Does Boyer's Integrated Scholarships Model Work on the Ground? An Adaption of Boyer's Model for Scholarly Professional Development

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Keywords

Boyer, Integrated scholarship, Professional development, Curriculum development, Academic mentoring, Performance benchmarking, Higher education

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Introduction

Boyer's (1990) now famous proposal that scholarship may be defined as an integrated approach to an academic's life has become an important model in which university academics and institutions now frame their scholarship. In this article, I reflect on my personal use of Boyer's model, over the last decade, in defining my own scholarship, and in supporting my own efforts at peer mentoring. While this reflection does not directly address issues of pedagogy, I argue that it provides a sound basis for improved pedagogical practice in the University. Having used the model for nearly a decade as the foundation to my role as a teaching university scholar, I now find myself in a good position to ask the question, does it work?

Boyer's Model of Four Integrated Scholarships

Boyer's evolving model of four scholarships (Boyer, 1990, 1996), bringing together the scholarships of discovery, integration, application, and teaching, naturally aroused considerable interest amongst those concerned about the scholarship of teaching and learning, especially in higher education (e.g. Starr-Glass, 2011; Bailey & Munroe, 2013). There is a growing literature on the adoption of Boyer's model and its principles and practices across the disciplines and in expanding the scope of SoTL-informed teaching and learning (e.g. Ragland, 2008; Dewar & Bennett, 2010; Woodhouse, 2010). Many writers focus on the advantages to curriculum development and the improvement and increasing effectiveness of teaching – what Starr-Glass (2011, p.5), for example, notes is a Boyer-influenced extension of SoTL, that "goes beyond peers and sharing that

extents to students … [according the] proper priority to the idea that teaching is an activity that emerges in collaboration with students as partners in learning …" – and indeed many have reviewed Boyer's ideas in detail.

What becomes clear in such writing is the close nexus between scholars' sense of professional identity and what they see to be their enhanced capacity to deliver good teaching and learning. Although it is often unstated or understated, the role of Boyer's model appears to play a significant part in the (implicit) professional development of individual scholars, as much as in the (explicit) enhancement of pedagogical practice. It is this implicit role that I examine here, set within the context that it plays into a wider pedagogical arena.

There are those, of course, who critique the approach proposed by Boyer. Gurm (2013), for example, has recently questioned the seemingly positivist approach implicit, in her view, in current adoptions of Boyer's model: "It would be wise", she suggests, "for the academy to put on breaks [sic] and critically reflect on the direction the canon is moving … the academy must become …a 'learning organization' … There are paradigms other than natural science". Others identify practical issues. On the one hand, some draw on role of Boyer in developing scholarship-driven pedagogy. Colbeck & Michael (2006), for example, conclude that "reframing academic work as public scholarship fosters faculty engagement in and administrative and peer evaluation of professional work as an integrated whole that is more than the sum of the parts [and that] faculty that conduct public scholarship view their discovery, integration, application and teaching scholarships as a complex and integrated public resource leads to publication-worthy discovery while also actively engaging students in meaningful learning with real-world problems in partnership with the community outside academe" (p.17). Others, however, focus on the issue of academic professional development. Braxton *et al*. (2002) comment that "an important question emerges: To what extent do college and university faculty members engage in the work of each of the four domains of scholarship?". They argue that, despite the significance of Boyer's work, little research had addressed this question, although their review of the extent to which Boyer's four scholarship domains had become institutionalized in higher education came to an optimistic conclusion.

It seems, however, that whatever critique is raised, there is, across the higher education sector, a general enthusiasm for, and uptake of, Boyer's ideas. Cox & Harris (2010) are not atypical when they describe the use of Boyer in assisting academics to "engage in diverse pedagogical experiences … [through] … the scholarship of teaching at various stages of their academic careers" (p.3). Many academics have taken the model on board with gusto. Elliott-Johns (2011, p.3) describes this adoption eloquently:

> Very soon afterwards, this timely nudge resulted in my delving wholeheartedly into the literature and the discovery of Boyer's fourfold vision of scholarship, representing a highly significant turning point in my own development as a teacher educator, researcher, and writer. It was, in fact, something of an epiphany! … Boyer's model resonated with me, and opened up whole new ways of thinking about my role(s) as a teacher educator, researcher, and 'scholarly' writer.

Institutionally, Boyer's model has also helped frame formal processes. In my university, for example, the relatively new promotions, professional management, development and review (PMDR) policies and processes especially, are directly linked to, and structured around, Boyer's four scholarships. The structure of current PMDR and promotion application documents is fully influenced by Boyer's construction of scholarship, and the University's *Guide to the Academic Staff Portfolio* (Anon., 2008, p.2), a central plank of

the PMDR and promotion's processes, introduces this adoption, if slightly obliquely, as follows.

> Traditionally at [the University] academic practice has incorporated three main pursuits – teaching, research and community engagement. The University has treated these as independent streams of work, with little recognition for the integrated nature of academic work and its connection to the broader mission of the University. Academic staff, however, are well versed in the challenges this model presents and have struggled to accurately assess, review and develop a holistic approach to their academic practice given the constraints inherent in this approach. Ernest Boyer (1990) is his landmark publication *Scholarship Reconsidered*: *Priorities for the Professoriate* reconceptualised an expanded and integrated view of academic practice through four areas of Scholarship … broadly defin[ing] scholarship as creative intellectual work that is validated by peers and communicated [and] identif[ying] six standards by which all scholarship might be measured: clear goals, appropriate procedures, adequate resources, effective communication, significant results, thorough self critique. … As well as these, SCU recognises the importance of Service to the University, professions and the community.

Personal Engagement

I am one academic who has taken on Boyer's ideas as part of my efforts to define and evaluate my own professional development as an academic. I am now in a position to reflect on my own adoption and adaptation of the model. I adopted the model to initially to frame my own scholarships and academic *persona*, but I have subsequently applied in it in several contexts. Here, drawing on the validity of reflective practice (Day, 2002; Larrivee, 2002), I review my adoption and the path it has taken in developing the understanding of my own career, pedagogy and role as an academic mentor, with the aim of better understanding the process I have adopted, and, in doing so, improving my own scholarly professional practices, and those of others I mentor. I am echoing Moon's (2004, p.8) definition of reflection as the "mulling over of ideas – the reorganising of them – that have already been learnt the considering of how, for example, what has been learnt will fit into the patterns of the workplace to improve practice". In particular, Glassick *et al*.'s (1997) characterization of Boyer's model appealed to me. I was also influenced by Mick Healey's (pers. com, March 2006) description of its adoption in Hong Kong, where it has been used to structure the 1999 and 2006 Research Assessment Exercise (RAE), refocusing research not as an isolated activity, but as one that should support and illuminate teaching and learning. Accepting this approach assists in re-structuring the entire approach to scholarship.

In describing my personal path from initial adoption and adaption of the model, through its application in the spheres of promotion, mentoring professional development and curriculum development, I engage what I consider to have been a significant redefinition of my own scholarship. I have tended towards broad scholarly interests. As a geographer, this may be unsurprising: starting with an inherent interest in landscape history, I have worked in the fields of geology, landscape evolution, archaeology, and environmental history. Inevitably, these fields of study have brought me to working also with cultural heritage and its management, to environmental planning and management, and thus to social and cultural geography. The pedagogical demands of this diversity of interest are equally broad. Simultaneously, I have been engaged in the scholarship and governance of teaching and learning for two decades. My more focused colleagues were puzzled at what it was I actually specialize in. My early effort at defining this expansive

(and expanding) field of scholarly interest into something seemingly unified – as I was required to do in review and promotion contexts – was clumsy. I created a statement of what I called my "scholarly program", an evolving and expanding statement of what I do as an academic. This attempted to capture all my activity under a single statement: "Understanding human-environment processes, based on global historic case studies, applied to contemporary environmental and landscape management".

As the years went by, the program statement became increasingly detailed, and, I now acknowledge, decreasingly unified. In due course the statement had become a list of lists, of research themes (3), research projects (many), teaching themes (3), subjects taught (many), and service themes (4). I eventually inserted a statement, as I became conscious of Boyer's ideas: "Conceptual grounding: Teaching, research and service to the University integrated through the four scholarships of discovery, teaching, application & integration". As a unifying or integrating statement of my scholarship, despite the inserted rhetoric of Boyer, it had lost its way.

At this stage, I needed to redefine my diverse academic profile into a unified agenda. I had, perhaps fortunately, arrived at this conclusion before my University had. In adopting Boyer's model, albeit via Glassick *et al*. and Healey, I was able to commence a redefinition of my scholarly *persona*. Boyer's six principles, later to be synthesized by my own University as "clear goals, appropriate procedures, adequate resources, effective communication, significant results, thorough self critique", allowed me to identify commonalities in my work, higher order links. I started describing the totality of my academic work *via* statements of (i) a common scholarly question, (ii) a common heuristic to address this question, and (iii) a common operational approach.

In identifying and being able describe the former two, the common question and the common heuristic, I adopted Glassick *et al*.'s definitions of Boyer's four scholarships as my operational approach. I was thus able to make claims, with demonstrable evidence, that I use these scholarships to integrate my research, teaching and service. I was able to better claim that my work was a continuum of action, method and perspective; my scholarship a single project. This was a claim later validated by successful promotion to full professor. Subsequent to this, I have used the model in mentoring other staff in their promotional process, in framing research as the co-director of my university's Teaching-Research Nexus Staff Development Project, and in mentoring early career staff.

In my 2008 promotion submission document, I described the "foundation of my scholarly life" (Appendix 1). This statement continues to guide my overall approach as a scholar and academic. References in the statement to "teaching", "research & scholarship" and "leadership & service" reflect the organization of promotion documents at the time; this was before the University's adoption of Boyer's ideas as an organizing frame. Perhaps more importantly, as a geographer, I have a natural inclination towards the visual and spatial. Figure 1 represents my efforts to depict the diversity of my scholarly activity as a unified entity, based round my visualization of Boyer's four scholarships and their relationships. It is this visualization that I have found to be most useful in subsequent peer mentoring.

Bill Boyd: Understanding people-environment
relationships: Integrating scholarly action
through the Four Scholarships model
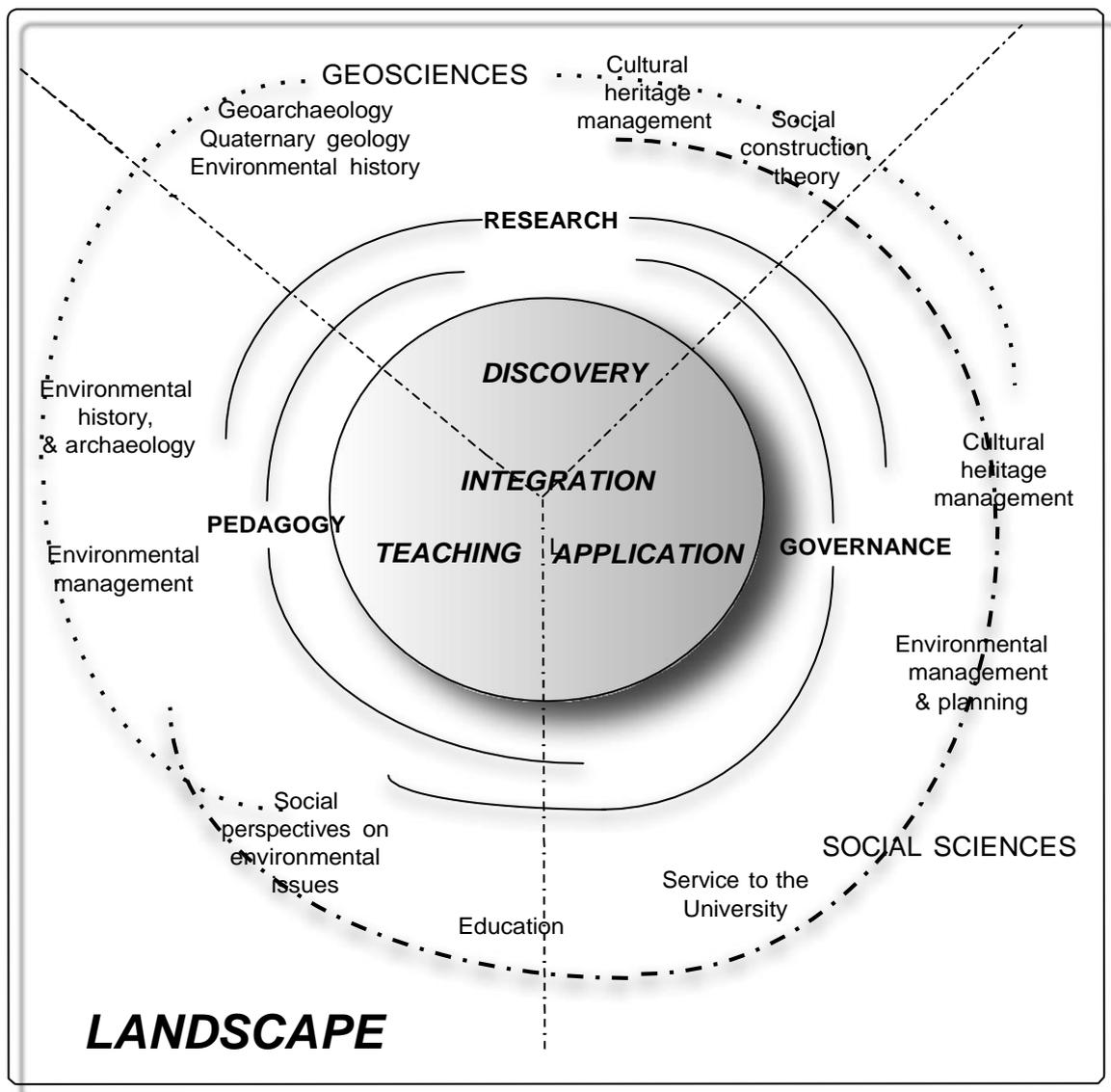
**"My work is a continuum of action, method and perspective: my scholarship a
single project ...": Does "Boyer" Work?**

In considering the effect of such a statement, and before evaluating its contribution, I
note that, in reflection – the statement is now several years old, and I now have the
benefit of hindsight – this synthesis is quite a lengthy and abstract statement. One
reviewer recently commented on it being hard to understand. I find this to be an

interesting reflection, especially since, at the time of writing, I found the composition of an abstract statement it to be a useful way to work. The abstract nature of this writing, I believe, helped me step beyond the day-to-day work and the individual actions of my professional life, and express the larger, unifying process. Interestingly, the 'abstractedness' of the statement did not seem to be a problem for either promotion panel members or other colleagues at the time. Indeed, during mentoring of colleagues later, the abstracted nature of the statement seems to have been helpful, in that they, individually, could insert their own concepts and experiences into the text; they were reading the abstract statement in their own terms. Furthermore, while I drew on the unifying heuristic of 'landscape' as a concept and content theme for all of my work, it is also interesting to reflect that at no time did any of my peers and colleagues seek clarification on, how, for example, 'landscape' works to integrated my scholarship of teaching and learning.

The important point here is that the exact content of the statement is not so relevant. What is important is that a statement of this type has been crafted as a vehicle with which to express the integratedness of my field of scholarship, which had previously been considered to comprise a set of separate and seemingly unrelated or only partially related entities. The heuristic of 'landscape' is, in this case, merely a theme; the same statement could apply to any unifying content theme by any scholar working an in any discipline from any specific perspective; I would now probably use a different theme. In making such a statement, I am suggesting that the disciplinary focus of much scholarship of teaching and learning (e.g. Clegg's (2008, p.3) statement that "The way SoTL has approached making connections between scholarship and practice has been through the glue of disciplinarity") can be transcended. Undoubtedly, discipline-specific 'signature pedagogies' (*sensu* Poole *et al.*, 2007) are important. However, where we adopt SoTL practices and concepts to assist our professional development as scholars *sensu lato* rather than disciplinary specialists *sensu stricto*, we need to transcend disciplines. A discussion of my use of 'landscape' as a heuristic in my professional statement belongs in another paper, a discipline-specific one.

Underlying my approach to an integrated scholarship is my understanding of the concept of scholarship of teaching and learning as an integrated and conscious engagement with my academic practice. While acknowledging that SoTL takes many forms (Huber, 2011), I work within the practice and praxis of scholarship as a conscious engagement with the act of being a scholar. In this sense, I am thinking about more than individual applications of scholarship to teaching or research through, for example, scholarly teaching, research-informed teaching, etc., or about discipline-specific developments and transformations. This approach is what Huber (2010, p.71) describes as, in another context (the caring of students), an approach that attempts to "sustain teachers' motivation by [directing] the professor's attention outward, towards inquiry into their students' learning [and] inwards, encouraging exploration of "the inner landscape of a teacher's life""; this approach, she importantly notes, "oppose[s] a narrow view of pedagogy as simply technique".

By 'conscious engagement with the act of being a scholar', I seek to express the need to examine my own practice through reflection, investigation and expression, and from that understand the practice as an explicit and deliberate set of informed actions. In practical terms, this, as Doyle & Herteis describe for scholarship of teaching (2005, p.1), "involves planning, assessing, and modifying one's teaching and applying to it the same "exacting standards" of evaluation as those used in research". This approach demands, as noted by Leggett & Tepper (2011, p.100), a "clear methodological approach … if purposeful research and scholarly activity in relation to teaching and learning in higher education is to occur". Such definition can readily be extended to all the forms of scholarship

identified by Boyer. There are, indeed, strong parallels with the teaching-research nexus, which can be seen either as a whole-of-profession approach or as a series of specific forms of integrated teaching-research interventions (Boyd *et al.*, 2010, 2012). The nexus, however, works best as a deliberate, structured and informed approach to the merging of research and teaching as a characteristic approach to teaching and learning in higher education.

Buddhist thinking makes a distinction between 'consciousness' and 'awareness'. Consciousness means being *in* the present. Awareness means you *know* you are in the present. This distinction can usefully be applied to SOTL considerations as a whole-of-profession approach *versus* an approach to individual actions. SoTL as 'awareness' allows for Leggitt & Tepper's "purposeful research and scholarly activity in relation to teaching and learning in higher education".

From a personal perspective, my articulation of Boyer, and my adoption and adaption of his ideas, have been very self-satisfying. I feel more comfortable in my role as a scholar engaging widely across the disciplines, in my pedagogical capacity, and in my ability to fulfill what I see to be the job description of a university-based academic: to create and disseminate new knowledge. Feelings are fine, however. It is also possible to engage a more critical evaluation of my approach. In doing so, I respond to a core process of the scholarship of teaching and learning, the use of data to make informed decisions, what Poole *et al.* (2007, p.1) call "the use of well-collected data to inform decisions regarding constructive change". Furthermore, the forms of data I offer reflect the reality of daily life as an academic. Huber (2009, p.1), in investigating the transmission and dissemination of the lessons of SoTL ("How can the lessons faculty gain through inquiry and innovation … be of use to colleagues teaching elsewhere?", the very purpose of this paper), observed that while much is to be gained by turning to theory and method, a stronger understanding can be derived from the "social life" of academe.

> There has been a tendency to look for answers to these questions in matters of theory and method – whether a study's conceptual apparatus and design assure or limit the wider applicability or generalizability of its findings …. I suggest that while theory and method can be critical factors at certain stages in the itinerary of the scholarship of teaching and learning, the very possibility of pedagogical travel is better understood as a function of the work's social life instead.

Here, therefore, I offer evidence against four benchmarks of activities that are embedded in the social life of academe and the academic: (i) success in professional promotion; (ii) success in peer mentoring; (iii) success in developing cross-disciplinary research; and (iv) success in curriculum development. There are others, but I briefly consider only these here. Each provides an opportunity to review the process and relationships between this scholarly model and the daily pragmatic of being a university- based scholar. Elsewhere, I have demonstated the power of benchmarking academic activities in reflecting on and assessing academic processes and practices (Boyd *et al*., 2010).

Success in Professional Promotion
Academic promotion is necessarily fraught with uncertainty, especially for those with a tradition of teaching and learning in their scholarly profile. Not only does university teaching appear to be less highly valued than other forms of scholarship (e.g. Young, 2006), but bringing a diverse academic background – and a submission with evidence of outputs across several disciplines – to an academic promotions committee is risky (Chalmers, 2011; Vardi & Quin, 2011). Non-conventional professional activity can adversely influence the success of promotion (e.g. Thomas *et al*., 2004, Klingensmith &

Anderson, 2006). Having failed to convince the promotions committee once, despite the then-recent award of a significant higher degree, a DSc (Boyd, 2005), it was necessary for me to find a structure for presenting my diverse scholarship as an integrated one with an inherent internal logic. Boyer provided that model, and the outcome was success. It allowed me to make a more coherent case, and it allowed the committee to accept diversity as unity.

This decision was significant. At that time, while my university was tending towards a Boyer-influenced model of promotion processes, it still focused on three independent pillars of scholarship: Teaching, Research & Scholarship, and Leadership & Service. Applicants were explicitly required to address these independently, and the committee decision process was constructed around levels of (independent) performance in each area. I took the risk of commencing the interview with a statement of intent: I would present an integrated account of my scholarship to demonstrate that the integrated nature of my diverse scholarship was the outcome of my deliberate choice of professional strategy; I would not talk to the individual pillars of scholarship. I was able to do this in the confidence that Boyer provided an intellectual rigour to this approach. My action must have forced the committee to re-evaluate its decision-making process, which I can only presume to have been done in their confidence in Boyer's scaffolding of the issue. At no point in the interview process was I challenged on the validity of the approach. Building on the growth of the recognition and rewarding of teaching and the scholarship of teaching in higher education (Huber, 2005; Chalmers, 2011), such success reflects the value of responding to Poole *et al*.'s 2007 call for "well-collected data", in this case to assist my university to make an "inform[ed] decision regarding constructive change" (i.e. my promotion).

Success in Peer Mentoring
Mentoring junior colleagues is an important part of academic culture (Schrodt et al., 2003; Boyd & Horstmanshof, 2013). Following my own promotion, I have used my model of Boyer's ideas in mentoring other staff during their own promotion efforts. The obvious benchmark is in their successful promotion, and for many this was achieved.

In using my own experience and model as a springboard for such mentoring, each mentee responded differently. Some took some time to adjust to the concept of an integrated scholarship, while others adopted it readily. Likewise, some appeared to adopt it conceptually with ease, whereas others understood it more coherently in practical terms. Questions and concerns that arose during mentoring usually reflected two pressures: (i) the pressure on teaching academics who feel overloaded with teaching and expected to conduct more research than they (feel they) can manage; and (ii) the pressure of the received model of teaching, research and service as disparate activities. The degree to which they adopted the model, and the way they did it, also varied: self-confidence, academic experience, the reach of their various scholarships, and willingness to step away from received conceptions of their role as an academic all seem to have played a part. Nevertheless, all my mentees could, after some discussion, clearly articulate the professional choices that they had made. In most cases they acknowledged that these had often been, at least in part, deliberate choices.

It is tempting to think that this positive outcome simply reflected a situation in which both my mentees and myself did not have a unified narrative until we 'found' Boyer. However, on reflection, I now consider that Boyer's model provided a vehicle (or an excuse?) to be explicit about the pre-existing unified narrative that all scholars have (cf. Cloke, 1994). It is my impression that the mentoring process did not so much as create something new, but helped us to understand our situations more clearly. Having Boyer's model as a frame assisted greatly.

In practical terms, some applicants chose to draft visual expressions of their integrated scholarship along the lines of Figure 1, while others chose to adopt the language of Boyer; all drafted statements describing their scholarly vision. A strong theme emerging from the mentoring discussions, regardless of eventual success, was that these academics became better at clearly articulating the values of their often-unconventional career paths. Using the language of Boyer allowed them to demonstrate that the choices they had made in shaping their career had been deliberate and had followed a logic, regardless of whether they conformed to the traditional university expectations that still underlie promotions processes. This is common in a university such as mine, where a strong focus on applied and vocational disciplines results in academics developing career paths that differ from conventional university expectations (e.g. that include more teaching and less research, or in which research is substituted by consulting, professional development or community development activities). Taking control of career choices is important in career development (Emmerling & Cherniss, 2003). Feedback from promotions committees commented positively on this clarity, and applicants reported on the empowering effects of explicitly expressing their deliberate choices in how they shaped their careers (cf. Di Fabia et al., 2013).

Success in Developing Cross-disciplinary Research
One of the significant outcomes of developing my understanding of scholarship as an integrated activity was a success in establishing, developing and running an action-learning based professional development and teaching and learning scholarship research program focusing on the teaching-research nexus. This was envisaged as a team-based research and professional development project, with the team co-directors being the then Faculty's Associate Dean of Teaching & Learning (myself) and Associate Dean of Research and Research Training, with co-directors from each of the university's Division of Research and Centre for Teaching & Learning; we became co-directors of what became our university's Teaching-Research Nexus Staff Development Project. The organization of this project drew initially on benchmarking models of teaching-research nexus success, and was directly informed by Boyer's ideas. It explicitly sought to converge scholarly research, education and professional development in a series of activities in which the conventional boundaries were deliberately ignored, and was driven by simultaneous aims to improve participants' research *and* pedagogical capacities and skills.

Outcomes of this project have been published (Boyd et al., 2010, 2012). The ethos underlying the Teaching-Research Nexus Staff Development Project has been extended to other professional development mentoring projects what engage early career academics in SoTL-based scholarly research and publishing, again all aimed at improving individuals' research *and* teaching scholarship (Boyd & Horstmanshof, 2013).

Success in Curriculum Development
A final indicator of the effective impact of my shift towards a focus on Boyer's concepts lies in an approach I adopted in reviewing and revising part of an undergraduate curriculum. Building on an approach to first year undergraduate teaching that sought to merge teaching and research modes as a unified pedagogical approach (Boyd & Laird, 2006), this development saw a shift from skills and syllabus focus to problem based learning, recognizing the relationships between research, enquiry, learning and application, and the benefits that developing this relationship amongst first year university students could have (Boyd, 2011). More recently, I continue to drawn on the same ethos, as I help embed research practice and ethics in a Masters course, as a deliberate, and demonstrably successful, pedagogical approach to practitioner (rather than researcher) education (Grace *et al.*, submitted).

Conclusion

Boyer's constructions of academic scholarship, and, importantly, his claims of the essential importance of integrating these scholarships, have had a significant and growing impact on university scholarship, at least in Australia, over the last few years. Individual personal and institutional responses to Boyer will, and do, vary. Here I have described the way I have adopted and adapted Boyer's ideas to assist in my own self-definition as a scholar, allowing me to draw together diverse strands of my own scholarship and present these as a unified continuum. While my review does not directly address issues of pedagogy, nor does it critique the specific form of adaptation, it demonstrates that adoption *per se* of Boyer's ideas as a professional development frame for scholars provides a sound basis for improved pedagogical practice. I conclude that Boyer's integrated scholarship model offers significant promise, and, as do other reviewers drawing on case studies of practical application of Boyer's ideas, I find that it is applicable across many domains of university scholarly life. Benchmarking measures, based on the reality of the social life of academe – in my case, success in supporting faculty promotion, professional mentoring, developing integrating SoTL research, and curriculum development – provide a basis to reflect on, and thus test and validate my version of adopting Boyer's ideas. It does not, however, imply that this adaptation is the only possibility, and indeed the evidence from the responses of my mentees suggest that flexibility in the form of adoption is important. Nevertheless, my reflections give me confidence that this adoption provides a sound basis for enhanced university teaching and learning.

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Appendix 1

My 2008 statement of the "foundation of my scholarly life", used to contextualize my promotion submission, and framed around Boyer's ideas. This statement was written in response to a requirement, in a promotion process, for a statement of the conceptual foundation to the applicant's scholarship. The ensuing application documented evidence to support claims of concept-led professional practice.

All my academic work links through (i) a common scholarly question, (ii) a common heuristic to address this question, and (iii) a common operational approach.

The Scholarly Question *Understanding human-environment relationships and interactions, and their implications for environmental management*: Environmental management is about human behaviour, itself contingent on environmental condition. I examine that contingency via people-environment relationships, using both contemporary socio-environmental tensions and the global historic socio-environment record to interrogate processes of modern social ands socio-environmental behaviour.

The Heuristic *Landscape*: Landscape, the integration of social and natural processes, provides both data and frame for research and teaching. Landscape is physical, social and cultural, yielding measurable and recordable evidence of environmental practice and agency, and a network of projects for my scholarly work in prehistoric, historic and contemporary environments.

The Operational Approach *Boyer's Four Scholarships*: The work of the professoriate comprises four interlinked functions: discovery, integration, application, and teaching. *Discovery* is scholarship of commitment to knowledge for its own sake, freedom of enquiry, and disciplined investigation. *Integration* is scholarship connecting across disciplines, seeking to interpret, synthesis, and bring new insight on original research; interdisciplinary, interpretive and integrative. *Application* is scholarship that addresses practical and social issues; community issues define the scholarly agenda. *Teaching* is scholarship of disciplinary method and practice to study and improve student learning. I use these to integrate my research, teaching and service. "Landscape" links people, action and environment, and provides the heuristic for "disciplined investigation" allowing me to use tools from both the physical and social sciences. This scholarship

makes demands in my teaching, providing the integration of both Discovery into Teaching and Teaching and/or Discovery into Application. I depict this graphically in the following figure.

How do I apply this core idea, heuristic and operational approach? Under the Four Scholarships approach, I organize my research, teaching and service to be fundamentally and intimately integrated. To assist with this, I use the heuristic of the "landscape" as an invaluable integrating element. As a multifaceted concept, landscape provides the links between people, their actions and environment. Its physical elements are measurable, but its definition reflects complex relationships between people and their environment. It provides, simultaneously, both the data source and the conceptual framework for my research. It also provides an essential frame for teaching about both environment and environmental management, bringing together as it does fabric and behaviour. The concept of "landscape" therefore provides me with the invaluable scholarship of Integration. Furthermore, investigating landscape allows me to identify and apply the appropriate tools for "disciplined investigation", whether they are the physical science tools – geology, geomorphology, palynology, etc. – I bring to bear on resolving, say, geoarchaeological matters, or whether they are the social science tools – social construction theory, action learning, social cognitive mapping, etc. – I use to apply environmental knowledge to contemporary issues.

Of course, this fourth scholarship also makes demands in my teaching, providing the integration not just of the Discovery into Teaching, but, importantly, of Teaching and/or Discovery into Application. In this way, it is imperative for me, as a science-based researcher, to apply my work to the social sciences, to an educational agenda, and to university governance. Such integration is articulated in two primary ways: (i) via a scholarship of education – studies of, and reflection on, teaching and learning, and its subsequent publication and thus contribution to the wider scholarly community; and (ii) via detailed engagement with university academic governance.

The import of the Four Scholarship approach is the demand for continual reflection and development. This I undertake through writing, both reflective and reportage, and through formal studies. In essence, while the University promotion criteria divide the fields of Teaching, Research & Scholarship, and Leadership & Service, this approach merges the boundaries. For me, this means I view a continuum of action, methods and perspectives, in which all my activities are viewed as part of a single project.

In this way, therefore, "research" spans the scholarships of Discovery (predominantly) and, to a partial extent, Teaching and Application (educational and environmental management research, and informing academic governance). Similarly, "teaching" spans the scholarships of Teaching (predominantly), Discovery (via postgraduate supervision and action learning projects) and Application (via both environmental management projects with a strong social development component, and through implementation of academic governance policies). Finally, "leadership and service" are articulated through Discovery (via influence of research outcomes), Teaching (as a teaching and learning scholar) and Application (predominantly through leadership in academic governance).

The important point is that my work represents a coherent whole, bound together by a unifying sense of scholarship. My central aim is to understand the details of processes of human-environment interactions, and I can do this through the geographical device of the landscape. This is an agenda I have followed for three decades. By examining the landscape in its many forms and constituent parts – its past and its present, its biological and physical nature, its social modification and use, its cultural construction, and its politicization – I have required to develop a broad range of tools, from both the physical and social sciences, to extract understand and knowledge from the environment, hence the breadth of my scholarly endeavour. It is this knowledge that I can apply, both in teaching and in engaging environmental management. And to close the loop, teaching and the application such knowledge requires pedagogical reflection, and so I thus integrate educational scholarship and academic governance into the rest of my work.