

# **Students doing the driving: How undergraduates use ICT to enhance reflective practice, peer review and collaborative learning**

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## **Abstract**

The Internet offers 21st century artists new modes of production and dissemination. In higher education however, limitations are imposed upon the creative use of information and communication technologies (ICT) through policies and products which are often in conflict with innovation by university arts faculties. This paper examines the ways in which a music technology department intervenes to allow undergraduates to take a central role in the development of, and responsibility for their learning. They do so in a learning ecology which supports collaboration, peer review and Internet distribution of original musical compositions, sound productions and self-reflective radio-styled programs. Rather than position students purely as receptors of teaching-as-delivery, here, 'e-learning' is understood and leveraged in ways which acknowledge students as creators of content, owners of intellectual property, and drivers of their own learning.

This paper examines recent developments in the music technology department of an Australian conservatoire. It focuses on the work of staff and students in an area which ranges across music sub-disciplines (Draper, 2005), that is, where music technologists produce creative works, often through the co-ordination of projects across departments, service units and remote faculties. Moreover, it has been our experience (Draper & Hitchcock, 2006a) that such ICT-savvy and transdisciplinary activity often provides useful pointers to practices which have the potential be more widely adopted /adapted by the mainstream. Consequently, there are a number of interrelated contexts I wish to explore in this work:

1. Intellectual property (IP), developments on the Internet, the Creative Commons movement, and the colonisation of creativity by western governments around notions of creative industries, fast(er) knowledge workers and wealth creation.
2. The subsequent mirroring of economic imperatives and managerialism in Australian universities, through top-down policies and one-size-fits all infrastructure /curricula systems which may compromise authentic arts practice.
3. The desire to maintain a reflexive curriculum which recognises and develops appropriate literacies in students while seeking to promote professionalism, engagement and the adaptability necessary for 21st century graduates.

## **Creative content in the networked society**

In recent times we have witnessed the evolution of a rhetoric around creative industries (DCMS, 2005), the generation and exploitation of IP (Florida 2002) and a quest to somehow force-inject creativity (Robinson, 2001), digital competencies and knowledge transfer /commercialisation opportunities (DEST, 2005) into any range of disciplines. Largely this appears to be driven by economic and extrinsic deliberations, with little consideration for creative development or excellence *per se* (Brooks, McCarthy, Ondaatje & Zakaras, 2004). In parallel, we have also participated in the rise of the Internet. Paradoxically, not only does this propel many of the e-commerce globalisation overtures, it also provides the rhizomatic freedom of communication, peer review and creativity as is identified in the Commons phenomena (Benkler, 2006; Lessig, 2004). That is, an alternative to big business arrangements, a return to peer-to-peer production and intrinsic value systems (often which may launch and support independent careers of significance).

In music for example, the international recording industry represents one of the world's most centralised and well developed systems of ownership and publication. Yet in recent times we have witnessed shifts of global significance led by the file-sharing of MP3 format music recordings deemed 'illegal', that is, corporations demand the return of financial advances to artists who may or may not be able to pay back the 'bank loan' from royalties, but usually never 'own the house' (Albini, 2005), where 70 years plus the life of the author is the current *de facto* term for corporate claims to copyright.

Despite the resistance of the world's major record labels (EMI, Sony-BMG, Time-Warner and Universal), the business model continues to evolve rapidly from CD /shop-front /contract of old to new, independent modes of production (Knowledge@Wharton, 2006). Professional practices in music have extended to the Internet where the artist interacts both directly and virally in a worldwide marketplace while attending to a new 'economics of attention' (Lanham, 2006). This includes promotion of concert tours, direct merchandising, building fan bases, collaboration, composition and engaging communities of practice through tools such as Wikis, Blogs and syndicated (RSS) Podcast subscription services.

## **So What?**

While it may be clear to most educators that these trends are now well in play, how and if we choose to respond is problematic. How to simultaneously maintain standards for any professional notions of 'core skills'? How can the incredible shrinking curriculum

incorporate yet more content and new knowledge? If indeed 'Gen-Y/Z' students do come to us pre-equipped with significant ICT skills and expectations (Livingston, Bober & Helsper, 2004), can we embrace the technological, cultural and social gaps to educational advantage?

The approach elaborated herein is to acknowledge and utilise the embedded skills that our students bring to the education table: a collaboration of sorts which draws upon the best features of the assets we have at our disposal. However, this may require a shift of thinking for some, from 'sage on the stage', even from 'guide on the side' to perhaps a 'meddler in the middle' (McWilliam, 2005):

If we consider pedagogical exchange as a form of value exchange and value creation, then .... [there are] new possibilities for thinking about pedagogical supply and demand ... Rather than teachers delivering an information product to be consumed by the student, co-creating value would see the teacher and student *mutually involved in assembling and disassembling* cultural products . . . The teacher is *in there doing and failing* alongside students, rather than moving like Florence Nightingale from desk to desk...(p. 11).

If the idea of 'doing and failing alongside students' proves confrontational to some guru-styled arts education traditionalists, experience indicates this is also a challenge for many universities. I will therefore now briefly examine the immediate learning and teaching environment: the amalgamated higher education sector.

### **Corporate compliance and the arts**

While the term 'Creative Industries' was introduced in 1998 by the British government in an effort to capitalise on the IP of creatives, the coerced merging of creative and performing arts institutions with universities dates even further back to Thatcher's England. Some observers agree that the results have been less than satisfactory:

Australia has a history of adopting failed overseas educational ideas, it followed suit...although arts institutions are not solely academic, the solution . . . has been to treat them as academic and place them into university structures...In creative areas there are no right answers but a whole range of choices...requir[ing] very particular pedagogy... studio teaching focuses on a close interaction between practising artist-teachers and students, inspired by an aesthetic philosophy of "thinking through making" (Fitzgerald, 2006; para. 7).

Although ICT is now clearly core to 21st century creativity and digital arts production, universities steadily progress towards centralisation, conformity and risk aversion in keeping with parallel policy developments and funding incentives by government. While this hybrid, corporate-like sector therefore seeks to control ICT as a business delivery

system, student creators are mostly locked out of content dissemination, given the processes and outcomes which by their very innovative nature may be deemed controversial. Governance is problematic in what Benkler (2006) terms, ‘a battle over the institutional ecology of the digital environment’:

...the institutional ecology of information production and exchange is a complex one...It includes regulatory and policy elements that effect different industries, draw on various legal doctrines and traditions, and rely on diverse economic and political theories and practices. It includes norms of sharing and consumption of things conceived of as quite different – bandwidth, computers, and entertainment materials...These are the physical, logical and content layers...who gets to say what, to whom and who decides? (p. 385).

### **eLearning: A wealth of information creates a poverty of attention**

Presently, Australian universities centralise commercial e-learning systems such as *Blackboard* which work from a top-down design in that they are massified to deliver content to students. That is, the ‘sage on the stage’ approach remains traditional – only the format shifts. Such a one-size-fits-all model derives from a science-based school curricula in the expectation that students be segregated by year level, corralled into weekly class workloads and examined via systematised means. In the creative and performing arts there remains considerable tension between the needs of the artists and the demands of conformity, where ‘studio courses are undermined and effectively reduced to little more than a glorified general studies smorgasbord of arts and crafts’ (Fitzgerald, 2006, para. 5). Teachers are inundated by the quest for higher grade point averages (GPAs) measured by written exams, testing and in ever-mounting extrinsic accountabilities measured through evaluation questionnaires, retention statistics and destination surveys. Students too, are subjected to a similar one-way data deluge (JISC, 2004) and mass processing which encourages the short-sightedness and limited attention spans so often bemoaned by academics.

Perhaps it is unsurprising then that now many students attend university only to meet the immediate demands of class timetabling and assessment items around external work /play commitments. With decreasing studio teaching time and an ever-growing emphasis on generalist academic courses, many students disengage with core disciplinary values (McInnis, 2001) and simply become highly skilled at passing exams. Unlike the practical demonstration of skills of old, virtual ‘Ps mean degrees’. However, matters of massification and limited arts funding will likely be with us for some time and so here I will not dwell on dwindling studio teaching budgets, rather: on how a music technology department makes

better use of its supporting activities in engaging and developing 21st century literacies in its students.

### **Notions of literacy**

In a recent visit to Australia, a UK art college Director argued the excellence of his music department in terms of standards and graduate achievements (Wiggins, 2005). He also identified *a problem with literacy* in his music technology students, later revealed to mean *a lack of ability to read music scores*. An audience member subsequently raised the question, ‘A problem for who? Students or staff?’.

Supposedly, Gen Y/Z are now integrated in the fast social fabric of mobile phones, email, instant messaging and digital media consumption – they can multitask well, comprehend complex computer display readouts and accurately interpret /respond to shorthand ‘texting’. Even if these claims are only partially true, we continue to fail to recognise, develop and reward such literacies, in the Wiggins case, by insisting on inexact or even redundant approaches to musical documentation when multimedia technologies provide accuracy of nomenclature and reproduction to within a millisecond. Literacy of course can take many forms and while the educational literature advocates our strongest investigation of this (Hugo, 2003; Kress, 2003; Lanham, 1994) curricula tend to remain traditional, often requiring copious amounts of written documentation which may serve for ease of corporate processing, but arguably provide limited fitness for purpose.

### **Meddlers in the middle of music technology**

At Griffith University, music technology academics began to do the math and enquire: should a graduate recall from her university days that she produced few creative products (in this case, perhaps one music album per year) while co-delivering some 40-plus written assignments across the degree program? Apart from the imbalance here, there were a limited range of options to allow learners to communicate in ways better suited to their multiple literacies, to cut across any data deluge and to enable students as drivers of their own learning.

The more we are deluged with information...the more we have...to become connoisseurs of it. It is more counterproductive than ever to demonize stylistic awareness. Stylistic self-consciousness should be the first line of defence for a child swimming in the information flood (Lanham, 2006; p. 143).

## **Evolving a transparent learning ecology**

Since its inception in 1983, this music technology department has featured a strong sense of community, to some degree propelled by practical product outcomes and a vocational focus. Being technologically oriented, the cohort was also an early adopter of what has come to be known as ‘blended learning’ (Bersin, 2004), that is, a considered amalgam of ICT and face-to-face studio teaching. However, in recent years the net effect of imposed university centralisation has been to isolate students by course code, both on-line and off. Therefore music technology has increasingly intervened through its own in-house approaches in order to facilitate knowledge transfer across year levels /course structures, and to support a distinctive apprenticeship-like ecology, as follows:

- Problem-based Learning (PBL) Projects (Boud & Feletti, 1997). In studio courses, assessment includes responding to a range of ‘problems’, such as the production of concert recordings, popular music and jazz albums and original music /sound for film. Projects are led by the creative brief; theory and technique is unpacked in parallel or subsequent supporting courses where students draw upon the actions and examples of more advanced peers in cross-year, team-based projects.
- Music Technology Forum. A face-to-face, weekly meeting to facilitate robust interactions between all students and staff and where problem solving and outcomes are reviewed. More recently, Forum now serves to feature workshops by alumni and reports from students undertaking industry and/or university-based work placements.
- Resource Booking System (RBS)<sup>1</sup>. Students are required to self-manage their access to a range of institutional resources including: recording studios, mobile equipment and sound-reinforcement systems. Students work from time-based quotas allocated by teaching staff and over time, learn to interact with technical support staff and the institution just as would any other professional be expected to.
- Mutech Discussion Board<sup>2</sup>. Similar to the Music Technology Forum, this is a moderated, web-based discussion board which continues to drive key themes and aids in promoting exemplars of student achievements, cross-faculty projects and external job opportunities. Since 2005, this resource now retains the membership and input of alumni, students from other university schools and industry workplace partners.

- Work-integrated Learning (WIL). Final year students take up professional work internships, both within the university and externally. In third year undergraduate and fourth year honours programs, students may bid competitively and interview for a range of external work-placements that are offered, and/or may also engage in contract work arising from music technology's professional /research facility, IMERSD<sup>3</sup>. In these cases, IP usually transfers to the employer under specified contract conditions.

Peer review and assessment is undertaken in class settings as well as in cohort-wide discussion groups and teams: students present their thinking to others who provide feedback and questions, discuss variants and in general, learn about the meta contexts in which their work resides. A semiotics of the discipline develops and exemplars of excellence are acknowledged and rewarded not only through grades, but also through these informal networks. Overall, students are encouraged to be responsible to their peers (Tinto, 2000), aiding the need, “not for more professional knowledge from external sources, but for greater self examination skills and higher levels of self awareness to appreciate the skills they already have” (Grainger, 2001; p. 2).

Creative folio published on faculty servers is the mainstay for peer review and exemplars for how to respond to a PBL brief, however, the university's *Blackboard* e-learning system cannot currently accommodate the prospect of student-driven content (either physically or politically) nor the widening of the peer audience to include external communities of practice. Therefore until recently, all of the creative media and associated discussion remained in-house and private to those directly involved in the music technology degree programs.

Further, in a recent WIL study (Draper & Hitchcock, 2006b), research revealed that industry was critical about the lack of inclusion of context-related abilities within arts programs. Employers commented that universities usually separated business development classes from practical studies where students could technically ‘do the job’ but had no idea of meaning in relation to ‘big picture’ – that is, the curriculum neither represented the 'real world' of law and business, nor the commonsense 'real world' of the creative artist (Draper, Hall & Wilson, 2005). In music, this included matters relating to IP, workflow, and intensive project management and collaboration in the creative industries where small clusters and freelance work is often the norm.

Given the preceding discussion and evolving learning mechanisms, it became increasingly clear that students and staff wished to widen the interaction of this participatory culture in practical ways as summarised in the Figure below.

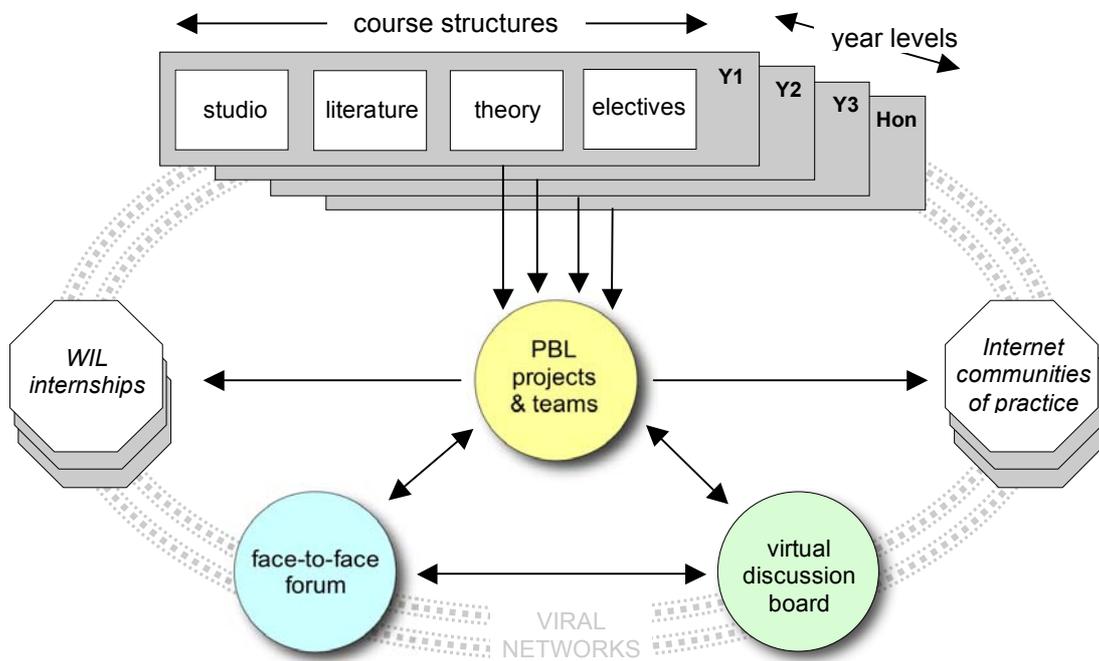


Figure 1: Knowledge transfer in the music technology ecology

### Widening participatory culture

Because IP and the idea of ‘music contracts’ was one of the most oft-cited areas of confusion for students, this has been a target for development in music technology. However, just like the comments of the WIL industry partners confirmed, to date, the curriculum had responded through dedicated ‘music industry’ lecture-based electives. Other activity such as commercial work or WIL placements usually required IP to be forfeited, at best, only providing attribution of moral rights. Given the rise of the Creative Commons movement, the department saw this as one way to develop practical insights into creative ownership, attribution and related negotiations. To do so, this was linked to open publishing on the Internet as shown:

- Digital IP Training and Creative Commons Australia (CCau). A pilot project was held across an intensive project week in May 2006, entitled *Concert Stream*. A handbook of materials was devised and Internet-published<sup>4</sup> to discuss, teach and embed basic IP understanding within practical final year undergraduate music-making projects: in this case through original music composition, live concert performance, recording and

subsequent Internet streaming and podcasting. Workshops were prepared and delivered by music technology and jazz staff, with the assistance of a leading Australian digital IP attorney. The process utilised a CCau *Attribution-NonCommercial-NoDerivatives License*<sup>5</sup> where IP was directly related to the authoring and publishing of original creative work, positioned as an agreement between students and the university in much the same way that course outlines and assessment are accounted for.

- Open Publishing. Music technology's experimental unit IMERSD (Intermedia, Music Education and Research Design) commissioned a new resource on its website, *IMERSD Stream*, modelled on an eJournal approach, that is: IMERSD invites digital contributions from academic staff, students and visitors in a range of areas including music, public lectures and review intended to stimulate critical discussion. Submissions are reviewed by an academic reference panel and also utilise CCau licenses, together with publication guidelines provided on the *IMERSD Stream* website<sup>6</sup>. Publications are disseminated on the Internet as real-time audio streams and podcasts.
- Internet Radio. *Radio IMERSD*<sup>7</sup> is one of the most recent, more complex initiatives. Until 2005, under Australian copyright law, commercial recordings could not be legally duplicated or distributed within the university for the purposes of teaching and research. The recent signing of the AVCC-Music Societies agreement by Griffith University in 2006<sup>8</sup>, together with the payment of substantial licensing fees now allows this, albeit, within the restriction that any online dissemination occurs only within the university intranet. Therefore, *Radio IMERSD* now provides Internet audio playlists of concert performances of copyrighted works that are accessible only to local students and staff.

### **Exploring new literacies**

As at the time of writing, the content available through these resources is now significant: hundreds of concert recordings are disseminated for reflection, review and interpretation by the conservatorium's learning community on *Radio IMERSD*. Open Internet publications on *IMERSD Stream* are represented through categories including original concert performance and recording studio productions, public lectures by visiting scholars, and of significance here: as portfolios, recordings and reviews located in the *IMERSD Stream* site area, under eLearning<sup>9</sup>.

In course assessment, students usually reflected on their creative work via written reports.

In an effort to widen our conceptions and offer a greater range of literacy opportunities, students were offered an alternative to text. In this case, to develop a radio-styled review program which worked through the significant aspects of technical and musical analysis related to the piece in question. On the *IMERSD Stream* eLearning site, original music recordings may be found alongside reflective reviews, both available as on-demand audio and podcast subscriptions.

As the exemplars and Internet community interaction began to grow, students took increasing responsibility for their outputs, often proposing variations on how they might approach new work. One example is in the case of a final year student who was undertaking parallel courses that he argued as usefully connected: one requiring the development of a 5,000 word research paper, the other, the production of original sound production portfolio. The connecting theme he proposed was ‘What is a Music Technologist?’, from the research perspective, expressing some frustration in how his art form was poorly understood. Along with the paper, he subsequently realised his sound production concept through a non-specialist, enhanced podcast series (Wyeth, 2006) now widely referred to across the Internet and in a range of professional contexts.

### **What has been learned so far?**

Higher education literature abounds with references to ‘student-centred learning’, ‘what students want’ and ‘student-as-client’ rhetoric. Perhaps this should be no surprise in an increasingly litigious society where students have successfully sued universities over non-delivery of learning claims. It is therefore easy to comply with systems standards – left to their own devices, students seem to prefer ease of processing ‘Ps for degrees’ and academic life might indeed be less fraught for staff. In our earlier program reviews, some students wanted ‘more online video delivery of lectures’, showing little interest in utilising web-space for original content. However, this project reveals that once the exemplars and systems are made available, once the community begins to aspire and be rewarded around ecologically-understood conceptions of achievement, the individual mindset can rapidly shift accordingly. Once the academic ‘meddlers’ are prepared to take risk, to provide useful alternatives and to participate as co-learners, students are then clearly willing to ‘do the driving’. Ongoing course reviews and area discussions confirm the following.

As public broadcasts, student creations serve to invoke personal independence and inspire a sense of professionalism (that many believe may be lacking in closed university assessment

regimes). The music technology learning community embraces a larger networked society which brings new meaning to their music making and collaboration – so often revealed in the surprise students express when what many GenY/Z conceived of as ‘play’ is given focus as ‘work’ through content creation, communication and outreach. Success and notions of quality transcend class and institutional boundaries and as significant Mutech Discussion Board activity reveals, just like notable features of the Internet – excellence in learning is viral.

### **Adoption and adaptation**

CCau licensing continues to unpack new meaning for students (and staff): in recognising their rights and those of others; in understanding more about the often multiple-owner nature of the music business; and in preparing such discussion as an integral part of the creative process. In some cases, students take teaching materials into the workplace and devise their own reformations of key clauses, for example, one honours student now regularly uses an indemnity clause as part of his ABN invoices and freelance contracting in the creative industries.

### **Metrics**

This has been one of the more surprising aspects of the project: over a six-month trail in the second half of 2006, the IMERSD website took part in an Internet metrics project utilising *Google Analytics*<sup>10</sup> tools. This resource provides far more than a simple counting of ‘webhits’ as may be offered through conventional ICT measurement tools. Given that a number of site management requirements are put in place, *Google Analytics* then allows detailed data sets to be collected. For example, in the case of *IMERSD Stream*, September 2006 attracted some 850,000 visitors, while individual institutions in remote countries continued to return in unexpected numbers to access selected materials. In one case, the same Dublin site downloaded and viewed a single podcast on some 700 occasions. All of this drove considerable interest from students, and sometimes resulted in direct communication between the music technology cohort and externals, but more centrally, has promoted interest and ensuing academic plans for university e-research development in the digital arts.

## Concluding remarks

This ongoing project shows promising insights into 21st century literacies which, through global multimedia networks, make ancient intellectual approaches new yet once again.

Almost two thousand years ago, the Roman rhetorician Quintilian wrote:

It is impossible, except by actual practice, to make it clear how a boy is to learn when to take a fresh breath, where to make a pause in a verse, where the sense ends or begins, when the voice is to be raised or lowered, what inflection should be given to each phrase, and what should be spoken slowly or quickly, excitedly or calmly (translated by Russell, 2001; p. 123).

Punctuation once gave these performance clues but with the advent of the Gutenberg press and industrialisation, its meaning was subverted where text became almost exclusively consumed by silent reading (Saenger, 1997). The networked world is now again full of social behaviour which ‘performs’ in attention economies and communities that demand appropriate production and communication competencies. This is a world that is now profoundly audio-visual.

. . . [the old] model of communication has an economic basis – the economics of stuff . . . . The advent of printed text only reinforced this stuff-based conception of human communication . . . we have a theory of communication that is based on a theory of economics that is based on a theory of morality that is based on a theory of self and society. It goes all the way down to the bedrock . . . A message is not a lump of coal, either delivered or not. It is not a message at all, in fact, unless it reaches the recipient and changes that person’s view of the world (Lanham, 2006; p. 140).

In music technology degree programs, we now know that we are beginning to expand our students’ view of the world and we put trust in the prospect that these young people continue to challenge and change ours.

## Notes and URLs

- <sup>1</sup> *Resource Booking System (RBS)*. A web-based booking system for music technology students to self-manage recording studio and equipment access quotas. Funded by a university Strategic Improvement grant. Available at: [www29.griffith.edu.au/rbs](http://www29.griffith.edu.au/rbs)
- <sup>2</sup> *Mutech Discussion Board*. A moderated electronic forum for music technology and film school students, staff and alumni. Available at: [www29.griffith.edu.au/discussions](http://www29.griffith.edu.au/discussions)
- <sup>3</sup> *IMERSD (Intermedia, Music Education and Research Design)*. A 5.1 surround sound recording studio and multimedia production facility, which engages in key faculty and research centre knowledge transfer opportunities. Available at: [www.griffith.edu.au/imersd](http://www.griffith.edu.au/imersd)
- <sup>4</sup> *Concert Stream: project week 2–5 May 2006*. Project handbook and teaching materials. Available at: [www29.griffith.edu.au/imersd/stream/concerts/projectweek\\_040506/](http://www29.griffith.edu.au/imersd/stream/concerts/projectweek_040506/)
- <sup>5</sup> *Creative Commons Australia (CCau)*. The Australian derivative project of the Creative Commons project in the USA. Available at: [creativecommons.org.au](http://creativecommons.org.au)
- <sup>6</sup> *IMERSD Stream*. The music technology e-publication vehicle for original music, sound design and recordings. Available at: [www29.griffith.edu.au/imersd/stream](http://www29.griffith.edu.au/imersd/stream)
- <sup>7</sup> *Radio IMERSD*. On-demand Internet audio streams of conservatorium concert recordings. Under copyright law, these broadcasts are accessible only to local university students and staff. Available at: [www29.griffith.edu.au/imersd/stream/radio](http://www29.griffith.edu.au/imersd/stream/radio)
- <sup>8</sup> *Music Copyright*. Griffith University’s policy on the use of non-original music recordings and the terms of the tertiary music license agreement. Available at:

- <sup>9</sup> [www.griffith.edu.au/ins/copyright/content\\_music.html](http://www.griffith.edu.au/ins/copyright/content_music.html)  
*eLearning Portfolios*. This area profiles original music compositions and sound productions accompanied by radio-styled self-reflective reviews of the work. Available at:
- <sup>10</sup> [www29.griffith.edu.au/imersd/stream/elearning](http://www29.griffith.edu.au/imersd/stream/elearning)  
*Google Analytics*. An open resource dedicated to measuring and tracking web traffic through a nominated site. Available at: [www.google.com/analytics](http://www.google.com/analytics)

## References

- Albini, S. (2005). *The problem with music*. Open letter to the music community on the predatory behaviour of record companies, by Nirvana's producer, Steve Albini. Retrieved 2 February 2007 from [negativland.com/albini.html](http://negativland.com/albini.html)
- Benkler, Y. (2006). *The wealth of networks: How social production transforms markets and freedom*. New Haven and London: Yale University Press.
- Bersin, J. (2004). *The blended learning handbook: Best practices, proven methodologies, and lessons learned*. San Francisco, CA: Pfeiffer Wiley
- Boud, D., & Feletti, G. (Eds.). (1997). *The challenge of problem-based learning*. London: Kogan Page.
- Brooks, A., McCarthy, K. F., Ondaatje, E.H., & Laura Zakaras, L. (2004). *Gifts of the muse: Reframing the debate about the benefits of the arts*. Santa Monica: RAND Corporation. Retrieved 2 February 2007 from: [www.rand.org/publications/MG/MG218/](http://www.rand.org/publications/MG/MG218/)
- DCMS (Department for Culture, Media and Sport). (2005). *Creative industries*. United Kingdom: British Government. Retrieved 16 July 2006 from: [www.culture.gov.uk/about\\_us/creativeindustries/](http://www.culture.gov.uk/about_us/creativeindustries/)
- DEST (Department of Education, Science and Training). (2005). *The emerging business of knowledge transfer: Creating value from intellectual products and services*. Australian Government, AGPS: Canberra. Retrieved 24 March 2007 from: [www.dest.gov.au/sectors/research\\_sector/policies\\_issues\\_reviews/key\\_issues/commercialisation/knowledge.htm](http://www.dest.gov.au/sectors/research_sector/policies_issues_reviews/key_issues/commercialisation/knowledge.htm)
- Draper, P. (2005). Encounters: Subdisciplinary dynamics in Australian music-making and recording. Paper presented at *The 2005 Art of Record Production Conference*, 17–18 September. London: Royal Holloway University of London.
- Draper, P., Hall, M., & Wilson, J. (2005). Universities, creativity and the real world? Paper presented at *The Speculation and Innovation Conference*. Brisbane: QUT. 30 March – 1 April 2005. Retrieved 10 December 2006 from: <http://www.speculation2005.net>
- Draper, P. & Hitchcock, M. (2006a). Podcasting: Can the eLearning experience inform eResearch in the digital arts? Paper presented at *The AUC CreateWorld 2006 Conference*, 5–6 December 2006. Brisbane: Griffith University.
- Draper, P. & Hitchcock, M. (2006b). Work-integrated learning in music technology: Lessons learned in the creative industries. *Asia-Pacific Journal of Cooperative Education*, 7(2), 24–31.
- Fitzgerald, R. (2006, 27 November). National Art School fighting a war of independence. *The Australian, Opinion*. Retrieved 10 February 2007 from: [theaustralian.news.com.au/story/0,20867,20825339-7583,00.html](http://theaustralian.news.com.au/story/0,20867,20825339-7583,00.html)
- Florida, R. (2002). *The rise of the creative class*. New York: Basic Books.
- Grainger, S. (2001). Accessing professional artistry: The importance of cooperative education and the limitations of classical research. *Asia-Pacific Journal of Cooperative Education*, 2(1), 1–5.
- Hugo, A. (2003). From literacy to literacies: preparing higher education in South Africa for the future. *South African Journal of Higher Education*, 17(2), 46–53.
- JISC (Joint Information Systems Committee). (2004, November). *The data deluge*. Briefing paper for the Higher Education Funding Council of England. London: JISC. Retrieved 24 February 2007 from: [www.jisc.ac.uk/publications/publications/pub\\_datadeluge.aspx](http://www.jisc.ac.uk/publications/publications/pub_datadeluge.aspx)
- Knowledge@Wharton. (2006). *From confrontation to experimentation: The music industry is playing a new tune*. Retrieved 16 September 2006 from: [wharton.universia.net/index.cfm?fa=viewArticle&id=1210&language=english&specialId=](http://wharton.universia.net/index.cfm?fa=viewArticle&id=1210&language=english&specialId=)
- Kress, G. (2003). *Literacy in the new media age*. New York: Routledge.
- Lanham, R. A. (2006). *The economics of attention: Style and substance in the age of information*. Chicago: The University of Chicago Press.
- Lanham, R. A. (1994). The implications of electronic information for the sociology of knowledge. *Leonardo*, 27 (2), 155–163.
- Lessig, L. (2004). *Free culture: How big media uses technology and the law to lock down culture and control creativity*. New York: Penguin Press. Retrieved 10 February 2007 from: [www.free-culture.cc/freeculture.pdf](http://www.free-culture.cc/freeculture.pdf)
- Livingstone, S, Bober, M. & Helsper, E. (2004, October). *Active participation or just more information? Young people's take up of opportunities to act and interact on the internet*. A research report from

- the UK Children Go Online project. London, UK: Department of Media and Communications, London School of Economics and Political Science. Retrieved 10 February 2007 from: [personal.lse.ac.uk/bober/UKCGOparticipation.pdf](http://personal.lse.ac.uk/bober/UKCGOparticipation.pdf)
- McInnis, C. (2001). *Signs of disengagement? The changing undergraduate experience in Australian universities*. Inaugural professorial lecture. Centre for the Study of Higher Education. Melbourne: University of Melbourne. Retrieved 10 February 2007 from: [eprints.infodiv.unimelb.edu.au/archive/00000094/](http://eprints.infodiv.unimelb.edu.au/archive/00000094/)
- McWilliam, E. (2005) Unlearning pedagogy. *Journal of Learning Design*, 1(1), 1–11.
- Quintilian (2001). *The orator's education*. Edited and translated by Donald A. Russell. 5 vols. Cambridge, Mass.: Harvard University Press.
- Robinson, K. (2001). *Out of our minds: Learning to be creative*. UK, West Sussex: Capstone Publishing Limited.
- Saenger, P. (1997). *Space between words: The origins of silent reading*. Stanford, CA: Stanford University Press.
- Tinto, V. (2000). What we have learned about the impact of learning communities on students? *Assessment Update*, 12(2), 1–2.
- Wiggins, T. (2005, 9 November). *Address to the Queensland Conservatorium College Committee on musical standards and outcomes*. Presented by the Director of Music at Dartington College of Arts.
- Wyeth, D. (2006, November). *What is a music technologist?* Internet podcast series, available for RSS subscription. Retrieved 28 March 2007 from: [feed://www29.griffith.edu.au/rss/imersd02.xml](http://feed://www29.griffith.edu.au/rss/imersd02.xml)

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