DEVELOPING THE A+B/ONLINE VIRTUAL GALLERY

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Abstract. The a+b/online project is an exemplar of a comprehensive online resource that includes Virtual Galleries, resources, digital case studies and an image repository (http://www.ab.deakin.edu.au/online). Throughout its development since 2001, the project has expanded to include several thousand digital objects. This paper discusses the development of the a+b/online site and outlines some of the issues associated with its development. The current state of the project is discussed in relation to the current paradigm of citizen media including blogs.

Background

The 'a+b/online' virtual gallery for the School of Architecture and Building at Deakin University was an outcome of a nationally funded curriculum development project. From 2000-2002, Deakin University School of Architecture and Building and the University of Adelaide School of Architecture, Landscape Architecture and Urban Design undertook a collaborative project funded by the Committee for University Teaching and Staff Development (CUTSD). This project, entitled 'Reflective Making: Higher Order Learning in Early Tertiary Architectural Education', had the following anticipated outcomes for the participating schools;

1. A new learning culture which expects, encourages and rewards innovative and wise use of computers in student designing
2. Two distinct curricula, one in each school, embodying reflection-in-action, design making and innovative computing

and the following anticipated outcomes for students;

1. Early inclusion of reflection-in-actionls;
2. Broad inclusion of designing construction in architectural designls;
3. Ability to adapt computer-aided design and related computer systems within a design process" (Radford et. al. 1999)

In this project, both universities developed digital curriculum and resources to support learning and teaching for architecture and construction management courses. Digital 'Games', and 'Digital Projects' were introduced into units in design and technology commencing in 2001 and continuing to this day. The outcome of this digital curriculum was the submission by students of thousands of digital files, including web pages, PowerPoint shows, movies and digital images. Each year approximately 450 digital projects were delivered, submitted and assessed digitally. Students engaged in digital curriculum undertook a rapid learning curve in the selection of appropriate (digital, physical and hybrid) media for different purposes, the use of digital tools and issues associated with representation of architectural design (refer Challis 2002, Ham et. al 2002, Ham 2003).

This paper focusses on the issues associated with the development of the a+b/online Virtual Gallery (see http://www.ab.deakin.edu.au/online) from 2001 to present. From the pilot virtual gallery, created by CUTSD-funded students during the 'Summer Games' period, through several iterations to the current database version and looking forward to the use of citizen

media to support design education in the form of blogs and online resources external to the University. The various phases of the project are outlined in Figure 1, below.

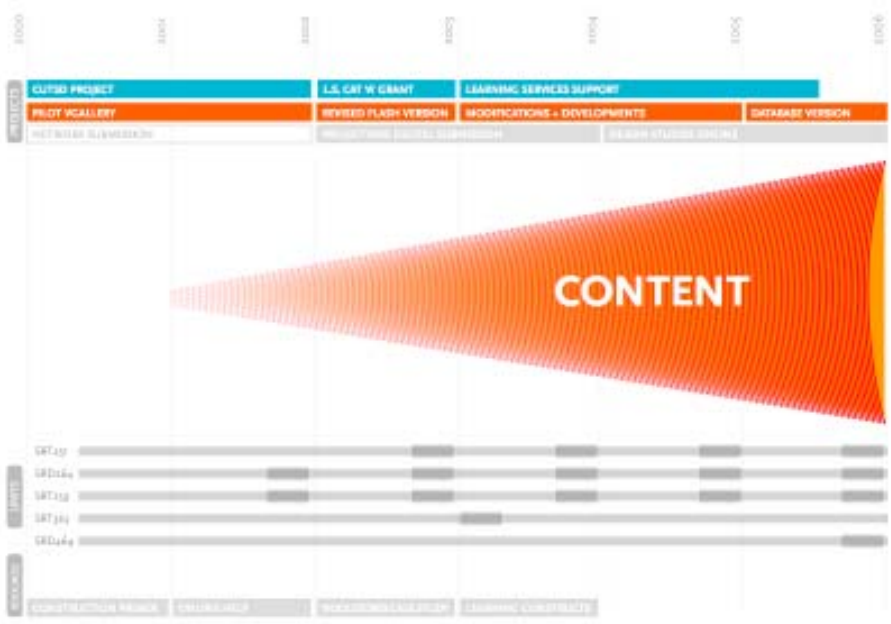

Figure 1. Timeline of Development of the a+b/Online Virtual Gallery.

The Pilot Virtual Gallery

An intended outcome of the CUTSD project was to create an 'Online Treasury' of digital information to support student learning. This intention was, however, unrealised due to the departure of key staff, the complexity of achieving project aims relative to perceived benefits and project funding and the development of a wider repository by team members.
In 2001, the CUTSD project at Deakin focused on the achievable aim of the development of a series of Games for second year construction technology and design units (see Ham 2002, Woodbury et. al 2001). In order to realize the potential of student work being available as a resource for peer learning CUTSD funds were used to employ students to develop the pilot Virtual Gallery. This pilot Virtual gallery was undertaken manually, using flash and HTML. Digital Projects were delivered online, whilst students undertook their project in digital form, then submitted to the network or (from 2002 to 2004) to the ProjectWise database. From here, digital files were manually linked to student name listing on an Excel spreadsheet, exported to html then manually linked to the Virtual Gallery page.
The a+b/online site contained the following:
1. Several galleries of students' digital projects listed in order of year, unit and student name;
2. Online resources such as the pre-existing Construction Primer (Burry et. al 2001), the Woolstores Online Case Study (Ham et. Al. 2003) (see figure 2) and the Learning Constructs Online Case Study (Challis and Langston 2003)
3. Tutorials for using computer programs for digital projects

Figure 2. Deakin Woolstores Multimedia Case Study

The a+b/online Virtual gallery was used by students primarily as an online gallery of student work for peer review and benchmarking and as an information source on construction technology for design projects. For staff, the Virtual Gallery served as a repository of student work for assessment, comparison of responses, to assist in the ongoing development of academic programs and as evidence of high-quality output for several University and national teaching excellence awards.

Previous papers have discussed the issues of managing large numbers of digital files in this form, and alluded to the redundancy of such a labour-intensive approach and the absence of continued funding to support the initiative. The experience of using this system enabled a steep learning curve in managing digital resources for design education. Naming protocols, digital recalcitrance, staff and student's digital experience, the adaptability of technology, issues of security versus access, copyright issues, assessment, plagiarism, file sizes, available infrastructure and support from the University all represented significant issues for the digital curriculum initiative. These are discussed in full in Ham and Dawson (2004).

From 2001, the project team wanted to create a semi-automated online Virtual Gallery where galleries are populated directly from digital submissions. A pilot version of this was developed in 2002 by Sambit Datta, however was not extended to manage the large numbers of files required. In 2002, the School was awarded an internal competitive grant entitled 'Engaging Students with the Industry: IT-Enhanced Resource Creation for Architecture and Construction Management'. The digital curriculum initiative received further support through Deakin's Learning Services and Knowledge Media divisions. Although the grant called for a semi-automated system of Virtual Gallery creation, funding was instead allocated to University staff manually linking digital files to galleries. This low-tech approach served the short-term goal of populating the galleries, but meant that the long-term goal of an enduring solution to gallery creation remained unrealised.

The current a+b/online Virtual Gallery

After three years of frustrating manual gallery management, the current version of the a+b/ Online Virtual gallery was developed in 2005. Technical development was led by School IT staff member, Russell Greenwood and supported by student content creators, David Keele and Michael Sharman. The aim was to expand the usability of the existing Virtual Gallery and reduce the time and effort associated with the population of online galleries. The a+b/ online gallery serves as a small-scale exemplar of a workable digital repository developed on a very small budget

The aim of the current gallery is to improve the usability, accessibility, functionality and aesthetics of previous virtual galleries. The webform-based interface allows students and staff to upload digital files to the database, thus saving on the time-wasting process of manually linking html files to the gallery. The process requires students to create a thumbnail image for their project, provide details on unit, student and project names and a list of searchable keywords for the database (Figure 3).

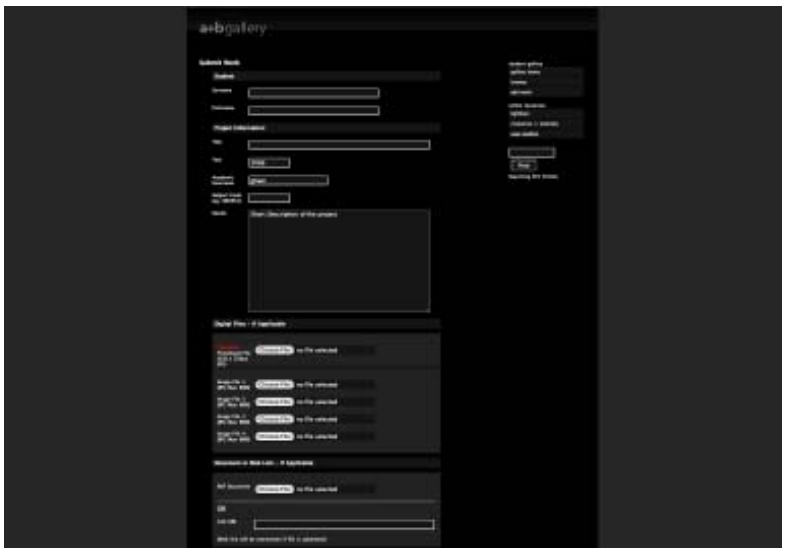

Figure 3. Submission system interface

The database-driven search engine enhances student and staff ability to search for digital files by year, subject, student name and project name. This is an important development, given the 921 student projects in the database over 6 units in 6 years and approximately 15 projects. Students use the Virtual Gallery to benchmark their own design work in terms of quality, standards and expectations of projects. Construction technology projects are used as a valuable reference for design projects and to assist students in the selection of construction systems and detailing. This is the outcome of a number of projects set in 2002 and 2003 specifically to create resources for design education (see Ham et. al 2002). This paradigm of design education provides additional value for student work by allowing students to be both learners and providers of information for design-decision support- a principal attribute of the ‘Construction Primer’ developed by Prof. Mark Burry.

THE LIGHTBOX

The aim of the Lightbox is to provide both students and staff with copyright-free images for use in lectures and to support learning. The Lightbox is an online repository of approximately

1400 copyright-free images of notable buildings, building elements such as windows, doors and construction details (see figure 4). Most images are of buildings designed by internationally recognised architects taken from the author's collection.

Figure 4. a+b Lightbox Interface

Images in the Lightbox are tagged, allowing searching by building name, architect, year and city, as well as by different elements and materials. Primary digital images were uploaded during the summer by two students employed by the school, with the intention of creating a critical mass of images and to test viability of the concept. The intention was for further population to be undertaken by staff by individually uploading images to the database from their private collections. The paradigm here is for sharing of information based on the sharing of extensive personal collections.

To foster a sense of involvement by the students, small projects were set in construction and photography units requiring students to photograph construction details and building elements from notable buildings in Melbourne and Geelong. This resulted in the addition of several hundred images added to the database and proving the workability of the concept of student participation in the project.

Issues associated with developing the a+b/online site

In the 6 years of developing the a+b/online site, a number of issues relating to the development, operation, maintenance and use of the site have arisen. The paradigm of the retention of digital information on a school-basis to support design education has required significant efforts from the author, support staff and the school over the development period. Firstly, the infrastructure to support the project requires a school-based server and readily available IT support staff to maintain the server. This requires an ongoing investment for the initial purchase of the server and maintenance in a time when the University IT department is shutting down school-based servers.

Significant issues for the project are copyright, ownership of digital material and the potential for plagiarism. At this institution, copyright of student work remains with individual students. With the assistance of Deakin's Learning Services department, copyright pro-forma's have been developed to release student digital work for the Virtual Gallery. The potential exists for students to integrate copyrighted material into digital submissions. Management of this needs to be part of both project writing guidelines and assessment procedures. The desire of students to have their work incorporated in the Virtual Gallery is used as leverage to assist in the reduction of copyrighted material within projects- assisted by enforcement of University copyright regulations.

In the absence of School-led policy, few academic staff have integrated digital design education into their courses. The stated aim of the CUTSD project of a curriculum 'embodying reflection-in-action, design making and innovative computing' (Radford et. Al 1999) thus has not been realized. The culture of traditional delivery, submission and assessment of design, history and technology projects still largely pervades the School. In the majority of units, projects are still delivered using the same methods employed by the Beaux Arts of over 100 years prior, where design problems started with an *esquisse*, or sketch problem, and ended *en charrette* (in cart) for review by studio masters (Schon,1985).

Some staff have utilized digital media in resources to support their teaching, but in some cases have developed high-quality CD-ROM's only as a resource, without integrating this into the CUTSD-proposed model of digital delivery, submission and assessment. Other staff have delivered technology projects that result in students submitting high-quality detailed information on building services on CD-ROM, only to retain this information 'in-house' and not making it available as an online resource. Several other instances have occurred where a traditional educational culture has resulted in significant lost opportunity.

Student engagement in the a+b/online site has been variable over the 6 year development period. In the early stages, students resisted the immersion into digital culture. In 2001 even using PowerPoint was considered an additional burden for time-poor students. The use of 3D CAD and web-pages in CUTSD 'Games' in 2001 was a precursor to their current ubiquitous use in design and technology units. Retention for the Virtual Gallery is achieved through scans or pdf's of physical posters. The student digital culture has expanded greatly since 2001, however staff largely remain trapped inside the traditional mode of design, delivery, submission and assessment. Notably, the quality of student submissions to the Virtual Gallery has remained fairly constant since 2001- even though the ubiquity, price and capabilities of computing hardware and software have greatly expanded.

Since it's inception in 2001, however the onset of citizen media has challenged the viability of in-house solutions to the retention of digital information. The ubiquity of sites such as Flickr.com, Blogger.com, Facebook.com and Myspace.com has challenged the base idea of the a+b/online site.

Since 2004, the author has engaged in student-authored blogs in four units in design and construction technology. Blogs have been used as a means for students to post their work, reflect on the process and outcome of design projects, encourage peer learning and review and the provision of information to support design education. The a+b/online site still serves as the primary linkage point for the blogs, however all digital information is hosted off-site. This saves on server space and resolves a number of the issues outlined above. Clearly, some combination of on-site and off-site hosting of digital information is the future for this initiative. These will form the subject of future papers.

Conclusions

The a+b/online site serves as an exemplar of an in-house solution to the retention of digital information to support student learning. Throughout its development over 6 years, the site has expanded to include significant numbers of digital files across a broad range of projects in various formats.

Overall, the a+b/online Virtual Gallery has been used for peer learning, review and benchmarking and was undertaken with minimal University budget, but requiring significant effort from the project team. Schools considering in-house galleries of this type would benefit greatly from similar galleries. This would be achieved much more easily in collaboration with computing departments or through the use of highly- skilled IT staff throughout the project.

Acknowledgements

The author would like to acknowledge the support of Russ Greenwood, John Stabb and Shane Warren from Deakin School of Architecture and Building, students David Keele and Michael Sharman in content creation as well as the many students who contributed their fine work to the Virtual Gallery.

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