by the students within a studio process. We view this introduction as successful and we have continued using blogs in the subsequent academic year, although we have made some changes to take account of problems with scale, sophistication and effort.

Introduction

In this paper we describe our experiences introducing weblogs as an online reflective design journal. We are working within an IT school, offering two design-based studio-focused degrees, one spanning interaction design and software development, and the other emphasising multimedia design and media production. The degrees differ from most others on the same campus by emphasising face-to-face interaction rather than online learning.

We introduced weblogs to most of our studio courses in 2004. Our students submit a portfolio of their work created in each studio, and we have previously also required submission of a written design journal, reflecting on the work. We decided to introduce blogs instead of the journals, aiming to encourage timely reflection on both process and product, as the work was being done, rather than just before the submission deadline.

Overall we view the introduction of weblogs into our studio courses as successful and we have continued using them in the subsequent academic year. Many students, particularly those in their final year, embraced the concept, heavily customising their blogs and requesting more advanced functionality. The students' progress and process was made explicit by our request that they reflect each week on their planned tasks for the week, what they had achieved, and what they were planning for the coming week. Also, the

blogs provided an alternative voice for some students in the ongoing studio process, which had previously relied on vocal participation in class.

Some of the problems we encountered related to scale, sophistication and effort. Centrally managing 400 blogs was difficult with the blogging tool we used (Movable Type), so we are changing to a different tool this year. We are also exploring more advanced capabilities, such as aggregation of individual blogs into team blogs, or using categories as a mechanism for distinguishing different threads of work. Finally, we have a clearer idea of the substantial staffing implications associated with providing regular feedback on large numbers of student blogs, although these are comparable with weekly review of paper-based journals.

There are a number of other issues we are yet to explore. We did not "eat our own cooking" by blogging ourselves, and some of us are interested in opening up our own reflective practice through blogging. Somewhat related, there is a need for finer-grained distinctions between public and private access to reflective material. Paper journals are typically intensely personal, viewed only by the author and, in an educational context, a small number of assessors. Blogs, in contrast, are fully exposed to public view (except, of course, for draft postings, which are only visible to the author). We believe there is scope for a variety of shades of visibility of online reflective journals, and we plan to explore this issue during the coming year.

In the next section we provide background on the Information Environments Program, including our studio-based teaching model, as the context for our introduction of weblogs. We then describe how we introduced weblogs into studio courses, and then we discuss what we see as the successes and problems. We conclude by discussing related and future work.

Information Environments Program

The Information Environments Program at The University of Queensland offers two design-based studio-focused degrees. The Bachelor of Information Technology, majoring in Interaction Design, previously known as the Bachelor of Information Environments, spans interaction design and software development. The Bachelor of Multimedia Design, in contrast, emphasises multimedia design and media production. The Interaction Design degree was first offered in 1999, and the Multimedia Design degree commenced in 2003, with its first students to graduate at the end of 2005. They are both offered at The University of Queensland's Ipswich campus, but differ from most other degrees on the campus by adopting a teaching approach that emphasises face-to-face interaction rather than online learning.

These degrees are a response to the 1991 *Software Design Manifesto* ([Kapor](#)) in which Mitchell Kapor argued that IT professionals should be educated in design, similarly to architects and other design professionals, and that this education should use a teaching approach similar to the architecture studio. He argued that if you want a house that is well connected to the land, that takes advantage of and blends with the unique natural surrounds, takes advantage of the light and the aspect, and provides special places for your favourite activities, you consult an architect rather than a builder. Whist a builder would ensure the house was structurally sound (Vitruvius's *strength*), an architect would ensure it was suitably designed to meet your needs, take advantage of the site and was aesthetically pleasing (Vitruvius's *utility* and *aesthetic*).

Kapor proposed that studio should consist of directed projects, completed by students

with a deep understanding of both human-computer interaction and digital media. He went on to create a software design course at MIT with William Mitchell in 1995. Sarah Kuhn, one of the supporting staff in that course, documents the characteristics of the architecture studio, originally developed at Ecole des Beaux-Arts in Paris, that were incorporated into that course (Kuhn):

- complex, open-ended questions as starting points
- rapid iteration through design solutions
- a culture of critique
- raising and discussion of heterogeneous issues
- precedents offered as needed
- solutions considering the whole and the user
- productively constrained design process

Both of the Information Environments degrees are structured into three strands that can be characterised as technology, design theory and design practice (or studio). In the Interaction Design degree, the technology stream is the core of the University's Information Technology degree, covering software engineering, discrete mathematics, information systems, operating systems and networking, while the design theory stream introduces the theoretical underpinnings of human computer interaction and interaction design. In the Multimedia Design degree, the technology stream covers multimedia authoring, 3D modeling, and video and audio production, while the design theory stream covers graphic and games design. Students in both degrees complete an introductory course in visual thinking, and a final year course in professional practice.

The studio stream is the defining feature of the two degrees, and students complete a studio course each semester with similar characteristics to those outlined above for Kapor's course. There are two temporal cycles that operate through our degrees: one within each year, and the other through the three years of the degrees. Generally speaking, first semester studios (Studios 1, 3 and 5) are more divergent, emphasising designing and conceptualising, while second semester studios (Studios 2, 4 and 6) tend to be more convergent, emphasising building and resolving. There is also a progression through the years of the degree: first-year studios tend to focus on single-machine, screen-based work, second-year studios focus on distributed non-screen-based work, and third-year studios focus on socially-based work with opportunities for student-generated and student-selected projects working with academic and/or industry advisors.

Two additional features distinguish our approach to studio from Kapor's outlined above: collaborative work and studio as place. Most of our studio courses are taught by teams rather than individuals, providing multiple disciplines and perspectives on the problems being explored. Further, much (but not all) of the work by students is in teams, providing them with experience of managing group issues, tackling larger projects, and the opportunity to both work with and act as mentors and coaches. Also, our studio courses are held in purpose-built spaces, designed to facilitate collaborative approaches to problem-solving. The development of our studio 'places' is ongoing, constantly balancing between the heritage restrictions of our building, the technical requirements of IT services, and the level of flexibility we want to achieve to frame our studio courses.

Studio blogs

The Information Environments Program aims to "live the dream" by actively researching the application of communication and collaboration technologies to both teaching and

research ([Johnson](#), [Brereton](#)). Technologies used at various times for teaching and research in the Program include email, Internet Relay Chat (IRC), text-based collaborative virtual environments (MOO), web-based forums, learning management systems such as WebCT, content management systems such as Plone, instant messaging, the World Wide Web, video- and audio-conferencing, Access Grid, tickertape, wiki and, of course, face-to-face. We have observed that our students prefer synchronous, chaotic environments such as IRC and MOO, over asynchronous, controlled environments, such as WebCT, and that they prefer face-to-face interaction over computer-mediated communication (although this latter may be changing as the number of students increases).

In this technological and pedagogical context, we decided at the start of 2004 to introduce weblogs into our studio courses. It's tempting to claim that we deliberately introduced blogs to foster reflection, and this was certainly a factor in our thinking as indicated by our course descriptions in 2004. However, an additional motivation was an interest in exploring more generally how blogs could and would be used (and appropriated) by our students as part of their work in studio. We have previously required students to maintain and submit a design journal, reflecting on their work throughout the semester. Our experience has been that some, possibly many, students complete this immediately prior to the submission deadline, defeating the aim of developing a reflective practice. Our hope was that blogs, as a temporally ordered digital medium, might be easier for the students to maintain as a basis for reflective practice.

We deployed weblogging software and provided each student with a simple blog with restricted visibility. A colleague installed Movable Type ([Six Apart](#)) which provides management of *authors* and *weblogs*, and then created author identities for two of the authors of this paper with full permisions to create and configure both authors and weblogs. They then established a larger group of studio teaching staff (academics and tutors) as authors. The teaching staff then created and managed a somewhat more restricted author and weblog for each individual student. The restrictions were initially imposed in the interests of simplifying the user experience. Also, The University of Queensland does not permit undergraduate students to have world-visible web pages, so student blogs are only visible on the UQ network. The procedures for creation and editing authors and weblogs were documented in an internal wiki.

From the outset, the ways that we asked students to use their blogs in their studio work varied enormously. The first semester studio courses, Studios 1, 3 and 5, dealt with teething problems and coped with the gap between our expectations of the technology and its realisation.

Studio 1, a combined studio with both Multimedia Design and Interaction Design students, provided a simple introduction to blogging technology by using it within a particular project. The project, *That Really Bugs Me,* requires students to work without a design brief, identifying candidate problems and potential solutions. The candidate problems were posted to individual blogs and assessed as a component of the portfolio submission at the end of the semester.

Studio 3, also a combined studio, used individual blogs to encourage reflection on design practice and participation. Students worked in teams of three through the semester, analysing and designing games based on existing physical games and narratives, with individual blogs assessed within each project, and also in the portfolio at the end of semester.

Studio 5 (Interaction Design only, as only two Multimedia Design cohorts existed in 2004)

used blogs to encourage individual contributions to the studio process, and for gathering research, with comments being used as evidence of providing critical feedback to peers. This studio also involved working in teams, and focused on social interaction. Blogging was assessed as part of a 15% participation component.

The second semester studio courses, Studios 4 and 6, modified the use of blogs, albeit in quite different ways. All three studios covered weekly achievements and plans, but differed in their focus on overall process and the associated assessment. Blogs were not used in either of the Studio 2 courses.

In Multimedia Design Studio 4, students worked in teams through a complete design and implementation process, mainly producing screen-based content from a short list of topics. Blogs were reviewed weekly as a 10% assessment component, and were suggested for use as a resource for final portfolio. Students were asked to post weekly entries reflecting on their design processes and progress:

- what was achieved during the week?
- what changes were made in the decision making process?
- why were these changes implemented?
- what thought processes are involved in these changes?
- how effective are the structures you've set up to work within and what needs changing?
- plans for the coming week/deadline

Interaction Design Studio 4 also required weekly posts, also looking at weekly achievements and plans, with encouragement to use blogs as a resource for portfolio. Students were required to post to their blogs for at least 80% of the weeks in the course to pass, briefly outlining:

- what was achieved during the week?
- reconciliation of what was planned with what was achieved
- plans for the coming week
- any questions or problems

Studio 6 (again, only Interaction Design) is a capstone project, with students working individually on projects negotiated with Program academics who then act as advisors (not unlike a scaled down Honours project). Studio 6 also adopted a more structured approach to fostering reflection, asking students to post weekly outlining:

- what had been planned for the previous week?
- what had been achieved?
- what was planned for the coming week?

Students were encouraged to post other items, questions, resources and insights to their blogs, again as a resource for their portfolios. As for Studio 5, the Studio 6 blogs were assessed as part of a 15% participation component.

In summary, we deployed Movable Type to foster reflection and to see how the students appropriated blogging technology in a studio context. We asked the students to post at least weekly, except for Studio 1 where they were asked to post at least once in the semester. Blogging was variously assessed:

- informally through other assessment components
- formally through other assessment components

- as a separate assessment component, and
- as a gatekeeper but without contributing directly to summative assessment

In terms of content, we asked students to use their blogs to variously:

- present the content of a particular project
- document their plans and progress
- reflect on their design process
- reflect on their participation and contribution
- gather resources for their projects and portfolio

Discussion

Overall we view the introduction of blogs into our studio courses as successful and we are continuing to use them in the new academic year. Many students, particularly those in later years, embraced the concept, heavily customising their blogs and requesting access to more advanced functionality (which was enabled as a result). The students' progress and process was made explicit by our request that they reflect each week on their planned tasks for the week, what they had achieved, and what they were planning for the coming week. Also, the blogs provided an alternative voice for some students, particularly some who were not native English speakers, in the ongoing studio process, which had previously emphasised vocal participation in class.

There were a number of problems that arose from our use of Movable Type, some of which may not arise with versions later than the one we deployed (2.661). Movable Type appears to be intended for a less constrained environment, typically deployed by an individual rather than by a larger organisation hosting 400 blogs. Storage of configuration information in Berkeley DB files made command-line access for batch operations and debugging difficult. Creation and management through the web interface was time-consuming, particularly for the initial set of authors and weblogs, and we were unable to provide single sign-on access which is available on other systems our students use. The hierarchy of author and weblog creation made debugging and maintenance extremely difficult and we deployed MT-Medic (Riha) to assist with this task, enabling us to work around the creation hierarchy (repairing several bugs in MT-Medic in the process).

In 2005 we are resolving these issues by moving from Movable Type to blojsom (Czarnecki), a Java-based blosxom (Dornfest) variant designed for multi-blog, multi-user deployment. Blogs for new students are only being created in blojsom, while continuing students are using their existing Movable Type blogs until the end of first semester when they will be moved over to blojsom. We expect that this will improve our ability to aggregate individual blogs into team, project and course blogs and feeds, as well as providing richer plugin, filtering, categorisation and tagging functionality.

The effort involved in ongoing assessment of weekly blogs is substantial. Our studio courses have up to 80 students, and studio courses that mandate weekly blogs allocate significant resources for summative and formative assessment of blogs. Averaging five minutes per blog for reading and commenting requires almost seven hours of tutor time per week in a large studio course. Of course, a similar allocation is required for weekly review of paper-based design journals, with the added problems of physical submission, bulk and scheduling, compared to online blog-based journals.

We are concerned about the lack of world-visibility of our students' blogs but we are still

considering how to resolve this issue. We provided a central service as a way to provide consistency and to integrate student blogging into our other services, such as file storage, backup, portfolio and so on. However, due to the restricted visibility, further to University policy, our students are not linked into the wider blogosphere. This is particularly problematic in courses where we are asking the students to use their blogs as a resource to define themselves with respect to the wider field in which they're working, with the definition being entirely one-way due to restricted visibility. One option is to simply aggregate blogs the students establish externally, providing choice as well as visibility. However, this raises issues of equity, as well as losing the consistency and integration we currently have as a result of the central service.

There is a need for finer-grained distinctions between public and private access to reflective material in weblog technology. Paper journals are typically intensely personal, viewed only by the author and, in an educational context, a small number of assessors. Blogs, in contrast, are fully exposed to public view (except, of course, for draft postings, which are only visible to the author), with "public" defined in our case as the users of the University of Queensland network. We believe there is scope for a variety of shades of visibility of online reflective journals, and we plan to explore this issue during the coming year.

We did not "eat our own cooking" by blogging ourselves, and some of us are interested in opening up our own reflective practice through blogging. This hasn't happened to date mainly due to the lack of time imposed by relatively high teaching loads, working across multiple campuses and other pressures typical of academic work.

In summary, we are pleased with the results of introducing blogs into our studio courses, but there are a number of issues to be resolved. We encountered problems using Movable Type, which we are resolving by moving to blojsom. We have identified and accommodated staffing implications of using blogs, and we are continuing to consider issues of visibility, granularity and "eating our own cooking".

Conclusion

In this paper we have described our experiences introducing weblogs as an online design journal into two design-based IT degrees. We introduced weblogs to support reflection by the students within a studio process, and to observe how they appropriated the technology. We view the experiment as successful and we have continued using blogs in the subsequent academic year, although we have made some changes to take account of problems with scale, sophistication and effort.

Although there is an emerging literature on the use of weblogs in higher education, see for example (Williams), there has been little published on the use of blogs in design training (although we are aware, anecdotally, of deployments in design schools at two other Australian universities). The closest work of which we are aware is that of Fiedler, who argues that personal web publishing technologies, particularly weblogs, are useful as reflective conversational tools for learning (Fiedler). He describes how such technologies support the defined aspects of conversational tools:

- recording and representing one's personal patterns of meaning or actions
  through temporal flow of events and incorporation of text, other media, links and metadata
- reflecting upon the representations
  through temporality and history

- reiterating this process of explication and reflection
  through RSS, commenting, trackbacks and aggregation
- shifting from a task-focused level to a learning-focused level of awareness
  through manipulability, and an innately reflective, informal, personal style
- supporting the construction of a personal mini-language to converse about process of
  learning
  through the language of blogging
- supporting the gradual internalization of the tool
  not applicable - too early to consider

This provides a useful theoretical basis for the use of blogs within our own studio pedagogy, which has its origins in social constructivism, applied to using technology in higher education ([Docherty](#)). Fiedler is concerned with externalising the learner's internal conversation, and formalising the learner's external conversation with a learning coach. In the studio process, the conversations are between the participants in the process ([Schön 1987](#)), and also between individual and groups of participants and the materials of the design ([Schön 1992](#)). Our longer term aim with the use of weblogs in studios is to explore extensions that approximate the fluency of a shared paper-based journal, as a basis for the serendipitous *backtalk* that reveals unanticipated problems or surprise opportunities. We believe that this fluency is crucial to the development of a reflective practice, and to fostering appropriation of the technology for unintended uses.

References

Brereton, Margot, Jared Donovan and Stephen Viller. "Talking about watching: Using the video card game and wiki-web technology to engage IT students in developing observational skills" *Australasian Computing Education* ACS 197-205 2003

Czarnecki, David. *blojsom* http://www.blojsom.org

Dornfest, Rael. *blosxom* http://www.blosxom.com

Docherty, Michael, Peter Sutton, Margot Brereton and Simon Kaplan. "An innovative design and studio-based CS degree" *Computer Science Education* ACM 233-237 2001

Fiedler, Sebastian. "Personal webpublishing as a reflective conversational tool for self-organized learning" *BlogTalks* 190-216 2003

Johnson, Daniel, Peter Sutton and Josiah Poon. "Face-to-face vs. CMC: Student communication in a technologically rich learning environment" *ASCILITE* 2000

Kapor, Mitchell. "A software design manifesto" *Dr Dobb's Journal* 16.1:62-67 1991 (reprinted in *Bringing Design to Software*, ACM Press 1996 1-6)

Kuhn, Sarah. "The software design studio: An exploration" *IEEE Software* 15.2:65-71 1998

Riha, Stephan. *MT-Medic* http://www.nonplus.net/software/mt/MT-Medic.htm

Schön, Donald. *Educating the reflective practitioner* Jossey-Bass 1987

Schön, Donald "Design as a reflective conversation with the materials of a design situation" *Knowledge-Based Systems* 5.1:3-14 1992.

Six Apart. *Movable Type* http://www.sixapart.com/Movable Type/

Williams, Jeremy and Joanne Jacobs. "Exploring the use of blogs as learning spaces in the higher education sector" *Australasian Journal of Educational Technology* 20.2:232-247 2004