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**'Quackery' in the Academy? Professional Knowledge, Autonomy,
and the Debate over Complementary Medicine Degrees**

Abstract

In 2012, the group 'Friends of Science in Medicine', mostly comprising academic doctors and scientists, lobbied to remove teaching in complementary and alternative medicine (CAM) from Australian universities. Seemingly inspired by an earlier UK-based campaign, the group approached vice-chancellors and the media, arguing that CAM degrees promoted 'pseudo-science' and 'quackery'. Although epistemological disputes between biomedicine and CAM are well documented, their emergence in a higher education context is less familiar. This paper explores the position-taking of those on each side of the debate, via a thematic analysis of stakeholders' views as reported in news articles and other outlets. Bourdieu's concepts of capital and autonomy are used to sketch out the stakes of the struggle. It is argued that the debate is significant not only for what it reveals about the current status of CAM professions in Australia, but for what it suggests more broadly about legitimate knowledge in the university.

Keywords: Bourdieu; complementary and alternative medicine; health professional education; knowledge; professions; science; universities

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Introduction

In January 2012, a lobby group called ‘Friends of Science in Medicine’ (FSM) launched itself by campaigning to remove the teaching of complementary and alternative medicine from Australian universities. Members of the group – numbering over 1000 by early 2014 – are almost all doctors and scientists, mostly in senior academic positions in Australia (Friends of Science in Medicine, 2014). FSM’s initial press release stated that ‘Nineteen of Australia’s thirty-nine Universities currently offer degrees and courses in alternative health care, identified as courses that are not evidence-based or based upon demonstrably false assumptions’ (Friends of Science in Medicine, 2012b). It went on to set out the organisation’s premise that teaching alternative medicine amounts to teaching pseudoscience, and that this has no place in a public university. FSM also wrote to all Australian vice-chancellors, asking whether their university was teaching alternative medicine and to state whether they were committed to ensuring that all science courses were ‘evidence-based’(Friends of Science in Medicine, 2012b). Five years earlier, a similar campaign had been conducted in the United Kingdom, when academic scientists also called

on vice-chancellors to drop alternative medicine degrees (Chatfield et al., 2012; Colquhoun, 2012).

The relationship between conventional Western medicine, often referred to as biomedicine to indicate its foundation in bioscience, and complementary and alternative medicine (CAM) - a term describing a wide range of healing practices generally characterised by their lack of integration into biomedicine (Broom and Tovey, 2007) – is fraught with epistemological conflict. The assertion that CAM equates to pseudoscience and quackery is nothing new, and much sociological work has analysed the contestation of the role of science and evidence in this domain, particularly in light of CAM's efforts at professionalisation (Cant and Sharma, 1995; Hirschhorn, 2006; Keshet, 2009; Saks, 2003; Wahlberg, 2007; Welsh et al., 2004). What is less familiar is the emergence of such debates in the context of higher education. This raises new questions, such as what is the role of the university in mediating claims over CAM epistemology? Furthermore, what is the position of CAM within universities in Australia and elsewhere, its relationship to biomedicine within these settings, and what might this in turn suggest about how the professional status of both CAM and biomedicine is evolving?

The paper begins to explore these questions by analysing the position-taking both of FSM and those who came to CAM's defence in the recent Australian debate. Bourdieu's framework is drawn on to sketch out the stakes of the struggle. It is argued that the debate is significant not only for what it reveals about the current status of CAM professions in Australia, but for what it suggests more broadly about legitimate knowledge in the university. Before presenting the analysis, a background is provided on the

professionalisation of CAM and the nexus between knowledge, education and professional autonomy.

CAM and Professionalisation

The presence of some types of CAM within universities is a significant marker of their professional status. The sociology of professions has long recognised tertiary qualifications, controlled and delivered by the occupational group in question, as a key professional trait (Cant and Sharma, 1995; Turner, 1995). Work on professionalisation also shows that achieving and maintaining such status markers occurs via struggles between occupational groups, each seeking to obtain occupational and social closure and a monopoly over a particular area of work (Abbott, 1988; Freidson, 1970; Saks, 2003; Willis, 1983). Freidson (1970) argued that the distinguishing feature of professionalism is autonomy – a profession’s ability to determine the content of its work and training without being subject to evaluation by outsiders. Autonomy is bestowed by the state, through legal protections over the profession’s work, and by the public, through its trust in the professional to provide expert intervention (Freidson, 1970). Abbott (1988) pointed out that how work was divided between professional groups also depended crucially on professions’ relationships to each other.

Among the health professions, medicine was the first to achieve professional autonomy and has been the most powerful occupational group since the nineteenth century. It achieved its position by appealing to legislators for protection of its work, by establishing university degree requirements and by undermining the authority of other healing groups (Saks, 2003;

Willis, 1983). Medicine's professional dominance is evident in that it has actually been able to control the work of other health professional groups and to reinforce its own position by subordinating, excluding and limiting others (Freidson, 1970; Willis, 1983).

Many apparent challenges to medical dominance have emerged in the last several decades, among which the public's increased use of CAM is often cited (Saks, 2003). CAM, it is argued, appeals to the public because of its emphasis, in contrast to biomedicine, on patient-centred care and holistic therapies (Kelner et al., 2004). It is often used by those with chronic illnesses that biomedicine has been unable to treat. One study reports more than two in three people having used CAM in Australia, where widespread private health insurance facilitates access (Xue et al., 2007), with significant usage also reported in the UK and USA (Harris et al., 2012). However, although credited with challenging medicine's professional standing, CAM has had mixed success in gaining professional status itself.

Only a few CAM occupational groups can be seen to have achieved formal professional status. This varies by country. In Australia, three CAM groups have protected titles and require registration with the Australian Health Practitioner Regulation Agency and a university degree to practice: chiropractors, osteopaths and traditional Chinese medicine (TCM) practitioners. All three modalities have been taught in Australian universities since the early 1990s, making the sudden appearance of the FSM campaign in 2012 perhaps surprising. It coincided with the inclusion of TCM in national registration for the first time and with the launch of a new chiropractic degree program. The latter in particular seems to have been a catalyst for FSM's formation (discussed further below), although rather than representing a trend, this was the first Australian university to open a new CAM program in

recent years, becoming one of eight universities offering degrees in the three aforementioned modalities. FSM's initial claim that 19 universities were teaching CAM was modified down when it transpired that many such courses were either no longer on offer or were single subjects designed to teach health students about aspects of CAM use, rather than to practice CAM (Friends of Science in Medicine, n.d.). CAM's presence in Australian universities is more tenuous than the FSM campaign suggested then, yet for those modalities that are taught there, maintaining this foothold is vital to maintain professional status.

Legitimate Knowledge and Professional Autonomy

Beyond university qualifications per se, a profession's claim to an esoteric body of knowledge that distinguishes it from other groups is a crucial factor in achieving professional autonomy (Freidson, 1970; Turner, 1995). Indeed, the recent debate suggests that university degrees are not sufficient to prove legitimacy in the eyes of other professions; the *content* of such degrees must be seen as valid. Just as medicine has been the dominant health profession, so it has been most successful in establishing the legitimacy of its ontological and epistemological approach, represented by the biomedical model. This model values objectivity, quantification and a mechanistic view of the body (Broom and Adams, 2009), exemplified in traditional medical degrees which from the early twentieth century were founded on the basic sciences (Rothstein, 1987; Willis, 1983). As already mentioned, CAM modalities tend to follow more holistic models, often incorporating body, mind and spirit, where the practitioner-client relationship is central to therapy (Broom and

Adams, 2009; Kelner et al., 2004). Although in theory CAM's differentiation from biomedicine might afford it a claim to specialist knowledge, and consequent autonomy, instead its difference has frequently been used to discredit it.

It is important to note that the true extent of epistemological difference between biomedicine and CAM has been questioned. Hirschhorn (2006), Keshet (2009) and Ning (2013) argue that these supposed differences are rhetorical devices used strategically and variably by both CAM and biomedicine to claim legitimacy in different settings. It should also be noted that medical degrees have long faced criticism for an overreliance on bioscience, and now incorporate forms of knowledge associated less with the biomedical model than with the humanities and social and behavioural sciences, such as communication skills and ethics (Corrigan and Pinchen, 2009). Some read these 'humanising' reforms as an attempt to render medicine more accountable in the face of declining public trust and threatened professional status (Vinten-Johansen and Riska, 1991). The shifting fortunes of both CAM and biomedicine has meant neither has been able to work within a pure, isolated epistemological model; exchange and adaptation occurs between them as well as other disciplines (Ning, 2013).

Nevertheless, an epistemological hierarchy persists in healthcare. Numerous studies show that despite reforms, non-biomedical aspects of the medical curriculum remain marginalised (Brosnan, 2011; Litva and Peters, 2008; Whitehead, 2013). The hierarchy is perhaps seen most clearly in the ranking of forms of evidence within evidence-based medicine (EBM). CAM is under pressure to produce the same kinds of evidence of efficacy and safety that biomedicine adheres to within the EBM movement, which ranks systematic

reviews of randomised control trials above all else (Jackson and Scambler, 2007; Kelner et al., 2004) – a stance fitting well with the biomedical model. Regardless of doubts over whether randomised control trials can be applied to CAM's non-standardised, holistic therapies, these definitions of evidence are paramount (Broom and Tovey, 2007; Jackson and Scambler, 2007).

A tension exists then between CAM modalities' claims to a distinct, esoteric body of knowledge and their need to produce knowledge that fits within a biomedical paradigm. The former is needed to achieve professional autonomy, but the latter is necessary to receive recognition from the dominant health profession (Cant and Sharma, 1995; Jackson and Scambler, 2007; Welsh et al., 2004). University degrees are key sites where this tension must be managed, yet very little sociological work has examined CAM degrees as arenas of epistemological claims-making.

The few existing studies of CAM education have focused largely on the private or further education sector, where the majority of CAM education takes place. O'Neill (1994) conducted a rich, ethnographic study of chiropractic, osteopathy and Chinese medicine colleges in Melbourne in the early 1990s, just at the point at which some of the courses were preparing to move into universities. He documents the concessions the faculty members were being asked to make with this shift, like needing to include western bioscience, which they were hostile to and resisted to some extent. Notably this research was conducted prior to the emphasis on EBM becoming formalised in the 1990s. Other studies of the link between CAM knowledge/education and professional status in the UK (Cant and Sharma, 1995), USA (Flesch, 2013) and Canada (Welsh et al., 2004) also focus on

CAM specialist colleges, finding that bioscience was used strategically in CAM college curricula to gain professional and institutional legitimacy, while faculty members struggled simultaneously with how much traditional CAM knowledge to include. In one of the only studies of CAM university degrees, Givati (2012) looked specifically at the concept of holism in homeopathy and acupuncture education in the UK, showing how it has been modified to adapt to the demands of higher education institutions.

Relative to vocational qualifications, university degrees are much more important in terms of establishing professional credibility. As I aim to demonstrate, the recent Australian debate is significant for what it suggests about both CAM's status within the university and about the forms of knowledge that are legitimate in that setting. In turn, this has implications for CAM's access to specialist knowledge and its professional autonomy. Before presenting my analysis of the debate, I elaborate on the notion of autonomy by briefly outlining its meaning within Bourdieu's work.

Autonomy, Fields and Capital

Bourdieu's framework has the potential to enrich existing theories of professionalisation. For Bourdieu, disputes like the recent FSM-CAM debate typically signify that the participants are invested together in a field – an arena in which a struggle for resources, or capital, takes place between unequally positioned players (Bourdieu and Wacquant, 1992). Such struggles follow predictable patterns: those who dominate the field have the most capital and are also able to set the terms of what counts as capital, or what is valued, in the field; those who are subordinated use strategies either to gain more capital on the current terms of the

field, or to subvert the values of the field so that their subordinated forms of capital become valued (Bourdieu and Wacquant, 1992). The struggle manifests differently in different fields. In the academic field, Bourdieu (1988) has shown how different types of knowledge can be translated into forms of cultural capital and power: 'declarations in the domain of theory, method, technique or even style are always social strategies in which powers are affirmed and claimed' (p.123).

Autonomy is also a central concept in Bourdieu's work. Bourdieu argues that all fields are structured by a tension between autonomy and heteronomy – autonomy being the ability to decide internally what is legitimate in that field, heteronomy being accountability to another field (Bourdieu and Wacquant, 1992). Bourdieu (2004) posits that science is the most autonomous field, being so specialised that only other scientists are able to recognise good science. It is precisely this accountability to competitor-peers and protection from external demands that enables rational scientific knowledge to be produced (Bourdieu, 2004:54). At the same time:

the autonomy is never total and because the strategies of the agents engaged in the field are inseparably scientific and social, the field is the site of two kinds of scientific capital: a capital of strictly scientific authority, and a capital of power over the scientific world which can be accumulated through channels that are not purely scientific (2004:57).

Scientific struggles must be understood as produced through this double logic (Bourdieu, 2004:57). In the following analysis of the FSM-CAM debate, I draw on Bourdieu's notions of

fields, capital and autonomy to begin to sketch out what forms of capital are at stake in the debate, how the players are positioned, and what this suggests about the relative autonomy of the field of CAM university education.

Analysing the FSM-CAM Debate

In the wake of the UK campaign against CAM degrees, Simon Singh, a British popular science writer and prominent CAM critic, was sued for libel by the British Chiropractic Association, the case eventually being dropped in 2010 (Boseley, 2010). This high profile case may have helped rally and garner support for the CAM critics both in the UK and overseas (see Ernst, 2012). By 2011, several of those who went on to become FSM's key spokespeople had begun lobbying specifically against chiropractic teaching in Australian universities. For example, Loretta Marron, later CEO of FSM, sent a report to the Australian Federal Health Minister requesting that a paediatric chiropractic clinic at one university be shut down (Marron, 2011). In the report she thanks 'Simon Singh and the trans-Atlantic alliance of medical professionals who willingly gave their time and support in its preparation' (Marron, 2011:ii), highlighting the collaboration of the British and Australian lobbyists. Later in 2011, the announcement of the new chiropractic degree at another Australian university prompted an open letter to the university from the doctors and scientists who went on to form FSM (Cresswell, 2011). By the beginning of 2012, FSM had been launched, and the campaign had moved from chiropractic to CAM university teaching more generally. It was at this point that the debate gathered momentum, moving from the Australian news media

into the pages of the *Medical Journal of Australia*, the *British Medical Journal* and the *New York Times*, and emerging in various other online sources.

Flatt (2013) has conducted a critical discourse analysis of 13 media items relating to the FSM campaign, focussing on FSM's representation of CAM practice, patients and the demarcation of CAM from biomedicine. Concerned with the accuracy and impartiality of FSM's claims, Flatt argues that these are compromised because FSM draws on ideology and attempts to exert power through its campaign. My focus here differs in that I set out to understand specifically how FSM constructed CAM university degrees, rather than CAM more broadly. Furthermore, I have also analysed the response of those who came to CAM's defence.

In analysing the debate as it played out in the media and academic literature, like Flatt (2013) I am concerned with the positions taken by FSM and the CAM supporters as represented in these sources. That is, I have taken the reports of stakeholders' positions at face value, rather than interrogating the reports themselves as players in the debate. Consideration of the role of the media in shaping such debates is beyond the scope of the paper, but the limitations of treating media reports as true reflections of stakeholders' positions is discussed in the conclusion.

The analysis presented here draws mainly on sources published in the first half of 2012, when the FSM campaign was most active. Sources were collected by searching the EBSCO and ProQuest databases and Google using terms such as 'complementary and alternative medicine in Australian universities debate', 'complementary and alternative medicine

education’ and ‘Friends of Science in Medicine’. Ad hoc searches were also conducted by following links from other sources. Table 1 gives an overview of the material that was analysed. Where data extracts are presented in this paper, the full source is provided in the reference list.

Table 1: Data sources analysed

Type of source	Number of items analysed
FSM website	1
Newspaper articles	22
Letters to newspapers	6
Medical/CAM journal articles	8
Press releases	4
Radio broadcasts	3
Articles in <i>The Skeptic</i>	2

Each source was uploaded into NVivo and coded thematically. The analysis concentrated predominantly on what was said about CAM degrees by FSM and by CAM defenders and therefore relied heavily on quotes reported in newspaper articles. Key statements that reflected stakeholders’ positions on an element in the debate were coded. Analysis was both literal - concerned with the actual content of statements and the words used, and interpretive - concerned with how what was said reflected broader social relations (Mason, 1996). Several distinct themes emerged from within the statements being made by each group. I begin by outlining the central arguments made by FSM before turning to the CAM defenders’ response.

The FSM Campaign

Distinguishing Science and Non-Science

Flatt (2013) has shown how the FSM campaign focused on delineating science and non-science. This discourse was also mapped on to health professional education. CAM degrees were portrayed as teaching non-science and as therefore lacking credibility. The FSM Homepage explained, for instance, that:

suspect university courses gave us the impetus to form ... Of immediate concern was the inclusion by a number of our universities (and other tertiary institutes) of 'pseudosciences' in their health science courses, in some cases preparing graduates to practise them. This trend provides totally undeserved credibility for useless, and sometimes dangerous, approaches to healthcare.

(Friends of Science in Medicine, 2012a)

In the *Sydney Morning Herald*, FSM was quoted as stating that CAM degrees give 'undeserved credibility to what in many cases would be better described as quackery' (Burke 2012:3). Writing in the *Medical Journal of Australia (MJA)*, FSM members MacLennan and Morrison (2012:225) argue that, in contrast, 'All Australian tertiary institutions need to acknowledge this controversy and review their health science teaching to ensure that primacy is given to scientific principles based on experimental evidence'. The same themes were apparent in the earlier UK-based campaign, which prompted headlines such as

'Shamed: Universities offering bogus degrees in alternative medicine' (*The Daily Mail Online* 2008 in Givati, 2012:83-84).

These are the typical discourses used to discredit CAM. Welsh et al. note that 'CAM groups frequently have faced boundary-work at the hands of the medical establishment. To varying degrees (and at varying times), Western medicine has attempted to portray CAM as non-scientific quackery' (2004:219-220). Wahlberg (2007) shows that warnings against the 'danger' of CAM are also a long-standing historical theme, seen above in the FSM homepage excerpt. What is different here is that this is not simply a case of doctors casting doubt on rival healing practices, but academics denigrating other academics' work and the content of their teaching. Rather than viewing CAM academic staff as colleagues – fellow university teachers and researchers – it was clear in the campaign that CAM academics lacked legitimacy in FSM's eyes, regardless of qualifications. One FSM member was quoted as saying of them that, 'You can have a PhD in bull dust but it's still bull dust' (Tran, 2012 n.p.). For FSM then, bioscience is the only route to legitimacy for any health profession. To put this in Bourdieusian terms, FSM invokes bioscientific knowledge as a form of capital that trumps academic credentials. Some PhDs are better than others.

In asserting their own authority in the debate, FSM drew on members' scientific and medical qualifications and reputations, again constructing science as a form of symbolic capital. Descriptions of the group continually pointed out that it was comprised of well-established academic scientists and doctors, the FSM president describing it as 'a who's who of Australian scientists, leading clinicians and consumer advocates' (Segev 2012:10),

including 'the most senior scientists' (Colvin, 2012). Journalists also depicted FSM as a powerhouse of academic bioscience:

The group includes world-renowned biologist Sir Gustav Nossal, the creator of the cervical cancer vaccine professor Ian Frazer, and more than 400 doctors, medical researchers and scientists.

(Wilson 2012:6)

What emerged early in the debate then was a clear message that FSM was qualified to speak on the quality of health professional education due to the scientific and clinical expertise of its members. This illustrates the dual forms of scientific capital described by Bourdieu (2004): through recognised *scientific* achievements, certain scientists are able to exert *social* authority over the scientific world. The second form of scientific capital does not have the same rational basis of the first, more autonomous type, and is more susceptible to external non-scientific influence (Bourdieu 2004:57). The strategies adopted by FSM suggest that not only was this second form of scientific capital used to exert influence outside of the field of scientific research itself – in the domains of education and popular media - but that it was also crucially *at stake* for FSM. This came through in FSM's argument that only certain types of knowledge have a place in health professional degrees and in universities.

Universities as Bastions of Science

The second key message in the FSM campaign was that CAM degrees are harming universities. In the *MJA*, MacLennan and Morrison (2012:225) argued that:

The international scientific credibility of Australian tertiary education institutions is being undermined by the increasing number of pseudoscientific health courses that they offer. ... Pseudoscientific courses sully the genuinely scientific courses and research conducted at the same institutions.

Here the argument takes a more obviously symbolic turn, becoming explicitly about maintaining boundaries and status. Universities are portrayed as once pure homes of science that have been invaded – sullied - by impure pseudoscience. FSM issued warnings about the consequences of this for universities' status:

Friends of Science in Medicine, wrote to vice-chancellors this week, warning that ... by "failing to champion evidence-based science and medicine", the universities are trashing their reputation as bastions of scientific rigour.

(Burke 2012:3)

FSM therefore constructed science as a form of capital linked directly to universities' overall symbolic capital - their reputations. Their concern was ostensibly for universities, and they implied that they were running the campaign for the good of all Australian research. However, there was another dimension to FSM's stance towards universities. As well as

portraying universities as under threat and in need of protection, FSM suggested that universities were culpable in the transformations taking place. Moreover, the changes were seen as threatening to science itself and to those on the 'side' of science, such as FSM. Universities, they argued, were involved in a kind of 'betrayal':

These are prestigious tertiary institutions, with their great international reputations for science in Australia, but they're letting the side down.

(FSM President, in Segev 2012:10)

Concern over this betrayal of science recently prompted the formation of the Friends of Science in Medicine.

(FSM member writing in the *Sydney Morning Herald*, Morrison et al. 2012:13)

It's a betrayal of what universities are for, it's going back to pre-enlightenment.

(FSM member, in Moynihan 2012:e1075)

The notion of betrayal reveals FSM's own dependence on the university for legitimacy, and the strength of the threat it perceives from CAM's presence there. Bourdieu (1988) posits that this kind of reaction is seen when the dominant values of the field are threatened by those in subordinate positions. Those who enable the values of the field to be redefined (in this case the universities) 'are perceived as traitors or renegades by the guardians of orthodoxy' (Bourdieu 1988:xxv). The supposed betrayal of universities' scientific values is, for FSM, also a betrayal of those who have been consecrated through the university field.

FSM's much-touted academic-scientific authority relies on the authority of academic science. The vehemence of the campaign suggests that FSM genuinely viewed CAM degrees as threatening to devalue bioscience within the university. As mentioned, the creation of a new chiropractic degree program seemed to catalyse FSM's formation, perhaps confirming fears that CAM was gaining academic ground. This fear might be interpreted as evidence of CAM's success at legitimising alternative bodies of knowledge within the university, and its growing professional autonomy relative to biomedicine. However, as I will argue in the next section, the CAM defenders' reactions to the campaign paint a different picture.

The CAM Defence

Those who came to the defence of CAM university education in the media and in academic literature in the wake of the campaign were predominantly academics teaching within or running CAM degrees, the vice-chancellors of universities offering CAM degrees, and a more minor representation of medical doctors and spokespeople for CAM professional organisations (I refer to them here collectively as the CAM defenders and do not try to unpack differences between the various stakeholders). So how did they respond to FSM?

The Scientific Basis of CAM Degrees

Some of the academic journal articles written by CAM defenders argued that what counts as legitimate knowledge is socially constructed, and pointed to the variable evidence base of biomedicine itself (e.g. Bensoussan et al., 2012; Komesaroff et al., 2012; Myers et al., 2012).

However, this was not the dominant theme of the counter-campaign and not what filtered into the lay media. Instead, the most consistent defence that emerged was the argument that CAM degrees are in fact based on bioscience. Writing in the *Sydney Morning Herald*, the Director of the University of Western Sydney Centre for Complementary Medicine Research argues, for example, that '[FSM's campaign] is uninformed by the great effort that has gone into emphasising science in the delivery of these courses' (Morrison et al. 2012:13).

Some defenders highlighted the scientific basis of their particular degree programs:

The four-year degree program incorporates both acupuncture and herbal medicine, but it has a sizeable component of Western sciences and research methodology. (Director of the University of Technology Sydney College of Traditional Chinese Medicine, in Rosenberg 2012)

RMIT's chiropractic paradigm is based on a body of scientific literature which recognises the relationship between neuromusculoskeletal and physiological dysfunction.

(Vice-Chancellor of RMIT, in Mendham 2011:22)

Myers et al. (2012), whilst advocating a culturally relative notion of good science in the *MJA*, also state, 'We agree that any university degrees in complementary medicine should have a strong foundation in the biomedical sciences' (p.70).

The CAM defenders then, although making efforts to deconstruct the science/non-science binary upheld by FSM, ultimately sought to position CAM university education as scientific. This suggests that CAM university education is not an autonomous field with its own set of values. Rather than seek to claim scientific status, an alternative strategy might have been to emphasise the legitimacy and distinctiveness of the CAM paradigm – for example, to argue that as opposed to biomedicine’s reliance on science, CAM degrees place value on holism, patient-centredness and communication, and that such forms of knowledge have a legitimate place within the university. Given that medical degrees have often been criticised for lacking in these areas, this could have been a way for CAM educators to claim distinction. The CAM defenders’ acquiescence to the dominance of bioscience indicates that academic CAM is not, however, seeking distinction within the health professional education field, nor to subvert the field values. In fact, by reinforcing the legitimacy of science, academic CAM is better able to distinguish itself from non-university based CAM.

CAM Degrees and the Protection of Standards and Public Safety

The second element in the CAM defence was, like FSM, to point to the university as the upholder of rigorous scientific and professional standards. CAM university degrees, it was argued, promote safety and protect the public, most notably through their inclusion of bioscience. The corollary of this was that CAM outside of the university was portrayed as dangerous, echoing some of the same discourses used by FSM to discredit CAM, as exemplified in the following excerpts:

The real benefit of an appropriately mentored and approved university education is the exposure of students to the biomedical sciences, epidemiology and population health, differential diagnosis, safe practice and critical appraisal. Removing these programs will not diminish clinical demand but may decrease the educational rigour of these courses, to the detriment of patients.

(Myers et al. 2012:70)

Obviously access to an anatomy lab would be very difficult outside the university sector, so you're starting to put people at risk if you're not giving them enough skills and knowledge to insert hunks of needle into areas where there is potential for damage.

(Director of the University of Technology Sydney's College of Traditional Chinese Medicine, in Rosenberg 2012)

The Dean of Science at one university offering CAM courses was quoted as saying of CAM practitioners, 'I could ignore them or I could train them better' (Buchanan and Ellis 2012:18), again implying that without scientific university training, CAM is risky, and that universities are providing a public service by including these modalities.

In many ways then, the CAM defenders engaged with the debate on FSM's terms, employing the language of anti-quackery (Wahlberg, 2007). They effectively acknowledged the legitimacy of FSM's claim that bioscience is the appropriate basis of health professional education and that this is what universities are designed to offer. In Bourdieu's terms, the defenders reinforce rather than undermine the 'doxa' of the field of health professional

university education (Bourdieu and Wacquant 1992:98). The only part of FSM's claim that was really challenged related to the content of CAM degrees, which the defenders asserted were in fact based on science, thereby rejecting the label of non-science. This strategy had the effect of discursively aligning university-based CAM with biomedicine, and dissociating it from CAM outside of the university. This allegiance to the field of university-based health professions, rather than to the field of CAM, was made explicit in Myers et al.'s (2012:69) assertion that:

Complementary medicine is a broad field in which generalisations have little value. The major professional and university-based disciplines of traditional Chinese medicine, chiropractic, osteopathy and naturopathy need to be differentiated from fringe practices, and the actions of rogue or unqualified practitioners should be viewed separately from the competence of the wider profession.

This statement helps to explain the response of CAM academics to FSM's challenge. The hard-won professional status of their CAM modalities depends on these modalities retaining their place in the university. In order to maintain their legitimacy within the university, they must maintain their distinction from other types of CAM that have not been admitted. This means conforming to the epistemological values seen as legitimate within university-based health professional education, which centre on bioscience. For university-based CAM in Australia then, professional autonomy is maintained by (at least partial) acquiescence to epistemological values set by other health professions, rather than by asserting the distinction of a specialised body of CAM knowledge. What this shows is that autonomy is not absolute, and should, as Bourdieu proposes, be seen in relative terms. University-based

CAM modalities have achieved a degree of professional autonomy in their dealings with the state and public, but constitute a heteronomous field within the university, dependent on the larger field of health professional education to determine what constitutes legitimate knowledge. Simultaneously, CAM remains largely outside the field of biomedicine, with both medics and CAM practitioners actively maintaining boundaries between them. This means that the legitimacy of CAM practices is not judged by competitor-peers with shared values, in the largely closed system that Bourdieu observed within science, but by those who – at least as FSM would have it – reject CAM colleagues as academic peers.

Discussion

The foregoing analysis of the 2012 debate over the place of CAM in Australian universities shows the central issues to be the presence of science within CAM degrees and the role of the university in maintaining high scientific standards. Both FSM and the defenders of CAM argued on these terms. In so doing, the CAM defenders ultimately colluded in reasserting the primacy of bioscience. Whilst ostensibly about the legitimacy of CAM degrees, the debate has implications for what kinds of knowledge are valued more broadly in health professional education. Great efforts have gone into reshaping medical curricula since the mid-twentieth century to incorporate non-scientific forms of knowledge, yet these developments were obscured as participants on both sides of the debate constructed bioscience as the epitome of legitimate university-based health professional training. At no point were alternative ways of knowing, such as the holism typically emphasised in CAM, put forward as also legitimate. Instead, both groups laid claim to possessing scientific

knowledge, suggesting that science is construed as a valuable form of capital for both the academic doctors and scientists of FSM and for CAM academics.

The CAM defenders' allegiance to a biomedical lobby group's vision of legitimate university education might be read simply as a sign of continuing medical dominance; however, such an explanation neglects to examine factors beyond medical professional power (Broom, 2006). Firstly, the promotion of bioscience seems to be linked to the efforts of some CAM modalities to distinguish themselves *within* CAM, and to further their own professionalisation by promoting a form of capital that modalities outside the university are unable to access (thereby trading one type of autonomy for another). Secondly, CAM's emphasis on science in education may be driven by its need to develop an evidence base convincing not just to biomedicine but to the public and the state (although continuing to work within narrow definitions of evidence does itself help to reinforce medical dominance).

Thirdly, beyond the state, the public and other professions, both FSM and the CAM defenders may be responding to factors within the tertiary education sector. Indeed the FSM campaign was specifically targeted at universities, with FSM accusing them of shirking their responsibilities towards science. The CAM defence may be based on the perception that CAM degrees depend on science for legitimacy in the university. I wish to suggest here that to be fully understood, the debate must not be seen simply as occurring between biomedicine and CAM, but *within* universities, and therefore as shaped by, and indicative of, transformations taking place in this domain.

Prior studies of CAM colleges have shown that incorporating bioscience into the curriculum was a common strategy to increase legitimacy. Once positioned within multi-faculty universities, however, it might be expected that CAM's status would be more assured and that it would have more autonomy, along with an opportunity not just to transmit knowledge, but to carve out and legitimise its knowledge base within the sphere of academe. The Australian debate suggests that this is not the case: instead of universities affording CAM legitimacy and protection from accusations of quackery, universities themselves are accused of promoting pseudoscience. The debate in fact points to questions not just about the autonomy of CAM in the university, but about the autonomy of universities, what kinds of knowledge are valid and valued there, and what universities have to lose or gain from offering CAM degrees. The fact that a campaign against the content of university teaching was taken up within the media is perhaps a further sign of the decline of university autonomy that has been suggested elsewhere (Brown and Carasso, 2013; Collini, 2012; Holmwood, 2011). Moreover, that vice-chancellors (from universities that teach CAM and those that do not) responded directly to the campaign shows that universities' reputations were indeed potentially under threat, and points to the increasing salience of reputation as a valued resource in the higher education market.

The UK-based campaign against CAM degrees has been credited with influencing the closure of numerous CAM courses in the UK (Arndt, 2012; Colquhoun, 2012; Moynihan, 2012). It is not clear whether there is actually a connection. Chatfield et al. (2012) note that student numbers were declining prior to the campaign, and point to the rise in tertiary tuition fees, government funding cuts and the global financial crisis as potential drivers. Similarly, it is not clear what factors underlay the 2013 announcement of the impending closure of Macquarie

University's Chiropractic degree course in Sydney, although FSM has been given credit in the media:

Macquarie University declares end to 'quack' degrees: A Chiropractic degree at Macquarie University is set to be axed amid a scathing campaign by medical professionals to phase out "quackery" in higher education.

(Silmalis, 2013)

Whether or not FSM had an influence, it is notable that Macquarie's press release stated that the decision had been made in order to focus more on 'research-intensive areas of biomedical science and engineering' (Baldock, 2013), indicating clearly that particular forms of knowledge are more readily translated into capital for universities than others.

Taken together, these developments signify a need to re-examine the relationship between professional knowledge and the university. While being situated in the university has traditionally conferred legitimacy on professional bodies of knowledge, some forms of knowledge may threaten the legitimacy of the university at a time when the autonomy of universities themselves is being eroded and they are increasingly forced to compete with each other on measures that typically reward high levels of scientific research (Lynch, 2013). That is, the emphasis on western bioscience in CAM degrees (at least as described by the CAM defenders) may reflect more than CAM's subordination by medicine and its attempt to compete on the same terms with the medical profession. It may also reflect a shift or a narrowing in terms of what kinds of knowledge are valued within the university. Evidence of this shift includes the UK government's 2012 removal of public funding for university

teaching in all except the 'STEM' subjects - science, technology, engineering and medicine (Brown and Carasso 2013:90-93) – and talk in Australia of redirecting research funds away from 'wasteful' projects (with examples provided from humanities and social science) and towards medical research (Benson, 2013), and of the increasing importance of STEM education (Australian Bureau of Statistics, 2014). Such transformations in higher education perhaps mean that any group aiming to professionalise needs to do so on terms that fit with the current values of the university field, and not just by proving legitimacy to the state, the public or other professions.

Conclusion

This paper argues that the recent debate over the place of CAM in universities revolves around more than the longstanding professional rivalry between biomedicine and CAM, also hinging on the epistemological basis of health professional education, disputes over which kinds of knowledge are legitimate in higher education more broadly, and the autonomy of universities in deciding such matters. To take account of these multi-faceted and countervailing influences on professional knowledge and autonomy, and how they interact, it may be fruitful for future work to conceive autonomy as relative, and on a spectrum with heteronomy, such as proposed by Bourdieu. To suggest that university-based CAM professions either do or do not have autonomy would fail to capture the complex dynamics of CAM's position within higher education.

To fully understand these dynamics, further empirical work is needed. This paper has only explored the issues as represented in articles relating to the recent Australian debate, in which the position-taking of FSM received more coverage than the CAM defence. The short comments included in news articles may have been carefully crafted and edited to fuel or quell the debate, and are limited in what they reveal about the processes that determine either side's position-taking. Moreover, the CAM defenders' assertions that CAM degrees include significant amounts of bioscience tell us little about precisely what proportion of course content it comprises, what form it takes within CAM curricula, how and where it is integrated with CAM-specific knowledge, and whether its representation varies between CAM modalities and degree courses. Attending to such factors, and learning from CAM academics and other stakeholders about how such decisions are made, is likely to produce a much fuller picture of the current relationship between CAM, biomedicine, knowledge-making and the university. A study addressing these questions in Australia and the UK is currently underway.

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