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Experiencing and thinking difference in teaching, learning and assessment (0037)

Learning, teaching and assessment practices are being significantly challenged both locally and globally as Higher Education relentlessly struggles to adapt to economic, political and societal demands from a world that is rapidly transforming. In these uncertain times higher education is increasingly looked to for 'solutions', yet it is not at all clear what types of solutions are required, what problems they should address and indeed if the challenge is at all coherent. It appears that very soon the higher education environment and the society/world it serves will be remarkably different to what they are today. The challenge for teaching and learning is how to prepare student, staff, college, and indeed society for a type of transformation where being/identity is challenged at all levels. Fundamental ontological change is not amenable to planned solutions as by definition we are dealing with the unknown. However adapting to any change is a learning process and perhaps some of the learning experiences we work with in higher education are currently or potentially suitable for facilitating ontological adaptation. The question arises however about how we would recognise such experiences and how we could model the learning involved. This paper presents a general approach that attempts to address these issues and proposes a candidate model for 'learning in the context of ontological change'. (1, 2, 3, 4, 5, 6)

Central to the approach described is the identification of suitable cases for study. There is no shortage of cases of learning in a changing environment however more is required for cases of learning in an ontologically challenged context. We set a requirement that three levels of change be present for a case to qualify; each case should involve (i) changes in learning, (ii) a transformation in what is being learned and (iii) another compounding transformation (e.g. a life transition). Three such cases contributed to the work presented in this paper. The first involved changes in teaching, learning and assessment that paralleled a major and rapid disciplinary development, with learners in transition from being students to being graduates. The second involved changes in learning, teaching and assessment required by a significant course redesign, with learners transiting from being at school to being at university. The final case involved adapting the delivery of learning, teaching and assessment to significant structural change in the organisation and staffing of a department, while an academic transits from being a lecturer to being a manager.

In the first case a key teaching goal was to prepare final year students for the less certain world they would encounter on graduation. The curriculum content started as the then current research interest of the teacher, a minor topic within a discipline. This case was uncovered by an historic examination of how the teaching, learning and assessing was adapted as the topic morphed, grew and eventually colonised the discipline. The research identified beginning, developing and maturing stages that aligned with a change in focus of approach from novelty, to breadth and depth, and to selecting and integrating. These stages formed part of an initial tentative model. The other cases were both current when the research was undertaken and were used for in situ testing of the developing model.

A second key element in our approach was the identification of areas, not necessarily in education, where we are confident that learning in the context of ontological change occurs and where some theorisation already exists. The development of the sciences presents a rich territory; there are many studies and theorisations of paradigm shifts including some that emphasise an associated learning. Studies of learning accompanying a change of worldview can be found in the works of Bateson (9, 10), Deleuze (11, 12), DeLanda (13), Peirce (14, 15) and Stengers (16, 17). These studies were used to theorise the developing empirical model and give a more generally applicable model. A current version of this model is shown in Table 1.

Table 1

Level 3	Thinking Difference	<i>both/and...else</i>
Level 2	Constructing Knowledge	<i>part-whole—context</i>
Level 1	Dynamics of Discovery	<i>then→now»if</i>

The model has three levels, related in triadic Peircian fashion. As in Bateson’s modelling of learning the higher levels contain those lower; i.e. thinking difference requires constructing knowledge which in turn requires dynamic discovery. Level 1 is heavily influenced by Peirce and involves creating, innovating, and generating ideas in new and unknown situations; the associated ‘*then→now»if*’ structure emphasises the flow of time, past to present, and the imagined future. Level 2 involves the organising and reorganising that accompanies sense making. This part of the model is heavily influenced by Bateson and describes much of the teaching, learning and assessment practice presented by Biggs. (7) The associated ‘*part-whole—context*’ structure emphasises the relational aspects of knowledge construction and in particular differentiates *whole—context* from *part-whole* ways of relating. Level 3 owes much to the works of Deleuze and DeLanda and involves working with difference; in contrast level 2 involves sameness. The associated *both/and...else* structure emphasises multiple concurrent viewpoints; in contrast level 2 involves *either/or* structures that mutually exclude.

The model was validated by testing it in situ in cases two and three, where it significantly enriched teaching, learning and assessment. For example *part-whole—context* relating significantly impacted on uses of Biggs’ Structure of Observed Learning Outcomes and *both/and...else* structures impacted strongly on assessment and course design tasks.

Stengers’ impact on the modelling is more subtle but also more pervasive. She has a well-developed modelling of academic practice that includes both learning and learning with ontological change. The territory she studied included both successes and failures of worldview shifts in the sciences. Her writings however are also attempts at morphing the current scientific worldview. (8) Engaging with her work is, we believe, another example of ‘changing learning in the context of ontological change’ and qualifies as a case under the criteria we presented above. Thinking difference with Stengers has profoundly influenced our work but we have not as yet made explicit how this is so.

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