Longevity and the disciplines: What makes university teaching different?

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University academics – teachers and researchers – are the guardians of their disciplines, responsible not only for the evolution of knowledge in their fields, but also for the preparation and training of future disciplinary knowledge custodians and creators, and for the dissemination of the wisdom of their disciplines. Traditionally, this meant that disciplinary novices sat at the feet of their teachers to listen, worked alongside them to learn the methods of research, and practiced the skills and techniques that they observed in their elders until they too were masters. In the first decades of the 21st century, these practices are as important as they have always been, but they are challenged by technological innovation, managerialism, alternative methods of knowledge dissemination, and modes of delivery still new to many in traditional universities.

What are the core values of university teaching? What defines pedagogy and curriculum design in higher education? This paper explores the role of the university teacher in a globalized, technologically enhanced, time-shifting world where information from every discipline is freely available.

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… people are very supportive of universities but want to know more…. They don’t understand fully the enormous scope of the work [universities] do, not just around teaching and learning but the research and innovation activities that go on (Professor Sandra Harding, chair of Universities Australia, quoted in The Australian, 2 April 2014).

Each year, universities observe yet another cohort embarking on the navigation of university curriculum: novices beginning to map the disciplines for themselves. Longevity of the disciplines is necessary in part because of the unique characteristics, purpose, form, and context of a university education. The value of a university education to society, industry, and government emerges from the functionally and intellectually intertwined operations of university research and teaching. We need, therefore, to see clearly where challenges lie, and to manage the opportunities presented by a globalized, technologically enhanced environment. The soundness of the disciplines is dependent on skilled, innovative researchers and charismatic communicators – teachers, writers, and presenters.

What is a university education?

Above all else, both coursework programs and higher degrees by research are vehicles for the induction of disciplinary novices. Graduates of university programs, once they have joined the ranks of disciplinary scholars, will take one of two paths. Either they stay within the academy and work on solving research problems valid in the discipline and on the preparation of the next generation of leaders in their field, or they move out into employment in industry or government, where they use their disciplinary skills and expertise to solve the day-to-day problems of society. The preparation and training of a disciplinary scholar requires education that is both research- and researcher-led.

To understand the way in which disciplinary-based research leads and encompasses university
teaching in the field, we need to turn to theorists like Kuhn and Bourdieu. In brief, Kuhn’s theory of scientific progress (which can be applied to the evolution of disciplines both within and beyond the sciences) is that during the initial phase (“normal science”), knowledge is advanced through “development-by-accumulation” of accepted facts and theories. During this period, the accepted wisdom of the discipline both guides and constrains research. Those working in the field within the current paradigm are focussed on determining significant facts, matching these facts with the theories accepted by the discipline, and articulating the details of theory. However, throughout this phase, according to Kuhn, there is a gradual accumulation of anomalies – problems that resist solution, directly challenge accepted key theories, or emerge from developments within the ‘normal science’ of the day. Once a significant number of these anomalies have accumulated, there is a crisis within the discipline, prompted by professional insecurity. The inadequacies of the current paradigm become manifest. This is followed by a revolution in thinking in the discipline, which leads to a new paradigm – and so the cycle continues (Kuhn, 2012; Bird, 2001). Those working in a particular field need to be immersed in the relevant paradigm (or, to use Bourdieu’s phrase, “cultural field”) before they are in a position to accumulate “cultural capital” or to consolidate their position as an accepted member of the profession or discipline in question. These practitioners become aware of the rules, regulations, values, and cultural capital that characterise their chosen field. This awareness leads to the acquisition of habitus, and habitus drives practice (Bourdieu, 1998).

For Bourdieu, the extent to which agents can attain knowledge of, and negotiate, various cultural fields is dependent on, and can be explained in terms of, two epistemological types. The first he terms a ‘practical sense’ or a ‘logic of practice’, while the second involves a ‘reflexive’ relation to cultural fields and one’s own practices within those fields (Webb et al., 2002, p. 49).

University teaching introduces novices to current disciplinary paradigms, causes them to engage with outstanding anomalies, and puts them in a position to acquire habitus and to accumulate cultural capital in their chosen field. They do this by engaging with and becoming expert in the core theories, methods and techniques, and approaches that are employed within the confines of the discipline.

Value

There is no doubt that for a significant number of university students, the main objective in their pursuit of a university education is the testamur, because without a degree many employment opportunities evaporate. However, this narrow and pragmatic casting of the institution, with its focus on credentials and warrants alone, does a grave disservice to the traditions and cultures of the university, undervalues the contributions it makes, and misrepresents university teaching. Creators, curators, and custodians of the knowledge and expertise that underpin humanity’s capabilities are deeply embedded in their disciplines. The true value to society of a university comes not only from the preparation of work-ready graduates, not only from commercially-valuable research discoveries, but also from the role they play in the maintenance and development of knowledge for which we cannot yet see a purpose. Universities bring together the tasks of research and teaching, and it is when these are woven together elegantly that profound and invaluable discoveries are made for humanity and by individual scholars of all ages. Bradley et al (2008), discussing funding, noted that:

Our universities lie at the heart of the national strategy for research and innovation – itself a critical foundation of our response to a globalised world. There is abundant evidence that government provision of funds for underlying infrastructure to support research in universities is very significantly below the real costs (p. xii). Universities are expensive, and for that reason, if no other, we need to be very clear about their
For Coaldrake and Stedman (2013), the value is as obvious as the need for changes in the way we operate these large institutions. They conclude that:

We can afford to sustain and even improve a university system in Australia that is already one of the world’s best. This is not only about peaks of research performance, but also about a broadly accessible higher education system where the full promise of the university – that of linking what is taught with the changing frontiers of knowledge – is not available only to an economic or social elite... (Coaldrake & Stedman, 2013, Chapter 10).

So, how does a university demonstrate its value to society? In their introduction to a paper arguing for the need to understand and protect the teaching-research nexus in universities, Jenkins et al. write:

…the changing world to be faced by today’s students will demand unprecedented skills of intellectual flexibility, analysis and enquiry. Teaching students to be enquiring or research-based in their approach is not just a throwback to quaint notions of enlightenment or liberal education but central to the hard-nosed skills required of the future graduate workforce (Jenkins et al., 2007, p. 3).

That is not to claim that learning is or ought to be restricted to universities. Nevertheless, a university education is unique and precious. In order to protect that, we need to understand what it is.

Every aspect of course design – course content, program aims, learning outcomes, teaching and learning tasks, assessment, graduate capabilities and qualities, and evaluation – is shaped by disciplinary epistemology (Veness, 2010). Course design takes into account the geographic location of students and the times at which they are free to study, especially when modes of delivery are being selected. Education is a series of transactions between teacher and student, in which students acquire new knowledge, practice applying that knowledge, and complete tasks to demonstrate their expertise, and are judged by their more expert disciplinary colleagues (their teachers). Research is an essential aspect of the university curriculum at all levels whether as a source of new information about the world or as an opportunity to solve current problems experienced by humanity. It is the way in which research is incorporated into the university curriculum that distinguishes it from curriculum designed and delivered by other arms of the education industry. (It is not enough, of course, for academics to be researchers only; they need also to understand curriculum design and to have mastered the skills and techniques of both face-to-face and online teaching – but that is another conversation.)

To what end?

University curriculum is shaped more immediately by disciplinary research than curriculum for other parts of the sector, and it serves a different purpose. This becomes clear when we explore the detail of models of curriculum.

A skilled workforce: The first of these models is designed to serve the purpose of social efficiency. Curriculum of this kind is designed to meet the needs of society by training (young) people to function as mature, contributing members of that society. It draws from areas of learning that are commodity or service-based, and generally works within a vocational and applied learning context. Graduates of such programs tend to work in industry, where they apply the critical skills, techniques and procedures they have learnt. Assessment is designed to test how well students have mastered competencies or achieved learning outcomes associated with skills and dispositions in innovation and design, systems and processes, applications and
solutions, and futures planning. This type of program is delivered by technical and vocational colleges and by those universities that offer vocationally-oriented professional programs – dentistry, physiotherapy, and accounting, for example. The curriculum is often strongly driven by competency-based learning outcomes dictated by professional associations. The notion of mastery does not preclude creativity or excellent outlier practitioners.

**Inspired self-learning:** Programs designed on principles of humanistic pedagogy provide students with self-directed, intrinsically rewarding experiences to enhance their personal development, enabling them to achieve self-actualisation. Student control and choice are central themes in this kind of educational program. Those implementing such programs will integrate the cognitive and affective domains; selection of content is driven by student interest and learning is often experiential. For purist humanistic educators, the only assessment strategy of meaning is self-evaluation. Creative arts courses, self-development courses, and constructivist programs designed on discovery learning principles fall into this category.

**Growing the child:** In developmental programs, the purpose of education is to provide a learning environment that allows students to construct their own knowledge. In this paradigm, discipline knowledge is frequently instrumental, and students are expected to be able to transfer skills learnt in one subject area to others. For curriculum designers working within this framework, the natural order of cognitive, affective, and psychomotor development in the individual is the most significant and scientifically defensible basis for determining what should be taught at each stage of development. Curriculum deals with intellectual capacity, feelings, emotions and behaviour, and – particularly in earlier years – manual and physical skills. Assessment is designed to check on students’ achievements in relation to the established norms for those of their age and stage of development. This area of curriculum is generally – but not always – schools-related.

**A more just society:** The purpose of an education based on principles of social reconstruction is an improved (new and more just) society. In programs of this nature, the needs and betterment of society are placed above those of the individual. Such programs are characterised by cooperative and collaborative learning, critical thinking, and social activism. The educational institution is an agent for change, and the curriculum is relevant to both societal and individual needs. Knowledge in these programs is a vehicle for self-awareness, consciousness-raising, and political awareness. Assessment reflects these values. Those designing social reconstruction curriculum see knowledge as power; for them, the prime purpose of an education is to give students sanction to question and bring about change in the social structures in which they live and work.

**A university education:** Finally, we come to the type of discipline-based scholarly endeavour that fits the university model best. For designers of these programs, the purpose of education is to teach students discipline knowledge and to induct them into the discipline, teaching them the language and culture of the discipline. As they move through programs designed on this premise, they enhance their understanding of the world using the lens of the discipline. The focus of the program is on content knowledge, the skills required by the discipline, an understanding of the nature and type of research questions recognised as valid within the discipline, and the ontology and epistemology of the discipline. In a program of this kind, judgements about students’ achievements are based on an assessment of the degree to which they have come to resemble an expert in the discipline, and whether or not this is appropriate for their stage of induction.

In reality, no single program, whether offered in a university, vocational or technical college,
school, or by a private provider, fits neatly and entirely into one category (Childs, 1992; Eisner & Vallance, 1973; Friere, 2000; Hainstock, 1978; Posner & Rudnitsky, 1994; Print, 1993; Rogers, 1969; Smith, 1996, 2000; Schiro, 2008).

Research-led teaching and learning

Models of research-led education sit firmly in the final category, using instruction in the methods and techniques of research to teach disciplinary knowledge. Brew (2002) described it thus.

A department or faculty may be research-led if debates and discussions within the faculty take place routinely on such questions as: What can our disciplinary knowledge and theories contribute to our understanding of teaching and learning issues? What is the nature of knowledge in our subject/s? What can the methodological approaches we adopt in researching our subject tell us about teaching and learning? Students can be routinely involved in such discussions (p. 7).

Healey and Jenkins (2009) developed this idea further. They write

…our goal…is to move more curricula in the direction of developing students as participants in research and inquiry, so that they are producers, not just consumers of knowledge…. For us the key to developing undergraduate research and inquiry is to mainstream it and integrate it into the curriculum for all students… (p. 6).

Their model maps a student’s path of increasing expertise, from research-led activities, through research-oriented and research-tutored tasks, to the advanced stage of research-based work. Under the guidance of a discipline expert, students begin to investigate discipline problems using the theories and methodologies of the discipline at a very early stage of their university studies. In the beginning, these are problems new only to the student (where students are re-tilling fields already ploughed by discipline leaders); in later years, they are problems new to the discipline (where students are undertaking doctoral studies).

This type of curriculum design takes a considered, deliberate approach to the way in which novices are inducted. All university teaching is research-informed, in that all university teachers draw on the published research of their discipline in designing courses – but the same could be said of school teaching or vocational education and training. Universities, more than other educational institutions, teach students how to be more than consumers of knowledge. University students in research-led programs learn about the research questions occupying the minds of discipline experts, how new knowledge is constructed or discovered, how to frame research questions, how to assess the quality of research, and how to use the outputs from research. Those with the knowledge to do this have themselves been inducted into the discipline and hold the knowledge and expertise that they have acquired over time as they became professionals in the field – but as Brew (2002) has pointed out, putting researchers in front of students does not, in and of itself, cause curriculum to be research-led.

In the clearly structured approach outlined by Howitt, Roberts, and Wilson, students learn about research in the discipline area, how to do research, and through research (Howitt, Roberts, & Wilson, 2012). To ensure that their students are learning about research, they design learning experiences that address questions about research: “What types of research questions are seen as valid in the discipline?”, “What are the outcomes and products of research?”, “What are accepted as valid processes of research?”, “What are the experiences of researchers?”, and “What is the social/cultural context?”. They provide feedback that focuses on students’ critical thinking, rather than on their content knowledge, guiding students to begin thinking like
researchers in their field. They teach the methodologies used in the discipline, teaching students how to identify and frame questions, techniques used in the discipline to address questions, ways to evaluate problem-solving or research processes, and discipline-specific methods and techniques. They give their students practice in applying their new skills to solving problems for which the discipline has already found answers. Finally, their students arrive at a point where they begin to experience for themselves how research leads to new understandings. At this stage, Wilson and Howitt design learning activities that require the students to use research methodologies to generate knowledge or understanding that is new to the student, or – more dramatically – new to the discipline and humanity.

The approaches promulgated by Healey and Jenkins and by Howitt et al. are not the only models of research-led education in the literature. Willison and O’Regan (2007) developed the Research Skill Development Framework: a conceptual model to make explicit the incremental and cyclic development of student research skills, a rubric that outlines research competencies and stages of development. Levy and Petrulis (2012) developed a framework that attempts to map the linking of teaching and research in the student experience.

Each of these approaches calls on the course convenor to design a program that engages students first in activities where they copy already-completed research (in order to learn and practice the skills used by a researcher) before embarking on the process of identifying a research question that would be deemed valid by the discipline, working out how to find an answer to the question, and then investigating the question. It is only those university academics involved in both teaching and research who have the breadth and depth of expertise (the cultural capital) necessary for the task.

One of the most important aspects of the education and training of a novice in a discipline is learning how to make professional judgements that are in line with more experienced members of the discipline. This ability to make a professional judgement, to assess the quality of a person’s work, is intrinsic to the role of university academic, and learning how to do it is at the root of progression from novice to disciplinary expert.

Each university academic who sits in judgement of student work and reviews the work of peers has an internal measure of quality work for a particular discipline. This measure of quality can only be formed over time, based as it is on every encounter the academic has had with members of his or her academic tribe. In evaluating work produced within the discipline (by either student or peer), an academic asks three questions: “In terms of overall quality, how does this piece of work hold up against my measure?”; “Is the quality of this work appropriate, given the stage of development of the author, the audience for which it was created, the context in which it was developed, and the purpose for which it was created?”; and “Would my colleagues agree with my assessment?”.

It is this final question that prevents professional failure, as described by Freidson (1994) who wrote that “Professional failure is marked by dissolution into pure discretion….” The professional internal measure itself needs to be constantly monitored and calibrated, through such collaborative activities as participation in conferences run by the discipline’s professional bodies, peer review of academic writing, preparation of threshold standards, course-based moderation activities, and program reviews. Students begin to understand the measure in a range of different ways – through formative and summative feedback provided formally and informally; through the marking criteria developed for summative assessment; through peer interactions, discussions, and feedback; and through comparison of their own work with that of experts in the field. It is a teacher’s responsibility to articulate and demonstrate the standard against which student work will be marked, e.g. in the form of marking criteria; it is a student’s
responsibility to produce work that meets the standard and conforms with the criteria outlined in the rubric.

These ideas – the notion of a university education as scholarly endeavour, and the professional internal measure of disciplinary expertise as the basis of assessing quality of learning and progress toward discipline proficiency – underpin all aspects of university teaching. It is these elements that distinguish university teaching from other kinds of teaching.

Challenges and opportunities

Given the vast amount of knowledge available to humanity, and the extent of the list of disciplines taught across the university sector, it would be foolish to imagine that every university could hope to be delivering outstanding research and education programs for every discipline. Coaldrake and Stedman (2013) conclude that we can expect changes in universities to be about adaptation and evolution, driven by the need for individual institutions to be more selective about the areas in which they can teach and research. Norton et al. (2013), in their recent report, explore the idea that universities ought to be looking at ways to unbundle activities – although they appear to misunderstand the nature of or need for a research-teaching nexus, a strategy which would eventually bring about the demise of the disciplines. There are, then, a number of possibilities emerging for the future of higher education. While some of our universities will continue to teach and research in a wide range of disciplines across the sciences and the humanities, other universities of the future may elect to focus on a specialised range of disciplines in which they both teach and research, thereby maintaining a strong nexus in a less diverse group of disciplines. Another group may choose to focus on teaching one suite of disciplines (perhaps those for which they are likely to attract the greatest income from students) while at the same time facilitating research in an entirely different group of disciplines (those most likely to be funded under current priorities, perhaps). Open Universities Australia, which provides online and distance programs but does not participate in research, is already an important institution in the Australian higher education context, as is the Commonwealth Scientific and Industrial Research Organisation (CSIRO), a research-focused organisation that has some outreach education programs, but offers no award programs. This view of the future does beg a question: “Will it be possible for all of these institutions to graduate mature, fully fledged members of the disciplines, even if they limit the range of disciplines on their books?”

The use of technology and the internet to facilitate the delivery of cheap, online, teacherless education is often perceived to be a challenge to universities. While there may be a small market for these Massive Open Online Courses (MOOCs) in their various formats, attrition rates alone demonstrate their limited value. They are, however, driving change in more traditional learning environments, where blended models of delivery are becoming more common and more sophisticated. Universities are beginning to understand that the technology itself is neither threat nor answer to all problems. In education, as in all things, technology is an enabler, not an end in itself. It ought to be used only to achieve real goals – pedagogical and disciplinary. The catch is that those unfamiliar with the functionality of the technology are unlikely to fully appreciate the possibilities it affords, while those who focus on the technology run the risk of adopting it as the lens through which they view their teaching practice.

This world of web-based technology is constantly evolving and that evolution is swift. University teachers need to find a way to monitor these changes, without being overwhelmed by them. Ultimately, all that is happening is that the range of tools available is expanding. It is the lecturer’s job to select the most appropriate tools for delivering the best learning experience to each particular cohort of students – and that means knowing the needs of the cohort well. It also means being realistic about the benefits (and costs) of any new tool.

We all use many tools that allow us to time-shift. Web-based technologies and delivery
platforms mean that for the first time for hundreds of years, university teachers are doing less lecturing, and more student-centred, learning activity-based teaching. They are, across the world, providing students with the declarative knowledge of the course (facts, principles, theories, formulae) before introducing learning activities in which they learn to use these facts, principles theories, and formulae to analyse, synthesise, solve, judge, and evaluate. Declarative knowledge, traditionally provided in lectures, is now also being provided in other ways, such as podcasts, guided readings, video clips, and web sites. Depending on the structure of a course, this either allows students more flexibility in their ability to time-shift, or frees up precious face-to-face time for other activities (for example, research-focused tasks): thus the “flipped” or reversed classroom.

A lack of respect for the professional judgement of the university academic and collegial moderation practices to maintain consensus about standards is perhaps the greatest challenge to university practice. Freidson (1994) writes that “Professionalism is being reborn in the hierarchical form in which everyday practitioners become subject to the control of professional elites who continue to exercise the considerable technical, administrative, and cultural authority that professions have had in the past” (p.). In defending the disciplines, university staff must not surrender control of the curriculum. Research is the wellspring of the disciplines: it feeds the river of teaching and learning that carries us to new discoveries.

In preparing future custodians and creators to be excellent at both teaching and research, we ensure the longevity of the disciplines and their continued value in the world.

References


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