



Second generation professional doctorates in nursing

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ABSTRACT

This paper traces the increase in number and diversity of professional doctorates over the last two decades and discusses the evolution from first to second generation doctorates as a response to the rise of the knowledge economy and new understandings of knowledge-production. Distinctions between first and second generation doctorates are interpreted in the light of Gibbons et al. [Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., Trow, M., 1994. *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*. Sage, London] taxonomy of knowledge-production, and it is argued that second generation doctorates, based on Mode 2 knowledge-production, are not only relevant to the economy but also have the potential to transform practice. However, as this paper highlights, this reconceptualisation of the professional doctorate presents particular challenges to academia and the discipline of nursing, which centre upon the threats posed to the power and authority of the University by the radical nature of Mode 2 knowledge generation and application in the workplace. Implications of these threats are discussed in relation to the current debate about the rigour of professional doctorates and the call by some for a return to the traditional doctorate or PhD. We conclude that the discipline of nursing has much to gain from embracing, rather than retreating from, the challenges posed by second generation professional doctorates, and that these offer an alternative but no less academically sound education in preparing nurses to play a full and active role at the theory–practice interface.

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What is already known about the topic?

- Professional doctorates have arisen out of dissatisfaction with the traditional PhD which is perceived as too distant from practice.
- Study at doctoral level is now increasingly relevant to those working outside of academe.
- First generation professional doctorates, based on Mode 1 knowledge-production, are only structurally different from traditional PhDs.
- There has been a call for the re-introduction of the traditional PhD and abolition of the professional doctorate within nurse academe.

What this paper adds

- Second generation professional doctorates, based on Mode 2 knowledge-production, offer the opportunity for a fully integrated partnership between the University and the world of practice.
- Mode 2 knowledge-production presents threats and challenges to the power and authority of the University.
- The professional doctorate and traditional PhD may be regarded as 'real doctorates' if underpinned by rigor of quality assurance.

1. Introduction

Many writers have argued that professional doctorates in nursing have arisen out of dissatisfaction with the traditional PhD, which is perceived as producing indivi-

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duals far too removed from practice (Ketefian et al., 2005). Doctoral education, as Ketefian et al. note, is increasingly seen as the milieu in which nurse leaders are developed and nurtured for clinical practice, research, policy and management. Whilst a traditional PhD is well-suited to those who wish to pursue full time careers as researchers, we concur with the observation by Ellis and Lee (2005) that 'application to practice is at the philosophical core of the professional doctorates' (p. 2), although we would wish to add the generation of knowledge *from* practice as a further core criterion.

A second driver for professional doctorates has been the development of the so-called 'knowledge economy' (Drucker, 1994; Peters, 2001), 'in which the generation and exploration of knowledge have come to play a predominant part in the creation of wealth' (Department of Trade and Industry, 1998). Knowledge is a key economic resource of most technologically advanced countries and it is estimated that 50% of the Gross National Product (GNP) of the most successful economies is knowledge-based (OECD, 1996). Drucker (1994) notes that the performance, if not survival, of any organisation in a knowledge-based economy is increasingly dependent on the quality and productivity of knowledge. It was Drucker (1959) who coined the term 'knowledge-workers' to describe those who gain access to jobs and social position through formal education. In what can only be described as an inversion of Marxist philosophy, he posits that it is these who now own the means of production, which reside in their own minds and bodies. Using a brain surgeon as an example, Drucker theorises that her 'true capital investment is twelve to fifteen years of training and the resulting knowledge', without which, as he rightly points out, the hospital is 'so much waste and scrap' (Drucker, 1994, p. 15).

This argument is equally applicable to many nurses working at senior level in practice within the public and private sector. Currently, the National Health Service (NHS) accounts for 7.8% of the GNP for the United Kingdom (UK), whilst the private sector accounts for 1.4% (Treasury, 2008); all of which translates into billions of pounds. Most pertinently in the context of this paper, nurses form the largest professional workforce within the National Health Service (DoH, 2000) and the private health sector within the UK, and no doubt the health care systems of other knowledge-based economies. It can be argued that their activities impact on all areas of practice and in essence productivity. Professional doctorates based on Mode 2 knowledge-production (which will be explored later) can provide the means and a process which can result in change and improvement in practice, thereby enhancing productivity and performance within the actual workplace. We believe that professional doctorates have an important place not only in traditionally high performing knowledge-based economies such as Australia, New Zealand or the United States of America, but also the European Union (E.U.), whose ambition is to become the most competitive economy in the world. Under the Bologna process, which aims to create convergence of higher education within the E.U. by 2010 (Davies, 2008),

recognition of professional doctorates is still under negotiation, but it is worth noting that the United Kingdom government, in recognising the contribution made by UK academics in these negotiations, states that they must hold the line and 'continue to uphold the importance of professional doctorates as being real doctorates' (House of Commons, 2007, p. 50), which points to recognition at the highest level of their importance to professional practice and our own knowledge-based economy. For all these reasons, we therefore believe that programmes for professional doctorates are here to stay and will expand and evolve even further.

2. History and context

The growth of professional doctorates within the developed world over the last century has been enormous. Ketefian et al. (2005) identify how these originated during the 1930s in the United States of America (USA), which now offers the most extensive range of doctoral programmes in the world, totalling 93 programmes in all. Ketefian et al. (2005) also identify, using data from the International Network for Doctoral Education in Nursing, that there are now 273 programmes offered worldwide in over thirty countries in Asia, Europe, South Americas and North America. Within the UK, Ellis and Lee (2005, p. 5) describe the 'a steady but significant increase' from one doctoral programme in 1995 to twenty three by 2003, with more being planned. Furthermore, within the UK professional doctorates in nursing are offered not only by 'red-brick' and 'new' universities, but also by universities which belong to the elite 'Russell Group', that is, research-intensive universities 'committed to the highest standards of research, education and knowledge transfer' (The Russell Group, 2008). Professional doctorates have therefore been a feature of American universities since the 1930s (Ketefian et al., 2005) and of Australasian (Maxwell and Shanahan, 1997) and some European Universities since the 1990s.

The UK Council for Graduate Education (UKCGE) describes the professional doctorate as:

a programme of advanced study and research which, whilst satisfying the university criteria for the award of a doctorate, is designed to meet the specific needs of a professional group external to the university, and which develops the capability of individuals within a professional context. (UKCGE, 2002, p.31).

There is some variance in the doctoral programmes offered worldwide. As Wood (2005) identifies, a typical model in the USA usually consists of the student entering the programme after having achieved a Masters and then undertaking course work over 2–3 years, followed by a comprehensive examination designed to test their proficiency in nursing theory, which must be passed before progressing to the actual research stage. Canada, also has programmes which consist of course work, followed by examination prior to undertaking research (Wood, 2005), whilst in the UK, a typical model may consist of course work over 3 years, which the students are also examined in and have to pass, before progressing to the research stage

(McKenna and Cutcliffe, 2001). There is also variance in nomenclature for the professional doctorate in nursing. The USA uses such titles as 'Doctorate in Nursing' (D.N or DNurs.), 'Doctorate of Science in Nursing' (DSN) or 'Doctorate in Nursing Science' (DNSci), all of which have been adopted by other countries including the UK and Canada (Galvin and Carr, 2003). In comparison, there is no variance for the traditional PhD which is by thesis only and for which there is only the single title of 'Doctor of Philosophy'.

Professional doctorates are not only confined to nursing. Bourner et al. (2001a), in their extensive study of professional doctorates in England, identified over a hundred such programmes at the start of 1998, which included traditional disciplines such as Engineering (Eng.D) and new ones such as Social Work (DSW). A trend towards professional doctorates across most disciplines and in other knowledge-based economies such as Australia, UK, USA and New Zealand has been clearly discernible for nearly twenty years. Factors contributing to this include the accelerating pace of change in the professions, the move towards evidence-based practice, continuing professional development and the evolution of work-based learning within Higher Education (Scott et al., 2004). Likewise, as Bourner et al. (2001b) note, changes in the intellectual climate of universities such as the promotion of reflective practice, critical reflection and post-modernism have also contributed to the development of professional doctorates throughout England and beyond.

Study at Doctoral level is now seen as increasingly relevant to those working outside of academe. Indeed, Green and Powell (2005) assert that this should be regarded as a prerequisite for those working at senior level precisely because they need to put into actual practice the research-based, analytical approaches to problem solving that are the hallmark of doctoral level study. Some of the drivers, or what Ellis and Lee (2005) describe as precursors, to nursing doctorates in the UK have been the integration of the discipline into higher education, the continuing focus on evidence-based practice and service development and, not least, the development of new roles such as consultant nurse. With regard to the latter, Park's (2007) claim that professional doctorates are a labour market qualification would seem particularly apposite, for it is likely that possession of one will be viewed as 'essential', as opposed to just 'desirable' for consultant nurses and other senior appointments in the future. This is only to be expected, given that nurses, like other professionals, rely on the production of research and knowledge in order to reach the top of their field of expertise (Bleiklie, 2005). Employers, private companies, organisations and public enterprises increasingly recognise, as Bleiklie pithily observes, that they need research just to do their job properly. This observation seems to have been taken to heart by government in the UK, where policy is now focused upon increasing nursing research capacity (UKCRC, 2007).

The role of universities in developing and providing professional doctorates is a crucial one and their motivations for doing so are worth noting here. Scott et al. (2004)

claim that professional doctorates in nursing have been developed in response to pressures from the professions themselves, due in part to the increasing status of qualification, the offer of high level professional development, or a commitment to learning and research. However, Maxwell et al. (2001) point to other motivators such as the pressure on universities to seek out new student markets as they become more orientated to the economic outcomes that are beneficial to their the country or, more cynically, the 'balance-sheet of their respective university' (Maxwell et al., 2001, p. 3). This Australian stance chimes with the view put forward by Hoddell et al. (2002), who suggest that English universities are also market driven and under increasing pressure to capture niche markets, leading, as we have seen, to a diverse range of titles including Doctorate in Nursing Science, Doctor of Nursing Practice and Doctorate in Nursing. Whatever their motivations, one thing we can be sure of is that universities have developed these professional doctorates across a range of disciplines and knowledge-based economies over the last twenty years. During this period, they have also evolved from first to second generation professional doctorates to take account of new understandings of knowledge-production that are relevant to our knowledge economy and which have the potential to transform professional practice.

3. Evolution from first to second generation professional doctorates

As Maxwell (2003) notes, the first professional doctorates in Australia and elsewhere, which they refer to as first generation professional doctorates, were only structurally different from the PhD insofar as they usually consisted of course work followed by a thesis and were dominated by academe (Maxwell and Shanahan, 1997). The same may also be said to apply to those in the UK, usually referred to as 'taught doctorates', which are usually a combination of taught modules that must be passed, followed by a research study which may be applied and clinically based (Park, 2007).

3.1. Mode 1 knowledge-production

Distinctions between first and second generation doctorates can be interpreted in the light of Gibbons et al's (1994) taxonomy of knowledge-production which uses two organising frameworks referred to as Mode 1 and Mode 2. It should be noted at the outset that the focus of Gibbons' distinction between Mode 1 and Mode 2 is on *production* rather than *product*. Knowledge is categorised and valued according to how it is produced rather than what it looks like, and it therefore makes no sense to refer to Mode 1 or Mode 2 *knowledge* per se.

Within Gibbons' taxonomy, first generation professional doctorates typify Mode 1 knowledge-production, which they classify as being driven by an academic agenda, categorised by the associated disciplines and residing in the University, where they are guarded by an academic elite. Under Mode 1, the students are inducted into the disciplinary knowledge and practice(s) of the University, and to be successful they must align themselves to the

theoretical and methodological frameworks which characterise these. As Scott et al. (2004) have argued, under Mode 1, disciplinary knowledge in professional doctorates may be manifested by an indifference to the practice settings or the designation of this as 'merely the source for theoretical deliberation' (p. 45). As they also argue, although knowledge may be focused on practice, 'it does not seek to change it in any immediate sense' because the student takes on the role of outsider, even in research about their own practice (p. 45). Mode 1 therefore aligns more or less with the 'traditional' scientific methodology for knowledge-production.

3.2. Mode 2 knowledge-production

In contrast to Mode 1 knowledge-production, Mode 2 is characterised by:

a constant flow back and forth between the fundamental and the applied, between the theoretical and the practical. Typically, discovery occurs in contexts where knowledge is developed for and put to use, while results - which would have been traditionally characterised as applied - fuel further theoretical advances. (Gibbons et al., 1994, p.19)

Gibbons et al. (1994) characterised Mode 2 knowledge-production under five broad headings, namely context of application, transdisciplinarity, heterogeneity and organisational diversity, reflexivity, and quality control.

Mode 2 therefore places the production of knowledge in the context of the situation to which it will ultimately be applied rather than the context of the laboratory or the academic research study. It involves temporary and pragmatic partnerships between *all* the actors involved in the context, including practitioners, managers and other stakeholders rather than 'objective' researchers. It encourages reflexivity, flexibility and the ability to 'think on one's feet' rather than methodological rigour, and therefore invokes different 'quality control' criteria than traditional Mode 1 scientific research. In particular, Mode 2 knowledge-production plays down peer review by academic researchers in favour of social, economic and political interests. In pragmatic terms, Mode 2 projects are judged on whether they achieve their practical aims rather than on whether they produce objective, internally and externally valid knowledge.

For example, a Mode 1 project to test and evaluate a new nursing practice intervention might involve a randomised trial to compare the new intervention with the existing one. The trial would typically be conducted by academic researchers from outside of the practice area and would follow a strict protocol. The resultant knowledge would usually be written up in the form of a traditional research project and published in a peer-reviewed journal. In contrast, a Mode 2 project might, for example, take the form of a collaboration between academics, practising nurses, managers and perhaps patients in an action research study which would be regularly monitored and modified to respond to the ongoing changes that it produced. The changes brought about by the project would perhaps be considered as more

important than the knowledge it produced, and would be judged by the project team and the wider constituency upon which it impacts according to the direct benefits to patients.

Mode 2, it should be noted, represents an alternative to Mode 1 knowledge-production rather than a replacement, and in this sense it complements the desire by universities to provide professional doctorates whilst preserving the traditional PhD. A key feature of Mode 2 is transdisciplinarity, that is, the ability to work outside of academe and solve problems in context; hence its appeal to nurse practitioners who wish to change or improve practice in their own workplace. Second generation professional doctorates, as Lester (2004) notes, appear to be more accepting of Mode 2 knowledge-production 'being more equally rooted in the contexts of the academy, the profession and the work place or practicum' (p. 758). Under Mode 2, the link between theory and practice is more apparent, and because research takes place in the workplace, knowledge-production and diffusion are inter-linked.

Research by Maxwell et al. (2001) indicates that second generation professional doctorates have gained a foothold in higher education within Australia and New Zealand and there is some evidence to show that newer professional doctorates in the UK also meet this criterion (Thorne, 2004; Stephenson et al., 2006). Second generation doctorates continue to evolve and may be characterised by increased flexibility of delivery, integration with the professional work place as well as portfolio model of assessment and thesis (Maxwell, 2003).

4. Threats to the University posed by Mode 2 knowledge-production

On closer inspection, however, very few of the so-called second generation doctorates fully engage with the radical nature and implications of Mode 2 knowledge-production and the profound challenges raised by the work of Gibbons and his colleagues. Indeed, Gibbons et al. complain in their later work how the concept of Mode 2 knowledge-production had been subject to a 'collapse into relativism and over-simplification of the argument' (Nowotny et al., 2005, p. 40) in order to meet the professional and political needs of particular groups. In making this claim, they specifically single out nurse researchers who 'pounced on Mode 2 to reduce their subordination to medical research' (p. 40). As they point out, this misunderstanding and/or misappropriation of Mode 2 into 'a single phrase, almost a slogan' (Nowotny et al., 2005) was almost inevitable, given Kuhn's work on the incommensurability of paradigms and the associated problems of conceptualising and phrasing a new paradigm from within the constraints of the existing one.

Incommensurability is certainly an issue here, as anyone who has attempted to present doctorates based on Mode 2 knowledge-production for validation within Mode 1 systems and philosophies will testify. However, we would suggest that a far greater problem for second generation doctorates which truly and authentically embrace the philosophy of Mode 2 knowledge-production

is the threat posed to the power and authority of the institution of the University. The threats are manifold: the Mode 2 thesis challenges the established academic view of what counts as useful and relevant knowledge; how, where and by whom it is to be produced; and by which criteria it will be judged and valued. These challenges have enormous implications for the integrity and power-base of the University, not least of which is its role and status in the so-called 'knowledge economy'. As Usher (2002, p. 145) points out, 'If knowledge is the currency of the new economy, universities are inevitably involved in its production'. However, the ethos of Mode 2 knowledge-production seriously challenges the current role of the University within this economy as akin to the Bank of England; that is, as the producer, regulator and disseminator of knowledge. Under Mode 2, the University is reduced to merely another player in the knowledge market with few privileges over its competitors.

Each of the above three challenges posed by Mode 2 knowledge-production to the current role of the University as banker to the knowledge economy will now be discussed in turn, with particular reference to the issues they raise for second generation doctorates. We will see that one of the greatest challenges for nurse academics is the demand that we abandon the idea of unidisciplinary nursing doctorates in favour of transdisciplinary doctorates for nurses. For this reason, we will discuss professional doctorates in general rather than specifically in relation to nursing.

4.1. The University as provider of useful and relevant knowledge

The first and perhaps the greatest challenge posed by Mode 2 production lies in its reconceptualisation of the very idea of knowledge as a relatively stable commodity that can be made, tested, distributed and exported to new settings. Clearly, Mode 2 usually produces contextualised knowledge that is closely related to practice, but Gibbons and colleagues are at pains to point out that Mode 2 knowledge-production is far more radical than simply 'a new-fangled label for applied science or programmatic research' (Nowotny et al., 2005, p. 48). Thus, whereas the applied science paradigm maintains a separation between the generation and the application of knowledge, the distinction in Mode 2 knowledge-production is blurred to the point of meaninglessness. The key to understand the relationship between Mode 2 knowledge generation and application lies in Gibbons' notion of reflexivity. In his earlier work (Gibbons et al., 1994), he articulates this in terms of being reflective and attempting to assume a variety of standpoints of the different participants in the research process. However, he later defines reflexivity as 'an intense (and perhaps endless) conversation between research actors and research subjects—to such an extent that the basic vocabulary of research (who, whom, what, how) is in danger of losing its significance' (Nowotny et al., 2005, p. 42).

Barnett (2000) and Usher (2002) prefer the term 'performativity', which is rooted in the philosophy of language games (Wittgenstein, 1958) and the 'little

narratives' of Lyotard (1984). Placed in this context, performative research is research that enacts itself, that brings about changes to practice as part of (and inseparable from) the process of carrying out the act of doing research. At its extreme, then, distinctions between researchers and researched, between research and practice and between the generation and application of knowledge merge into one. Other writers (Rolfe, 1993; Barnett, 2000) have employed the term 'praxis' to describe this amalgam of knowing and doing, in which research is subsumed into everyday practice, direct action is built-in to the act of research, and in which theory and practice become two sides of the same coin.

This performative concept of reflexivity, where the generation and application of knowledge are fused into a single act, has clear parallels in some approaches to action research, and raises a number of issues in relation to a doctoral research programme. Crucially, the researcher is not fulfilling the usual doctoral criterion of making a recognisable contribution to generalisable knowledge within her/his chosen field. Indeed, we could go further and suggest that there is no overt knowledge product at all, but rather a *tacit* fusion of knowledge and practice that resides within, and is enacted by, the person of the researcher. Whereas Mode 1 knowledge-production results in propositional knowledge which can be written up, published and applied to practice, Mode 2 produces 'knowing as action' (Barnett, 1997), 'process knowledge' (Eraut, 1994) or praxis (Rolfe, 1993), in which the end-product or outcome is a process rather than a publication.

This turn from output to process as the primary function of research problematises the production of a written and bound thesis as an account of the generation and presentation of the knowledge product. As Usher notes of second generation doctorates based on Mode 2 knowledge-production:

The outcomes of this form of doctoral education is (sic) not a thesis but a short written exegesis. More significant is the 'artefact' produced through the project. This is the outcome of the project with direct tangible benefit to the workplace. Its significance also lies in the fact that it subverts the primacy of the written thesis as the dominant assessable outcome. (Usher, 2002, p.150)

Whilst performative research might well generate some written outputs, these will have the status of what Usher refers to as 'artefacts'. This word is well-chosen, since 'artefact' has the secondary meaning of an unintentional and perhaps unwanted by-product which might inform and direct the work but does not constitute a substantive part of it. Whereas these artefacts can be presented as part of a portfolio of evidence to demonstrate that an act of performative research or praxis has taken place, it must be emphasised that they are merely evidence of a process and do not constitute or even represent the 'output', only part of which would, in any case, be tangible. Further questions are therefore raised not only about what is being assessed in a second generation doctorate, but also how and by whom the assessment might be conducted.

4.2. *The University as the producer and owner of knowledge*

The second challenge posed by the philosophy of Mode 2 knowledge-production to the privileged role of the University in the knowledge economy concerns the issue of the ownership and control of the production and dissemination of knowledge. Mode 2 knowledge-production foregrounds the close relationship between knowledge and power, and calls into question the role of the University as the primary site of what Foucault (1980) terms 'power/knowledge'.

Foucault argues that power and knowledge cannot be separated, and that the power/knowledge nexus is regulated through the 'disciplines' (Foucault, 1977). Just as human bodies are controlled and restrained through physical and psychological discipline, bodies of knowledge are controlled and kept in place through academic disciplines. An academic discipline such as nursing should therefore be regarded not merely as a subject area, but as encompassing the regulation and imposition of the rules, methods and criteria by which knowledge is produced, validated, ordered, disseminated and applied. Academic disciplines therefore regulate and control the circulation of knowledge within the knowledge economy. However, as the currency of the knowledge economy continues to shift from detached, objective, propositional knowledge to engaged, subjective praxis, the traditional academic disciplines are losing their grip on power/knowledge; indeed, their very existence might be seen as under threat.

The traditional Mode 1 PhD is usually situated within a single and discrete academic discipline, such that the boundaries of relevant knowledge and theory, along with the valid and accepted methods for generating and disseminating that knowledge, are secure and largely uncontested. In contrast, Mode 2 knowledge-production extends the limits and bounds of the doctoral curriculum (in the wider sense of the term as encompassing educational values and philosophy in addition to course content) beyond the classroom and out into the workplace. That in itself might be seen as challenging to the hegemonic power of the University as banker to the knowledge economy. However, a far greater threat stems from the Mode 2 appeal to the idea of transdisciplinarity.

The principle of crossing disciplinary boundaries is already well established in taught undergraduate and Masters programmes, in the form of multidisciplinary and interdisciplinary curricula. A multidisciplinary curriculum would usually entail the teaching of common material to students from different disciplinary backgrounds, whereas an interdisciplinary curriculum implies learning between students from different disciplines based on a sharing of their particular experiences and perspectives (Grigg, 1999). In the former case, the integrity of the separate disciplines is maintained intact, whereas in the latter case the disciplines are to some extent merged to create a new shared discipline. As Gibbons et al. point out:

Interdisciplinarity is characterised by the explicit formulation of a uniform, discipline-transcending terminology or a common methodology. The form scientific cooperation takes consists in working on different

themes, but within a common framework that is shared by the disciplines involved (Gibbons et al., 1994, p.29).

However, the idea of a *transdisciplinary* curriculum of the type advocated by Gibbons for Mode 2 knowledge-production extends a great deal further than merely a reorganisation of existing disciplinary boundaries and power relationships. Transdisciplinarity entails not only a transcendence of disciplinary boundaries, but to some extent the transcendence of the *very idea* of disciplines. Thus:

The transdisciplinary mode of knowledge production described by us does not necessarily aim to establish itself as a new, transdisciplinary discipline, nor is it inspired by restoring cognitive unity. To the contrary, it is essentially a temporary configuration and thus highly mutable. It takes its particular shape and generates the content of its theoretical and methodological core in response to problem-formulations that occur in highly specific and local contexts of application. (Gibbons et al., 1994, pp. 29–30)

This disintegration of the stable disciplinary academic boundaries, to be replaced by a series of temporary ad hoc project teams, challenges the privileged role of the University in the generation, validation and dissemination of knowledge in two ways. Firstly, it calls into question the relatively stable internal structures by which the generation and dissemination of knowledge/power are regulated, prompting a reconceptualisation of the internal politics of the University. More significantly, however, it breaks down the external boundaries which the University erects around its position as power/knowledge broker by allowing other players to take an authoritative role, not only as partners in the educational process, but also as co-constructors and co-validators of knowledge. In the case of the second generation professional doctorate, these other players in the so-called hybrid curriculum typically include 'the candidate's profession and the particular work-site of the research' (Lee et al., 2000, p. 127). Mode 2 knowledge-production therefore relegates the University to merely one of several contributors to the knowledge economy with little or no privilege or power over the others.

4.3. *The University as the authority on the reliability and validity of research-based knowledge*

The third challenge posed by Mode 2 knowledge-production concerns the shifts that it introduces in the ways that knowledge is judged and valued. We have already seen that the product or outcome of the second generation professional doctorate is not necessarily a tangible contribution to generalisable knowledge, but that it consists of evidence in the form of artefacts that a process of 'knowing as action' or praxis has occurred, along with an exegesis or reflexive commentary on that process. The portfolio of evidence that results from Mode 2 knowledge-production cannot therefore be evaluated according to the same criteria as the traditional Mode 1 academic thesis.

Mode 1 research places great emphasis on its claims to internal validity, reliability and external validity, where

internal validity is (broadly speaking) the ‘truthfulness’ of the study, reliability is the accuracy of the measures used to generate the data, and external validity is the degree to which its findings can be applied or generalised beyond the study. The logic of the scientific method that underpins much Mode 1 research, in both its quantitative and qualitative formulations, suggests that if a valid and reliable research method is rigorously followed, then the evidence it produces must be similarly valid and reliable. It follows, then, that judgements about the quality of research evidence for practice are largely academic judgements about the way that the study has been conducted rather than professional judgements about the nature of the evidence itself. As the educationalist [Stenhouse \(1978\)](#) pointed out, this logic entices us to suppose that it is possible for academic researchers to make ‘wise’ judgements about spheres of practice of which they have little or no experience or understanding.

However, the second generation professional doctorate based on [Gibbons’](#) Mode 2 knowledge-production challenges the role of the University as the guarantor of the quality of research and evidence for practice in several fundamental ways. First and foremost, the validity or ‘truthfulness’ of Mode 2 knowledge-production is measured according to its contribution to tangible improvements to practice rather than whether it generates ‘pure’ decontextualised theoretical knowledge. The focus of the judgement therefore shifts from the research process to the change process, and the arbiter of quality likewise shifts from the academic to the professional practitioner.

This shift calls into question the place of ‘rigour’ as the ‘gold standard’ academic criterion. As we have seen, the quality of Mode 1 knowledge-production is judged according to the rigour and detached objectivity with which valid and reliable research methods and instruments are unswervingly adhered to, on the assumption that the rigorous application of valid research methods produces valid or ‘truthful’ research findings. Furthermore, the *generation* of knowledge through research is kept separate from and uncontaminated by the *application* of that knowledge to practice, on the assumption that ‘discovery must precede application’ ([Gibbons et al., 1994](#), p. 33). In contrast, Mode 2 knowledge-production attempts to bring together the generation and application of knowledge in a single reflexive cycle of praxis where each is constantly responding and reacting to the other. Under this scenario, quality control is in the hands of ad hoc and transdisciplinary communities of practitioners and therefore:

takes on transient and temporary forms, exhibits fluid contours and provisional norms, and occupies temporary institutional spaces which can accommodate knowledge producers with many different institutional affiliations, either simultaneously or sequentially. ([Gibbons et al., 1994](#), p.33)

We can see that, in such a setting, a flexible, responsive, subjective approach is required. Practical (re)flexibility rather than academic rigour is therefore the hallmark of quality for Mode 2 knowledge-production. This in turn raises some very significant questions about the assess-

ment of research projects for academic awards, and suggests that University-based academics might not be the most appropriate individuals to make judgements about quality.

5. Implications and challenges for Professional Doctorates in nursing

We have argued in this paper that the rise of the knowledge economy first anticipated by [Drucker](#) in the late 1950s has initiated a gradual shift in relevance from Mode 1 to Mode 2 knowledge-production, in which the process of understanding and improving practice becomes more important than the production of theoretical knowledge, in which traditional academic disciplines and practices have been transcended in favour of temporary ad hoc project teams, and in which the rigorous application of method is being challenged by pragmatic reflexivity. We further suggest that although universities are beginning to adopt and incorporate some of the principles of Mode 2 knowledge-production, the full implications of such a shift in values and practice will result in such a profound destabilisation of the power/knowledge nexus that the University will be in danger of losing its position at the hub of the knowledge economy, and disciplines such as nursing may no longer exist as discrete power/knowledge bases.

We believe that the current interim position of the University is untenable; it is simply not possible in the long term to pay lip service to the practices of Mode 2 knowledge-production without accepting the philosophy and principles, many of which seriously undermine the role of the University as knowledge broker to society. Similarly, second generation doctoral education must be fully embraced or else rejected. The current position of many disciplines, including nursing, of sitting on the fence underplays the benefits to practice of Mode 2 knowledge-production for the sake of maintaining disciplinary power and the status quo.

There is some understandable reluctance within the higher education sector to fully implement second generation professional doctorates. [Ellis \(2007\)](#) found considerable scepticism about the value of professional doctorates in nursing in a national survey of 74 higher education providers in the UK, and similar reservations have been found in other disciplines ([Times Higher Education, 2008](#)). Some nurse academics have gone so far as to argue for a retreat back to the safety of the ‘traditional’ doctorate. Thus, [Kirkman et al. \(2007\)](#) acknowledge that ‘it is important that doctoral education is encouraged to meet the increasingly complex demands of society’ (p. 65). However, rather than regarding second generation professional doctorates as a means of meeting these complex demands, they are dismissed as ‘an easy option and symptomatic of an anti-academic culture that seems to be pervading nursing’ (p. 65), and those who are enrolled on them as second class academics who ‘have chosen the path of least resistance’ (p. 66). Furthermore, [Kirkman et al. \(2007\)](#) argue that many nurse academics themselves possess these ‘inferior’ doctorates, so the discipline is unlikely to reform itself from within. The

solution, then, is 'the re-introduction of the traditional PhD as the gold standard for higher research degree training . . . [and] the abolition of the professional doctorate' (p. 66).

This name-calling is both unnecessary and unwarranted, and we have argued that the two awards are necessary to meet the differing needs of different groups. Thus, for as long as the 'traditional' academic role persists in certain University departments and disciplines, the PhD is clearly the most appropriate preparation for such a role. However, there are many professions, including nursing, where traditional concepts of knowledge and its relationship to practice are being challenged, where new partnerships between academia and the workplace are demanded, and where new roles are required that span this divide. We believe that such challenges are to be embraced rather than retreated from, and we can see no reason why this new breed of academic nurse practitioner should not be aspiring to a doctoral level qualification that fully acknowledges and rewards the ground-breaking work being carried out at the theory–practice interface in nursing and other healthcare disciplines. Whilst we can understand the anxiety felt by Kirkman *et al.* (2007) about academic standards, we would suggest that their 'vision for the future', in which the professional doctorate is abolished, is little more than a retreat to the perceived safety and comfort of the past.

6. Conclusion

The professional doctorate has been developed in response to the demands of the knowledge economy for a closer relationship between knowledge-production and knowledge utilisation. However, if it is to achieve its full potential it must embrace the challenges posed by the philosophy of Mode 2 knowledge generation for a fully integrated partnership with other players in the knowledge economy that transcends existing boundaries between academic disciplines and, indeed, between the University and the world of professional practice. We realise that this might be seen to threaten the academic discipline of nursing and the academy in general, not least in its loosening of the University's grip on the means of production of the knowledge economy. We can understand why many of our colleagues would wish to resist such a move, and we therefore wish to reassure them that the transcendence of disciplinary boundaries for the purposes of particular individual projects or even entire doctoral programmes does not signify the end of the discipline of nursing. Rather, it offers enormous opportunities for doctoral students and other nurse academics to engage on an equal footing with colleagues from a range of disciplines and professions, both within and external to the University in projects that will make a direct practical difference to the lives of patients and their relatives. Thus, whilst the PhD remains the doctorate of choice for traditional academic roles in nursing and other disciplines, we believe that second generation professional doctorates offer an alternative but no less academically sound education in preparation for playing a full and active role at the theory–practice interface in nursing and healthcare.

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