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Projecting innovation in higher education: an Australian study

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This paper presents the findings of a preliminary study that reviews the literature detailing the historical trajectory of innovation in higher education. It contextualises this history for the 21st Century university (specifically for its developments in teaching and learning). Against this backdrop, the study interrogates the ontological disconnect of the university serving its community while also being a driver for change. A scoping study and textual analysis of the innovation strategies of all 40 Australian universities is presented. *Per conjecturam*, the study poses the question; if every university purports to be innovating in teaching and learning, how might a university reconsider its interpretation and representation of innovation in this space so as to become genuinely innovative?

Keywords: innovation; teaching and learning; learning technologies.

Introduction

Innovation as either a brand-defining practice of industry disrupters or a central headline strategy of governments belies a history marked by derision. While politicians now stake their leadership and progressive economic prowess on the notion of leading 'innovation nations' (Kenny, 2015; Luis Granados Mateo, 2019), the prudence of this strategy was not always so assured. With its transition into the mainstream as a buzzword (for what might otherwise be called 'change'), innovation has inherited an ambiguity borne of its historical misadventures that affects both its representation and interpretation.

Innovation is ontologically inherent in the tertiary, or 'higher', educational trinity of teaching, learning and research. It is thus not an unreasonable expectation that universities make or seek meaning in this space. Practically, innovation is fundamental to a university's research function, and should also be so for ensuring ongoing, positive transformation in teaching and learning (T&L). However, identifying as innovators in teaching and learning is proving increasingly important for universities in both economic and symbolic terms (Airasian, 1988; Guerrero, Cunningham, & Urbano, 2015). As a preliminary foray, this study's scope is necessarily dispersed, however it is designed to seed further studies that may map, define, classify and benchmark innovation activity in teaching and learning in universities.

The symbolic conceptualisation of innovation might be considered as at odds with the operational drive of innovation strategies. Bringing these paradigms together, this study presents an analysis of how Australian universities project these teaching and learning strategies using the language and symbolism of innovation. Many questions arise from this scenario; however, this study explores the terrain of the representational disconnect, and to what extent this erodes the possibility for genuine innovation, and any subsequent positive transformation to teaching and learning.

In undertaking this exploration, this study adopts a 'transformative worldview' (Mertens, 2017; Noriyuki Inoue, 2016; Trevors, Pollack, Saier, & Masson, 2012) to inform its methodology. While educational research has been dominated by four approaches – namely postpositivist, constructivist, pragmatist and emancipatory (Mertens, 2008) – this study shares Mertens' preference for transformative over emancipatory "because of a desire to emphasize the agency role for the people involved in the research. Rather than being emancipated, we work together for personal and social transformation." (Mertens, 2008) This study operates within these parameters by considering the ontological imperative universities have to define innovation as a positively transformative force. By scoping and presenting the current, disparate application of the word (herein incorporating the broader 'lexicon of innovation') and the concept in a national university 'ecosystem', the study raises the spectre of failed opportunity.

Literature review

This study acknowledges the eurocentrism of literature detailing the historical and theoretical trajectory of innovation. While there is evidence of alternative histories (Herbig, 1997; Riello, 2018), it should be noted that this study is essentially reliant on the literature available as pertinent to higher education. According to this particular canon, the history of the conceptualisation of innovation and, consequently, its (re)presentation begins in Greece, in the fifth century BCE, with the emergent use of the word *kainotomia* (καινοτομία):

> The word is derived from *kainos* (new). Initially, *kainotomia* had nothing to do with our current or dominant meaning of innovation as commercialised technological invention. Innovation meant 'cutting fresh into'. It is used in the context of concrete thinking (as in 'opening new mines'), as well as abstract thinking ('making new'). Innovation acquired its current meaning as a metaphorical use of this word…in the hands of ancient philosophers and writers on political constitutions, innovation is "introducing change into the established order. (Godin, 2014, p. 19)

Within this passage, we can observe an array of verbs applied as metaphorical forces enveloping the original definition – *cut*, *open*, *make*, *change*. Perhaps this representational multiplicity is at the root of both the scepticism that plagues its history and the opacity that clouds its understanding.

While varied applications and contexts have determined its reception, the dominance of the pejorative use of the lexicon of innovation is noteworthy. In certain periods, scepticism is too generous a term; in the Reformation, innovation and heresy became "practically synonymous" (Preus, 1972; Godin, 2014, p. 98), while Europe's age of political revolution witnessed the word taking on "…a morally charged tone…Innovation is violent..."(Godin, 2014. p. 119)

It is not until the extended period of industrialisation and the corresponding rapid, technological advancement – a period starting in the late 18th Century, and continuing to this day – that innovation undergoes a "semantic rehabilitation." (Godin, 2014, p. 37). Science challenged religion for primacy in the quest for both knowledge *and* knowing, while economic theories simultaneously reformulated the principles and models of production. Not surprisingly, the principles and models of education shifted accordingly:

> The earliest form of the university promised to give…access to God, to an immediate encounter with extra-worldly forms of understanding or to active participation in the unfolding of a universal Spirit. Now, in its place, we have the

> practical university, the performative university and the pragmatic university. (Barnett, 2011, p. 19)

Where Godin adeptly portrays the social, religious, political and cultural shifts that define the historical perceptions of innovation; scholars of higher education like Barnett present a parallel lineage where the university moves through reflective or responsive stages (like the transition, described above as from *metaphysical* to *scientific*). Presented as such, one can see how the conceptualisation of innovation as applied to higher learning (and its institutions) mirrors these historical conceptualisations and representations – and subsequent perceptions.

Those who pondered or posited theories of innovation across the course of the aforementioned history paved the way for the theoretical dissection of innovation in terms enriching enough for contemporary studies; particularly as pertinent to the scholarship of teaching and learning (SoTL). As such, it is timely to review some of those studies that regularly cross over from the broader field of innovation studies, and into this scholarship.

Systematic reviews of innovation literature (e.g. Crossan Mary & Apaydin, 2010; Keupp, Palmié, & Gassmann, 2012; Linan & Fayolle, 2015) identify the ongoing impediments to the analysis and application of ideas about innovation practice, most markedly that innovation is consistently very "loosely" defined and is regularly "employed as a substitute for creativity, knowledge, or change" (Crossan Mary & Apaydin, 2010, p. 1155). Further muddying the waters is the tendency to conflate product, process and organisational innovation models and theories, applying the same language to products associated with novel solution, processes required to secure that solution, and organisational drivers that dictate the prioritisation of one over the other (Abernathy, 1978; Boer, 2001).

Compounding the misconceptions is the application of the lexicon of innovation in symbolic terms, rather than contextualising tangible actions as innovative. In a recent book-length analysis of innovation in higher education, J. David Johnson (2018) both an innovation researcher and a higher education administrator, makes the important distinction between these outputs and the symbolic roles and impacts of innovation in the sector. He notes that the symbolic value of innovation is particularly important for universities "because so much of their standing with stakeholders is based on prestige hierarchies and ranking systems" (Johnson, 2018, p. 134).

Johnson makes a further distinction noting that the process of innovation actually refers to three distinct things: the creative process of generating innovative ideas, the diffusion or transfer process of disseminating and socialising the idea(s) and the actual process of successful adoption and implementation. It is often caught up with an undefined "language of optimism" which conflates enterprise, entrepreneurship and innovation (Johnson, 2018). Reflecting Johnson's observations, literature on innovation with a focus on entrepreneurship (Christensen, 2011; Drucker, 2006; Keeley, 2013; Ries, 2011) is becoming increasingly assimilated into the strategic language of higher education leaders (Schmitz, Urbano, Dandolini, Souza, & Guerrero, 2017). Concepts such as the 'triple helix of innovation' (Etzkowitz & Leydesdorff, 1997) and 'Mode 2 knowledge production' (Gibbons, 1994) becoming the norm for framing and promoting change and growth initiatives and projects.

Unsurprisingly, a substantial body of literature frames innovation research in teaching and learning as technological innovation. 'Innovation Diffusion Theory' (Rogers, 2003) has proven highly influential in tracing the adoption of technologies in digital teaching and learning

development in universities (Lee, Hsieh, & Hsu, 2011; Sahin, 2006; Scott & McGuire, 2017; Warford, 2005). From these early foundations, an expansive breadth and depth of literature addresses the pedagogical application of technologies (Ng'ambi, Jameson, Bozalek, & Carr, 2016), the institutional logistics of managing technologies (OECD, 2016) and the diverse and changeable positions (and position titles) required to implement technologies (Mitchell, & Adachi, 2017). There is a lesser, and somewhat fragmented, subset of texts that interrogate the particular culture and character of innovation in teaching and learning (Fischer, 2015; Zhu, 2015). However, this emerging literature highlights a positive culture of innovation as an essential factor in "influencing teachers' perceived need, perceived usefulness, responsiveness and implementation of technology-enhanced innovation." (Zhu, 2015, p. 65)

Alongside the scholarly literature there is a burgeoning grey literature dedicated to mapping, reporting on, or predicting the future of the educational innovation landscape – typically 'white-paper' style documents such as the annual NMC Horizon (Adams Becker, 2017) and Open University Innovation Reports (Ferguson, 2017). In providing relevant summaries of empirical studies, as well as qualitative case studies, these resources are useful in identifying innovative practice that is developing measurable impact and is addressing real-world need and application.

These reports address, to some degree, the great challenge with defining innovation and proactively implementing an innovation agenda – building an evaluative framework within which the success (or otherwise) might be measured (Etzkowitz & Leydesdorff, 1997; Thorp & Goldstein, 2013). While observational research has presented rich data (Bovill, Cook-Sather, & Felten, 2011; Carey, 2013; Maisch & Sobiechowska, 2007) it does not always address the institutional need for measurable impact and return on investment analysis buoyed by quantitative targets. Such measures include student retention, pass/fail or student satisfaction rates. These methods are problematic for measuring the less tangible qualities of innovation, again, frequently confusing or conflating innovation as process and innovation as product. As this study's findings reveal, Australia's universities are inadvertently contributing to the incongruity by presenting divergent projections of what teaching and learning innovation is, and, consequently, how it should, or could, be measured.

Methods

The approach adopted for this scoping exercise is largely underpinned by two methods. First, the theoretical aspect of this study was guided by a literature review of historical, theoretical and philosophical texts concerned with both innovation and higher education. Second, the review of Australian universities' innovation documents and websites was undertaken as a scoping study, with an aim to progress this work empirically in future studies. This acknowledges the breadth of textual and conceptual application of innovation across this landscape, and applies a method that provides a lens through which to assess it. With this, steps can be made to identify patterns (or absence of pattern) and/or particular nodes of activity (or absence of activity) and re-visit to apply empirical methods as required.

The overview of how universities represent their commitment to teaching and learning innovation strategies was generated using content and thematic analysis (Vaismoradi, Turunen, & Bondas, 2013) of Australian universities' strategic teaching and learning documents. This was undertaken by accessing the public-facing teaching and learning sites of every Australian university and applying a rubric with five criteria and three quality definitions to assess any information about innovation contained therein. A mark was assigned each quality definition;

those with three outputs (criteria 1-3) scored as 0.0/0.5/1.0, and those with two outputs (criteria 4-5) scored as 0.0/1.0 (Table 1).

Table 1: Rubric used to assess access to, detail and projection of T&L Innovation information.

Criterion	1.0	0.5	0.0
Ease of search: describes the ease of finding information about the university's L&T innovation strategy, based on the time taken and navigation path using a variety of search commands (individually and combined): - innovat/e/ing/ion; - learning; - teaching; - strateg/y/ic).	Resources easily and quickly accessed.	Resources moderately easy to access.	Resources accessed with difficulty or inaccessible.
Depth/detail of information: describes the information available on the university's L&T site. In those instances where there was not an accessible innovation site this was limited to information available on the general L&T site.	Very detailed, dedicated L&T innovation site.	Moderately detailed, dedicated L&T innovation site or L&T innovation information made available on L&T office site.	Minimally detailed L&T innovation site or no L&T innovation site.
Mention of innovation: describes the number of times (and context within which) innovation is mentioned in the context of L&T.	Multiple mentions of innovation in L&T documentation, contextualised relative to the institution's vision and strategic direction.	Occasional mention of innovation in L&T documentation, weakly or not at all contextualised relative to the institution's vision and strategic direction.	Minimal or no mention of innovation in L&T documentation, weakly or not at all contextualised relative to the institution's vision and strategic direction.
L&T on university homepage: identifies universities with direct links to their L&T office/function from the university homepage, indicating the prominence and value the university gives this function.	Yes		No
L&T innovation output (extending criterion 2 - *Depth/detail of information*): Identifies the availability (and transparency) of the university's L&T innovation goals/strategy. Identified by question: "Is there an innovation website/document or is there no direct website/document?"	Yes		No

Findings

Upon completing the analysis of 40 Australian universities using the rubric, it was evident that Australian universities define, contextualise and project innovation in teaching and learning variably and inconsistently. This evidence is consistent with how innovation has been defined, contextualised and projected historically. While it is not in this study's scope to surmise that this variability and inconsistency might tap into the historical veins of scepticism, it is nonetheless an interesting position to consider, particularly for those who work in innovation roles in universities.

The data collected for this study is a foundation upon which further consideration and analysis may be built, however before outlining these opportunities, it is important to present some detailed findings of the scoping study by way of reviewing the outcomes for each criterion applied.

Criterion 1 (Ease of search) identified those universities with easily and/or rapidly accessible teaching and learning innovation resources (with the search terms directing the user to the resources identified in Criterion 5). Search outputs for mid- or lowly-rated universities in this category were typically picking up in-text references to non-specific resources or directing the user to pages that led to a trail of tangential links that may, or may not, lead to a teaching and learning innovation resource. Rating the ease of this search was an indication of the likelihood of an external user finding relevant and useful information. This category generated a ternary output, with the range bookended by the inaccessible, or difficult to access, to the straightforward.

Criteria 2 (Depth of information) and 3 (Mention of innovation) generated the most varied output among the high-scoring universities. The depth/detail of information presented interesting variations of how teaching and learning innovation information is presented. While each high-scoring university provided extensive information, certain outputs extended beyond the simple transmission of information to present innovative practice in action. The use of case studies and exemplary practice was common to each university in this band. There was variety, with some universities establishing innovation institutes, centres or hubs (one of which had a detailed evaluation framework), and others delivering professional development opportunities and training in innovative teaching practice.

Criteria 4 and 5 each had a binary output allowing for the swift allocation of points. Each university in the 'Yes' band received an immediate mark for having a direct link to their teaching and learning office/function on the university homepage – rated here as an indication that there is an immediate value placed on this function, as one that each university wishes to project and make available publicly.

Each university in this band received another mark for having a deep link to a teaching and learning innovation site or document – rated here as an indication of both transparency around the sharing of information regarding innovation within, and/or an openness in detailing the strategic importance of the teaching and learning office/function at the university. It should be noted here that the content of these resources was, to some extent, accounted for by Criterion 2 (Depth of information).

One university identified by this method emerged as the absolute leader, addressing all criteria at an exceptional standard (the author would like to acknowledge that the university described is not the author's university of employment). This university's teaching and learning innovation website presented excellent case studies of teaching and learning innovation (each showcased in a clear framework identifying the challenge, the changes and the results specific to the case), delivers an innovative teaching training program, has clearly linked and downloadable vision/strategy documents (in both one-page and long format) and operates a 'lab' environment where teaching staff can access support and advice, and collaborate. Notable, too, was the intuitive, elegant UX/UI design considerations evident in the site design; surprisingly exceptional considering the import placed on usability in the provision of educational technologies.

Overall, the prominence given these initiatives, practices and strategies by the universities in this band (those with the 'perfect' score of 5.0) indicate leadership ensuring these capabilities are prioritised, while generating an embedded and sustainable innovation culture.

To aid the comprehension of the complex (and aforementioned variable) data gathered, a diagrammatic representation was developed. To do this, each university's mark against the criteria was coded using a 'traffic-light' colour scheme (Table 2, Columns 1-5). This same traffic-light colour scheme was then applied to each university's total mark (Table 2, Column 6). Universities with totals in the 0.0 - 1.5 range were represented as red; those with totals in the 2.0 - 3.5 range were represented as amber, and those with totals in the 4.0 - 5.0 range were represented as green. Figure 1. below captures this range, and further highlights 5 universities that received the minimum score of 0.0, and 5 universities that received the maximum score of 5.0.

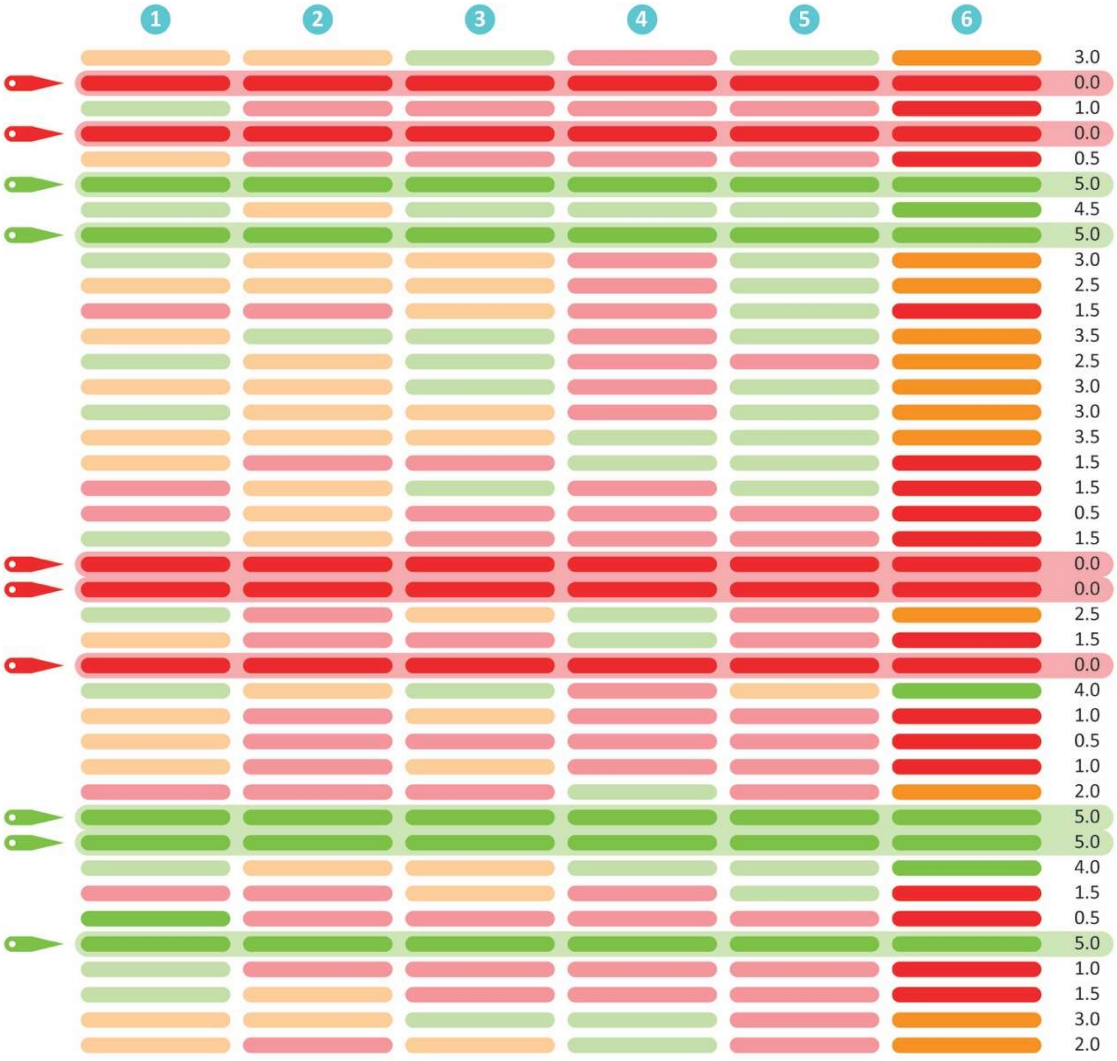

Figure 1: Visualisation of individual criterion results and total results.

To align with this study's overarching position, these outcomes can be read as representing the continuum upon which the clarity (or otherwise) of articulation and the consistency (or otherwise) with which innovation is represented. The five universities achieving full marks

(based on the pre-determined criteria) of 5.0 in the analysis shared certain fundamental characteristics of traditions in which innovation flourished.

Next steps

From this preliminary study, it is evident that certain universities project innovation in teaching and learning more directly and coherently than others. From this stage of research (given this study's limited scope), further inference and analysis around the adaptation and implementation of innovative strategies – the last stage of innovation in Johnson's model (Johnson, 2018) – needs to be judiciously directed. As such, emergent discussion and argument will benefit from extending and strengthening the scope of the research. From this foundation, further studies might unfold in multiple ways:

1. Acquiring access to the universities' internal resources (e.g. strategy documentation, teaching and learning data/analytics/surveys) to extend beyond inference and build evidence detailing the value the university places on innovation in teaching and learning; how the university defines, measures and evaluates innovation in teaching and learning; and the organisational structures in place to embed, grow and support innovation in teaching and learning. Alongside this, review of and greater detail in analysis categories could be incorporated
2. Upon developing this analysis, explore what institutional 'patterns' or 'clusters' emerge with regards these measures. That is, investigate what tendencies there are for strategic (or rhetorical) strategies to be shared among "Sandstones, Gumtrees, Unitechs or New Universities" (Marginson, 2004, p. 8), or whether there are characteristics shared according to alternative, yet-to-be-defined categories?
3. Deeper qualitative research methods applied to include interviews with key university stakeholders leading or participating in innovation projects to identify perspectives and insights how they perceive or constitute innovation in teaching and learning (conceptually and representationally) and how innovation strategy is enacted. The purpose of this approach is to generate detailed insights into how perceptions manifest in delivering visions of innovation, and whether there is any correlation between the two conditions.

By highlighting both vision and strategic direction in this critical developmental area, a space is opened where those responsible for delivering positive transformation in teaching and learning might reflect on their own place in the landscape, and choose to articulate more clearly and organise more decisively. With this improved articulation and organisation there is greater possibility to define accountability for facilitating genuine innovation for, and by university teachers and learners.

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