

COMMONWEALTH OF AUSTRALIA

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Waking up the subject: From craft to critical technacy

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AS IF THE SUBJECT IS ASLEEP in bed in the school grounds, like a petulant teenager, it kicks and complains and quickly pulls the sheet back over its head, anything to avoid the necessary work for itself to claim a powerful place in the curriculum for our civilisation's future. That is, not at the mercy of policy or placated as the pacifier for vocationalism, but self-actuating and dendritic as a subject of significant depth and complex texture. And to add to the metaphor, the real game is happening outside the school gates, in innovation economies, research in brain development linked to imagination and skill performance, climate change due much to the technology solutions and choices that we ought by now have avoided, and where craft for its goodness sake is tossed to the side for the promise of vocational functionaries but too often adding to the pool of the underemployed. Here the designs of our physical and digital world are dismissed as mere objects of consumption or production, and cross-cultural technology studies are at best given a passing note in times when such empathy for another culture's technacy knowledge and methods would serve any society well, while innovation studies, industrial archaeology or material culture remain excluded from serious curriculum futures as if they do not pertain to the technacies of human times (Australian Science Technology and Engineering Council, 1996; Barric, 2003; Fee & Seemann, 2003; Fler & Jane, 2004; Northern Territory Government, 2003; Seemann, 1997, 2006; Seemann, Walker, Centre for Appropriate Technology, Australian Conference of TAFE Directors, & Alice Springs College of TAFE, 1990; Walker, 2000).

All these adventures and dramas are happening in the full and exciting study of technology in the real world outside the school gate, but not much inside it. And yet, inside the gate, inside the boards of studies and especially the presentation of the curriculum in many schools it is often asleep under the sheets of its guarded rhetoric: there technology in the curriculum resists the new day, fights to stay

in the comfort of its bed suckling that pacifier and is in denial that it is being left behind just when we need it to wake up, grow up and advance itself as a subject of impact and implication in the real world we face.

Literally or figuratively, we are also selling the subject's future short in how we are projecting and defending it. We are seeing, through enrolment patterns in higher education an alarming rate of diminishing returns akin to the process of species extinction through lack of advocacy for higher academic succession (name Australia's professors in general technology education?) and through self afflicted denial and conservatism often at the very seed of the school experience. In some state systems it has been dropped as a 'subject' altogether, resolved as a cross-curriculum or at best elective concern. Our track record is that technology educators don't want to invest in the waking up of their subject (again, name Australia's national professional research journal and association in technology education?) or in facing the day ahead and seeing, in stark daylight, not only the flaws of our ways, but equally of fostering a culture that seeks to embrace its horizons of integrated social, technical and environmental leadership and opportunity in the curriculum.

Looking around the educational programs in Australia alone, we seem to be a lot that are quick to be defensive, to blame all other things, piqued at the idea of supporting a strong research culture for its future and not look within from without. Very few undergraduate technology teacher degrees advocate and demand that their program strengthens pathways to doctoral succession. Very few school teachers in the technology field appear to demand of emerging practice teachers that they explore or demonstrate something new learnt in their undergraduate degrees. Instead, an undergraduate is more likely to encounter a 'peer' culture akin to eating its young before they graduate, and emulating more of a 'mini-me' socialisation regime that can be identified by gestures that dismiss the

growth of innovation and new research and even ideas of following a new syllabus. The obsessive claim to 'skills and labour shortage' as the subject's prime directive has displayed all the symptoms of an abusive addiction: a rhetoric that advances neither the study of technology for our civilisation's future, nor the career diversity and richness for the guild or the school leaver. This use of the skills rhetoric to justify its place may well prove to be as empty and as destructive as any obsession for technology studies. It may well erode the potential of the subject in schooling and teacher education futures. The rational discourse about what the word 'skills' really means has not yet been had (Fee & Seemann, 2003; Seemann, 1987, 2006; Summers, 1992; Walker & Seemann, 1990; Wilberg, 1991).

Arguably, no greater period of our times requires all individuals to learn how to critically confront and judge our digital and material choices, how to understand the rules at play so we may manage the very phenomenon we call technology, whether this task is as user, maintainer, chooser, observer, innovator, educator or manager. Not having a rich and sophisticated education in the contextual and practical understanding of technological ideas may well prove to be one of our education system's most neglected acts — a neglect that has, at least to good measure, led us to our current climate and social quandary. There is great need not only to advocate technology user skills, but also for the diverse study of technology itself to unpack and understand its epistemological structure so we may learn it, develop it and teach it effectively, efficiently and appropriately.

Technology is a phenomenon that is very old and familiar, and it can be argued to not be necessarily peculiar, in its basic presentation, to human kind. Yet it is relatively recent in scholarly attention with rules to be discovered and articulated. This simple assertion is often met with denial among some school teachers. Equally, much discussion usually classifies the subject as a 'simpler' field to teach or study compared to the pillars of Maths, Science and English. Interestingly, technical qualifications such as architecture, engineering, industrial design and even full trades tend to require three to five years to cover sufficient depth to gain professional registration, but the educational component of secondary teaching can be gained in as little as a one year diploma of education or at best a two year add on education

degree. Even a science degree can expect to reach completion in two to three years. We are entitled to ask: to what extent are teacher accreditation bodies, existing non-technology teachers and universities investing in and demanding intellectual leadership of the subject so that school practice and curriculum evolutions build a culture of professional progression, skills and diversity? And further, to ask to what extent are there efforts in place to perpetually develop a view of what constitutes an *education* in technology for the individual and our civilisation?

To wake up the subject, to foster critical technacy, would we not want to see in-service technology teachers demand of pre-service teachers that they bring to the school new ideas and practice them, while learning well established ones from their peers? Would not the teacher registration and employer agencies demand of university technology teacher courses that they include evidence of fostering a research culture of teaching practice, and of a suite of knowledge and skills about the study of technology as a phenomenon, to learn the principles at play, for grounding choices, production and designs? Would not Australian teachers get upset if they did not see a national professional journal update itself regularly or evolve their knowledge base and lead on big technology issues in curriculum such as the ability to appropriately synthesise social, technical and environmental knowledge in designs and choices? The matured technology subject includes critical technacy and the design of our digital and material worlds. It would be a curriculum borne out of a professional technology teacher culture highly protective of innovation and diversity attributes as pillars of its branding, with leading post-graduates as much as leading classroom practitioners where the career naturally values the role of both. In short, the alert technology curriculum would be adaptive to its immediate needs and direct its vision towards our civilisation's future.

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