

Online, off-line, teaching in between the lines

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Abstract

Some proponents of online teaching seem captivated by new digital technologies, network-based services and media-rich resources. But yielding to technocentric imperatives is usually a poor start to curriculum design in higher education. In this presentation we sketch out how we designed and orchestrated a large subject where various forms of online (and decidedly off-line) technologies were garnered for clear pedagogical purposes. Based on feedback from students and teaching staff we reflect on the deep structural elements of the unit, including:

- *the structured lecture series that introduced dilemmas, analysed the issues theoretically, and then sought case study embodiment of good practice;*
- *an inquiry-based collaborative assignment (webquest) that introduced students to critical and reflective academic-like writing; and*
- *cornerstone videos: a series of interviews with practitioners in the field that lead to extended conversations about practical issues.*

Keywords

Webquest, inquiry-based learning, group work

Introduction

It is commonly thought that teaching in new times requires new approaches. This paper will cautiously argue that what is required is more a reappropriation of old approaches where what is most valued in teaching and learning is, in fact, enhanced by the affordances provided by information and communications technologies. Neither teaching nor learning are technocentric activities, although some proponents of online teaching seem so captivated by new digital technologies, network-based services and media-rich resources that the social emphasis is elided. Teaching and learning have always been multimodal and new technologies have formalised this, and in so doing have acted to mediate the interaction between teachers and students, students and students, and students and content.

This paper will describe the structural elements of *EDB006: Learning Networks*, an undergraduate core unit within the Faculty of Education, QUT, in which social networks were mediated by the technical, and the technical were humanised and made purposeful by the social. These structures are the 'lines' of the title of this paper and metaphorically represent our belief (after Lechner, 1998) that learning happens in the spaces between people, and in this context, in the spaces between the lines of direct and technologically mediated experience. The lines are:

- the webquest which formed the major assessment of the unit and provided organisation and sequence for unit activities;
- the lecture series which presented the unit content and which modelled the use of the structural elements of the unit; and
- the cornerstone videos which supported the lecture series but which enacted the socio-technical network underpinning the unit's aim.

The webquest as context for learning

Webquests were first developed at San Diego University in 1995 (see Dodge, 1998; Molebash, Dodge, Bell, Mason & Irving, n.d., Shrock, 2000). A webquest is a structured inquiry based primarily on resources from the Internet. The inquiry is conducted by a group in which each group member adopts the role of an expert. The purpose of the inquiry is to investigate an open-ended topic or contemporary issue. In this it mirrors the real-world function of expert groups, advisory teams or think tanks. Its underlying learning skills are concerned with critical literacy, negotiation of meaning and social construction of understanding. Taylor (2001) offered that the products generated by student webquests demonstrate synthesis and other higher-order thinking skills. In defining webquests, Fiedler (2002) suggested that what distinguished the central question of a webquest was that it was ‘real, relevant, and frequently complex, inviting examination from multiple perspectives and requiring higher-order thinking’ (p. 3). For Fiedler (2002), the higher-order thinking encouraged by a webquest activity had to be scaffolded and the tools to achieve this included resource links, templates for student products and guidance. For us, the webquest provided both the context for the explicit application of these thinking skills, and an organisational context for the scaffolding of embedded ICT skills.

Our purposes in using webquests differed from their typical use in schools, that is, where students are given a set problem with a list of predetermined roles to fill (see <http://edweb.sdsu.edu/webquest/matrix.html>); and their typical use in undergraduate preservice education courses where students author webquests (Taylor, 2001). In *EDB006: Learning Networks*, the webquest became a hybrid activity where students acted as both participants and authors. The webquest was the prime assessment task in the unit and also served as its organising activity. It represented, for us as course designers, an ideal vehicle for embodying the central aims of the unit and, more globally, the TPAs (Teacher Professional Attributes) espoused by the course.

This hybridisation was our first act of reappropriation in this unit where technologies (including the webquest as a learning technology) was altered to meet determined needs. The overarching need was for students to be directly involved in a learning network—a collaborative group environment with both face-to-face and virtual mediation. The corollary needs were the provision of a vehicle for critical literacy and an enactment of constructivist learning. It also allowed us to model practice in schools, particularly in the authentic integration of ICTs into the curriculum. We agreed with the contention that preservice teachers need to be educated through models that emphasise learning with technology rather than learning from technology (Doering, Hughes & Huffman, 2003). We also believed that merely learning about technology would be of little long-term benefit in their work as students and their future role as teachers. In short, the modified webquest we offered to the students and scaffolded through the tutorials was a praxis where practice and theory were explicitly interdependent. This made the assessment truly reflective of the unit aims and content and allowed for meaningful reflection throughout the unit. What we created is arguably closer in spirit and intent to the Web Inquiry Project (WIP) suggested by Molebash, Dodge, Bell, Mason & Irving (n.d.) because of its focus on higher-order thinking through open inquiry.

Our original intention was for students to present the findings of their webquest inquiry as a series of interconnected web pages, that is, as a web ring. Individual pages were to be constructed using proprietary WYSIWYG software. Discussions with QUT’s Teaching and Learning Support Services (TALSS) group served to change this and the second of our reappropriations occurred. Templates were built which would structure and standardise the posting of the webquest findings to QUT’s Online Learning and Teaching (OLT) site. The configuration was of a star (as opposed to a ring) with a central file (or ‘hub’) becoming the key to the group presentation. We benefited from the support of TALSS in making this happen and ensuring that, in this instance, the pedagogy drove the technology. The reverse is often the norm and the technology acts as a rate step determinant to how learners interact with each other and the content under review. The technology here became the context for learning.

As an exercise in academic preparation, and with the understanding that *EDB006: Learning Networks* was a first-year foundation core unit, the webquest afforded differing writing genres. The first was within the role of expert where students were required to maintain a neutral voice and to seamlessly embed external links to enhance the text. The second was seen in the personal reflections where they were encouraged to comment on different affective experiences (informed by the unit content). The third was the adoption of academic conventions in meeting word lengths and using correct referencing. An oral presentation completed the investigation which was not assessed but which represented a closure to the project with groups sharing their findings with their peers.

The intent had always been an electronic submission with students having to not only engage with electronic texts in this unit but also to author them. The WISWYG environment would have simplified this in some ways and the shift to OLT forced us to include some teaching of HTML tags and changed the way students worked (particularly in the creation and maintenance of image folders). This was an unexpected bonus as some students enjoyed the additional challenge of coding and there was a great deal of peer teaching observed in laboratory sessions. It is of enormous interest to view the completed webquests (112 in all) and to note that, despite the ‘vanilla’ nature of the pages and the strictures of the set templates, the completed stars were original, diverse and distinctive. Students chose images (and montages of images) which represented the essence of their investigation and further differences were marked with the titles and subtitles given to their reports.

Student responses to the webquest activity were overwhelmingly positive (through both anonymous internal Student Evaluations of Units (SEUs) and Web OnLine Feedback (WOLF)). There were only six requests for assignment extension (in a cohort of 580 students) and only three experienced difficulty in posting their reports to the OLT site. The technology was robust and the templates were clearly structured. These afforded a transparency of technology and allowed for unimpeded expression of ideas. On a logistical level, it also allowed a true flexibility of access as students worked through the OLT web interface from both on- and off-campus at times which suited their lifestyle and commitments. For us, the webquest was an important structural component of the unit, not merely the addenda which assessment frequently is. Our appropriation of it was, as here described, done to meet our pedagogical objectives. Our appropriation (with the support of OLT) of technology to meet the demands of the webquest is a demonstration of how pedagogy remains the critical determinant, and how the ‘right’ technology is a concomitant of curriculum design (and not vice versa). This paper will now consider the lecture program and how it, too, was appropriated into the achievement of our educational objectives.

The lecture program as 'progressive revealing'

As an identifiable element in teaching, the lecture is surprisingly resilient since it has survived and adapted only slowly to outside influences over an extended period of time (Brothen, 1998). Yet it now faces great pressure from a variety of sources, including student expectation, alternative pedagogical approaches and technological change. Students will vote with their feet when faced with boring monologues, impenetrable theory or ‘delivery’ in a popular culture increasingly characterised by participation and interactivity. Recent educational practice, such as problem-based learning, situated learning, and constructivism now compete as alternative models for pedagogical design and, in doing so, sideline didactic approaches characterised by a ‘delivery’ mindset. Finally, the affordances provided by technological change throw up all sorts of alternatives to the standard lecture series, from wholly virtual programs based on digital resources and mediated dialogue to various forms of augmentation (such as the use of multimedia cornerstone interviews—to be discussed in detail in the next section of this paper). The design of the *EDB006: Learning Networks* lecture program was influenced by all of these factors and culminated in an approach we called ‘progressive revealing’.

Progressive revealing is the label that we use to distinguish how our lecture program was designed in contrast to more traditional approaches. It is unlike approaches which emphasise delivery and whose content follows a textbook-style elaboration of topics taken from a discipline's epistemology. We also shy away from models that are based on visits by specialist guests who offer a smorgasbord of (often discontinuous) ‘expert’ knowledge. In contrast, our approach is based on three phases, spread out over the semester. For each general topic we cover, the phases progress from:

- the presentation of field dilemmas in order to evoke discordance and inquiry;
- the introduction of relevant theoretical models and tools of analysis;

and are rounded off by:

- an exemplification, from real-world case studies, of theory-based solutions.

In the dilemma presentation phase, students were confronted with problems often sourced from their prospective discipline field. The lectures served to reveal the nature and magnitude of the problem and set up conditions for discussion, debate and reflection. The dilemmas were chosen for their relevance (for themselves as either future-professionals or current-students); their deceptive simplicity and their accessible linkage to theoretical constructs which we subsequently cover. For example, we began the lecture program with an interview of a teacher dealing with the problem of (digital) plagiarism in a secondary school context. As undergraduate students faced with reading and writing digital texts, and as prospective teachers regulating the activities of their students, the dilemma (of what to do) was doubly relevant. And while such strategies as precise definitions, harsh penalties, automated plagiarism detectors

may seem obvious responses, the complexities of attribution and the existence of problem-solving social networks tend to complicate these simplistic solutions. Surprisingly, as a topic, plagiarism lends itself to a theoretical study of how *information* is shaped by communities of practice into *knowledge*.

In the second phase, we introduced our students to theoretical constructs that enabled them to actively deal with the fundamental components of the subject (namely, the nature of information, networks, and learning theories). These constructions (sourced from accessible literature) included conceptual definitions, models, explaining theories, analytic tools and conventional practices. For example, we established the utility of Harris' (1997) CARS schema (Credibility, Accuracy, Reasonableness, Support) for the evaluation of Internet sources. This schema combines a set of defined terms along with a group of heuristic prompts, designed to promote applied critical thinking when interpreting resources which are available through unregulated networks. Thus, the CARS schema, as a theoretical construct, equipped our students to deal with dilemmas that had been raised in the previous phase.

In the third phase of the lecture program we presented students with a variety of case studies from the field. These cases:

- demonstrated successful, practical solutions or explorations that were 'available' for theoretical analysis (with the conceptual tools we had previously provided);
- became the basis of discriminating assessment items that tested students' ability to synthesise knowledge at a high level; and
- modelled an approach to inquiry and action in their chosen profession that was consistent with the Teacher Practitioner Attributes (TPAs).

For example, in one lecture we incorporated a real-time video connection to the classroom of a teacher involved in the *Reach-In Reach-Out Project* which connects the families of Lockhart River with their secondary school age children who have left the community to attend boarding schools in Townsville, Cairns, Herberton and Brisbane (Williams, n.d.). This exemplar was not only motivating because of its use of novel technology and professional relevance, it also served to expose a 'real' *learning network* that our students could analyse theoretically. In a sense, the exemplification stage of the lecture program closed the circle by returning our students to an examination of practice, but this time armed with some appropriate theoretical tools to promote and assist critical thinking.

The affordances provided by online technologies were vitally important in the design of this lecture program. For example, the technologies enabled a sense of *continuity* in a subject with no books and few tangible resources. The web site provided *ubiquitous access* to lecture outlines and details (always prior to the lecture) and to streamed recordings of the lectures (in the following day from the unit web site and on borrowable media). Importantly, communication archives and pre-recorded cornerstone interviews preserved and made explicit the linkages between the three phases. Feedback from students included frequent reference to the ease of accessibility of these resources (from varied locations) and how they served as a useful consolidation of student learning.

Of course, the three phases to our lecture program were not as neat as the above description would suggest. Different stages in different topics overlapped in time. The linkage between the different phases was not strict. Some theory 'dangled' without clear application and some students did not make the connections that we thought were obvious. Nevertheless, as a design principle sitting behind the lecture program, progressive revealing was quite powerful, especially when combined with adequate online technologies. It firmly established coherency and purpose for effective student learning.

The next section of this paper is concerned with the cornerstone videos, or field conversations, we appropriated as a means to exemplify a learning network and to model the social construction of knowledge. The processes to create and stream these videos had emerged from a *Flexible Pedagogies Project* within the Faculty of Education, which concluded in 2002.

Cornerstone field conversations

As well as being a research method, case studies are frequently used for pedagogical purposes, particularly in higher education contexts. Examples from professional domains can be designed to set up powerful and relevant learning experiences for undergraduate students. In the past, technological constraints have meant that case studies had to be expressed in texts, or if the cases were captured on film, cost and availability constraints lessened their effectiveness. Recently, convergent digital technologies (such as inexpensive digital video cameras, video editing software, media players, streaming servers and online content handlers) has both lowered entry costs and allowed for the rapid production of video content.

In *EDB006: Learning Networks* we have explored and developed a pedagogical device which we have labelled *cornerstone field conversations* that exploit the affordances that digital video provides. Cornerstone field conversations are made up of two interwoven parts. The first part consists of a collection of video vignettes which we collected by interviewing practitioners in the field (where possible). The vignettes are video clips of less than three minutes duration, which illustrate an important topic, expose the treatment of a difficult issue or tell an illuminative story. The second part is an extended and deliberately attenuated sequence of discussions that take place between course participants (students, tutors and lecturers) and the field practitioner. These discussions are sometimes proximate (that is, face-to-face discussions in a tutorial class) and sometimes conducted asynchronously through web-based forums and pages. The student-interviewee discussion is attenuated because it is carried out indirectly (moderated by student-peers, tutors and lecturers) and spread out over time (sometimes over a month). The cornerstone conversations fit neatly into the progressive revealing structure of the accompanying lecture program. They are primarily used to raise real-world dilemmas that later become the basis for theoretical analysis. The interviews are ideal for this purpose because they deal with issues that are focused, timely and relevant. And because the mediated discussion promotes a professional conversation, it becomes the basis of a learning network.

Our students experienced six interdependent actions as they progress through a number of cornerstone field interviews held over the semester:

1. General issues are raised in the lecture (for example, ubiquitous access to unregulated data sources).
2. Some video vignettes are played during the lecture to reveal dilemmas (for example, a teacher explains the difficulty of dealing with 'cheat' sites that assist plagiarism).
3. Students view other video vignettes individually and complete related activities (for example, using a word processor's *AutoSummarise* feature to experiment with digital plagiarism).
4. Tutorial classes discuss the video vignettes and agree on questions to put to the practitioner (for example, one tutorial group asked, 'At what point does working from another source become plagiarism? Is it learning something and putting it into your own words?')
5. Potential questions from each tutorial group are pooled, condensed, edited and distilled into a small number of questions which are put to the interviewed practitioner who prepares answers to them. For example:

That is a really good question. Technically the breach of copyright is something like 10% of the work but plagiarism is deliberately taking someone's work and calling it your own. We are all guilty of that all the time—when was the last time you told an original joke or used a saying? It could be argued that if you rephrase something to suit your purpose then it is not plagiarism so long as you reference your source. I am not sure that 'changing the wording' actually changes the act so much as attempts to step around the fact that the idea is not original. The simple answer here is that there is no simple answer that I am aware of ...
6. The practitioner responses are posted to the unit web site and discussed in lectures and tutorials. These responses and the original video vignettes in turn become reified manifestations of the *progressive revealing* approach.

The cornerstone field conversations relied on a rapid development environment and support from a range of digital and online technologies. To prepare the video vignettes, willing expert practitioners need to be identified. Next, we carefully prepared interview questions so that only one 'take' was necessary. The questions were designed to elicit anecdotes, quandaries and reveal artefacts—anything that provided evidence of informed action and that can be fruitfully analysed theoretically. The interview itself is conducted in natural surroundings (for example, a teacher in a classroom or a librarian in a library). We archived all digital video content immediately to DVD, retaining full visual and audio quality. The most difficult and intensive work followed in which interview segments were selected according to their relationship to course content and then annotations were prepared. Each video segment was prepared in differing formats for streaming (in high-quality, high-bandwidth and low-quality, narrow-bandwidth versions) and for downloading. We were careful to preserve audio quality (and are willing to sacrifice video quality) because this is considered more important. These elements (clips, annotations and images) were assembled onto a structured web page and associated with relevant lecture frames. As discussion questions were posed and answered, these were mounted on relevant web pages.

We found the cornerstone field conversations to be a very effective teaching device. Our students have participated enthusiastically and reflected favourably on these experiences in unit evaluations. The methodology is well suited to subjects where there is a commitment to ground theoretical study in the

professional lives of active practitioners. The video vignettes have major advantages over cumbersome synchronous webcasts. This is because costs are significantly lower, the focus can be more easily placed on relevant interactions, and they allow for more accessible (to undergraduate students) professional elaboration. Finally, the effectiveness is significantly enhanced when the video vignettes are coupled to meaningful discussions and activities.

Conclusion

This paper should conclude by returning to its title and to a final explication of its embedded metaphor. Our students were engaging with us, with each other, and the ideas and content of the unit both on- and off- line. Structural elements such as the cornerstone field interviews were occasionally part of lectures, occasionally part of tutorials and occasionally part of independent study. This hybridisation led us to believe that we were always working ‘between the lines’ and that there were no clear distinctions. Technology gave us the power to do this, to blur the edges of our lines, to remove the delineation between the human and the technical.

The clearest message from our experience in *EDB006: Learning Networks* is that in teaching in, with or through online technologies pedagogic design elements must ‘fit’ together for clear purposes, and that, in turn, technologies must serve pedagogic purposes. What teaching in new times is about is having the courage and foresight to reappropriate technologies to meet more human goals, and the courage to resist being captivated by technology for its own sake.

References

- Brothen, T. (1998). *Transforming instruction with technology for developmental students* [Online]. Available: http://www.ced.appstate.edu/centers/ncde/reserve_reading/V21-3brothen.htm [August 27, 2003].
- Dodge, B. (1998). *Webquests: A strategy for scaffolding higher level learning* [Online]. Available: <http://edweb.sdsu.edu/webquest/necc98.html> [August 18, 2003].
- Doering, A., Hughes, J., & Huffman, D. (2003). Preservice teachers: Are we thinking with technology? *Journal of Research on Technology in Education*, 35(3), 342–361.
- Doolittle, P. (1997). Vygotsky's Zone of Proximal Development as a theoretical foundation for co-operative learning. *Journal on Excellence in College Teaching*, 8(1), 83–103.
- Fiedler, R. (2002). *Webquests: A critical examination in light of selected learning theories* [Online]. Available: <http://www.msfielder.com/wq/fiedler.pdf> [August 17, 2003].
- Harris, R. (1997). *Evaluating Internet research sources* [Online]. Available: <http://www.virtualsalt.com/evalu8it.htm> [August 18, 2003].
- Lechner, S. (1998). Teachers of the N-Gen need reflective online communities (and so do the teachers of teachers). *Journal of Online Learning*, 9(3), 20–24.
- Molebash, P., Dodge, B., Bell, R., Mason, C., & Irving, K. (n.d.). *Promoting student inquiry: Webquests to web inquiry projects (WIPS)* [Online]. Available: http://edweb.sdsu.edu/wip/WIP_Intro.html [August 18, 2003].
- Schrock, K. (2000). *Webquests in our future: The teacher's role in cyberspace* [Online]. Available: <http://www.discoveryschool.com/schrockguide/webquest/webquest.html> [August 18, 2003].
- Taylor, H. (2001). The webquest model for inquiry-based learning using resources of the World Wide Web. In D. Watson & J. Andersen (Eds.), *Networking the learner: Computers in education* (pp. 319–317). Boston, MA: Kluwer Academic.
- Williams, M. (n.d.). *About reach in-reach out* [Online]. Available: <http://www.schools.ash.org.au/reachinreachout/deliver/content.asp?orgid=1&suborgid=1&ssid=1&pid=8> [August 27, 2003].

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