Roadblocks, Roundabouts and Thoroughfares: Two Perspectives on Designing for Continuous Innovation and Sustainability at Two Australian Universities

P. A. Danaher
Faculty of Education and Centre for Research in Transformative Pedagogies, University of Southern Queensland, Australia

Jay Somasundaram
Office of the Executive Director (Corporate Services), Central Queensland University, Australia

Abstract

This paper presents a debate between the authors designed to articulate two different perspectives on designing for continuous innovation and sustainability at Central Queensland University and the University of Southern Queensland in Australia. One perspective, drawn from engineering and the physical sciences, conceives of innovation in terms of technology understood as applied science, with quantification and reduction essential precursors to effective optimisation. The other perspective, derived from education and the social sciences, understands innovation as transformation of practice (Denning 2004) and as contingent and situated and concerned with issues such as value and community.
The authors argue that both these perspectives are indispensable yet contradictory ingredients in the likely future composition and constitution of contemporary universities. On the basis of the application of these perspectives, there are as many roadblocks and roundabouts as there are thoroughfares in designing futures in and for these institutions. This finding suggests both the robustness and utility of the theoretical perspectives deployed and the need for an ongoing interrogation of what innovation is and whom it benefits and/or disadvantages. This is the approach most likely to contribute to genuine and productive sustainable innovation in higher education in the early 21st century.
Overview of presentation

• From the literature to the debate
• Technology as applied science
• The transformation of practice
• Debating the two perspectives
• Focused discussion
From the Literature to the Debate

• “…new ideas can be placed on a novelty continuum” (MacFadzean, O’Loughlin & Shaw 2005, p. 353)

• At one end of continuum is continuous improvement, exemplified by Liker’s (2004) account of the 14 point “Toyota Way”

• At other end of continuum is discontinuous (Bessant 2005) or disruptive (Christensen, Anthony & Roth 2004) innovation, with “new organizations [using] relatively simple, convenient, low-cost innovations to create growth and triumph over powerful incumbents” (Christensen, Anthony & Roth 2004, p. xv)
• Multiple definitions of innovation; concern that ‘real life’ decisions not necessarily linked with predetermined goals
• Link between these competing ideas about innovation and notions of sustainability
• Innovation’s moral purpose and ethical responsibility encapsulated in understandings of sustainability as “The pursuit of long-term viability and progress of our business while taking responsibility for improving the environmental, social, and economic conditions resulting from our enterprise” (Genecor International 2002, n.p.)
From the Literature to the Debate (Continued)

- This paper enacts a debate between two approaches to conceptualising the links between continuous innovation and sustainability in two Australian universities:
  - technology as applied science
  - transformation of practice (Denning 2004)
- Focus on using the two lenses to interrogate examples of teaching and learning practice at the two universities as potential roadblocks, roundabouts and/or thoroughfares in designing for continuous innovation and sustainability
Technology as Applied Science

- Engineering designs based on clear and quantified process of reduction and control and application of commonly agreed standards
- Pedagogical equivalent is implementing referencing standards for university students
- Feedback and control loop of mechanistic systems also apparent in governments’ performance standards for universities, with measurement used as a heuristic as well as for control
Technology as Applied Science (Continued)

• As Lord Kelvin states in relation to the physical sciences:
  I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the state of Science, whatever the matter may be. (cited in Thomson 1883/1891, p. 80; emphasis in original)
Technology as Applied Science (Continued)

• Professional organisations have evolved skills-based hierarchies
• Universities have evolved similar hierarchies but centred on research rather than teaching and learning
• Universities have also evolved management and administration to oversee these processes (managers not necessarily expertise in all three skillsets of subject discipline, teaching and management)
• Third generation systems thinking addressed three flaws in second generation mechanistic systems:
  
  - tendency to look at and solve parts of a problem, not the problem as a whole (e.g., university student attrition)
  
  - mechanistic systems are mindless (decision-makers not necessarily knowledgeable, rational, altruistic or beneficent)
  
  - real organizations are multi-minded (multiple and competing goals of numerous stakeholders)
Technology as Applied Science (Continued)

• Three strategies needed if the design of continuous innovation and sustainability at universities is to be effective:
  - open and fearless culture capable of “polylogue” (Covey 1990) among stakeholders
  - improvement in both science and the technology of pedagogy whereby the profession establishes generally accepted standards
  - willingness to assess effectiveness, economy and other relevant parameters of learning system
The Transformation of Practice

• According to Denning (2004):
  An innovation is a transformation of practice in a community. It is not the same as the invention of a new idea or object. The real work of innovation is in the transformation of practice. In this definition, community can be small, as in a workgroup, or large as in the whole world. A transformation of practice in the community won't happen unless the new practice generates more value to the members than the old. Value may not be economic; it may be pride, reputation, health, safety, freedom. Many innovations were preceded or enabled by inventions; but many innovations occurred without a significant invention. (n.p.)
The Transformation of Practice (Continued)

• Five key elements of this conceptualisation:
  - practice
  - community
  - value
  - transformation
  - interplay between organisational and personal processes
The Transformation of Practice (Continued)

• Link between transformation of practice and Introna’s (1996) distinction between teleological and ateleological approaches to design processes

• Link between transformation of practice and contemporary theorising around postmodernity and poststructuralism (Sarup 1993)
The Transformation of Practice (Continued)

• Webfuse at CQU:
  - online course management system
  - led by David Jones
  - began in 1997 in the then Faculty of Informatics and Communication
  - major platform for online delivery to students
  - localised and responsive
  - was changed to accommodate the needs of its academic and administrative users
  - became politicised and seen as a ‘shadow system’
  - also acknowledged at other times for its innovative contribution
The Transformation of Practice (Continued)

• Generic Online Offline Delivery Project at USQ:
  - developed locally
  - enables cross-media publishing from a single
document source by content management system
and content editing environment
  - GOOD “provides an integral ‘engine’ for the
 provision of a range of e-applications, including e-
Enrolment, e-Administration, e-Commerce, e-
Publishing, and not least e-Learning” (Smith 2005,
n.p.)
  - cited as part of the justification for USQ being
2000-2001 joint winner of the Australian Good
Universities’ Guide “University of the Year” and
2004 winner of the Commonwealth of Learning
Award for Excellence for Institutional
Achievement
The Transformation of Practice (Continued)

• Three features of designing for continuous innovation and sustainability in teaching and learning at CQU and USQ:
  - ‘transformation of practice in communities’ (Webfuse and GOOD designed with specific communities of practice in mind and located in those communities)
  - added value to and helped to fulfil the interests of large numbers of members of those communities
  - both development teams used considerable localised initiative in developing the innovation (the primemovers in identifying a significant teaching and learning need and responding to it)
The Transformation of Practice (Continued)

- Three implications for promoting continuous innovation and sustainability:
  - Decision-makers must identify and celebrate the wide diversity of communities of practice that constitute both organisations.
  - Resources must be allocated to recognising and researching the values and interests of those multiple communities.
  - The organisation must find ways to encourage and reward the work of individuals and groups who take initiative in developing these kinds of innovations.
Debating the Two Perspectives

• What is innovation in teaching and learning?
  
  - technology as applied science: establishment of theory based on sound empirical evidence, driving commonly accepted standards and good practice; learning systems managed by monitoring for efficiency, effectiveness, equity and other parameters and with compliance with accepted standards of good practice
  
  - transformation of practice: highly ateleological; non-linear and non-sequential; highlights the contingent, organic, situated and unpredictable character of innovation located in particular communities of practice
Debating the Two Perspectives (Continued)

• Which views of knowledge underpin different perspectives on innovation?
  - technology as applied science: practice driven by application of theory driven by empirical evidence in a continuous cycle
  - transformation of practice: knowledge as contingent, interested, partial, subjective, tentative, constructed in and by particular communities of practice and in different spatial and temporal contexts
Debating the Two Perspectives (Continued)

• Which views of contemporary universities underpin different perspectives on innovation?
  - technology as applied science: universities as ‘knowledge factories’, responsible for producing knowledge as economically and effectively as possible
  - transformation of practice: universities as complicit with the current dominant interests in society, can and should be the site of resistance and transformation of those interests, quality assurance and league tables as mechanisms of control and surveillance
Debating the Two Perspectives (Continued)

- How can innovation in teaching and learning be designed most effectively?
  - technology as applied science: focus on systematically implementing accepted theory, continuously monitoring and evaluating success based on effectiveness, economy and equity
  - transformation of practice: innovation design most effectively ‘caught, not taught’, individuals working in different parts of the system respected and trusted to discharge their respective roles and responsibilities efficiently, implementation and evaluation occurring in situ with space and time to reflect on benefits or otherwise of the change
Conclusion

• Considerable confusion (and potential roadblocks and roundabouts) around designing for continuous innovation and sustainability in contemporary university teaching and learning

• The debate in this paper has elicited diverse understandings of knowledge construction and communication and varied assumptions about the purpose and significance of universities

• The debate has been useful in assembling evidence for our argument: that both sets of ideas characterise and are necessary for potential thoroughfares in designing for continuous innovation and sustainability in university teaching and learning (cf., ‘macro’ and ‘micro’ dimensions of educational change)
Conclusion (Continued)

• Significant limits to the conceptual and methodological pluralism implied in the preceding point (a risk that the ateleological counternarrative might be consumed and subsumed by the teleological narrative)

• Conclude with an uneasy truce between two different views of continuous innovation and sustainability; also need an ongoing interrogation of claims about innovation and sustainability if the thoroughfares are to be facilitated and the roadblocks and roundabouts are to be minimised
References


References (Continued)


References (Continued)


Thank you for participating!

- Woof!
Focused Discussion

• What are other understandings of continuous innovation and sustainability not included in this debate?

• What are other debates about continuous innovation and sustainability?

• What resonances (if any) might there be between this debate and others’ work in this area?

• What strategies are most effective in promoting continuous innovation and sustainability in:
  - university teaching and learning
  - other key areas of contemporary work and life?