

LINKAGES BETWEEN RESEARCH, SCHOLARSHIP AND TEACHING IN UNIVERSITIES IN CHINA

Richard Neale

University of Glamorgan

RICHARD NEALE joined the University of Glamorgan in 1996 after 22 years at Loughborough University. Previously he had worked for seven years with civil engineering companies. He was Head of the School of Technology and is now Director of Research. He has more than 100 publications and has won prizes and 'best paper' awards. Richard has worked for UN agencies in 10 countries, and has been Consulting Professor at the South China University of Technology.

Correspondence to:
Richard Neale
Research Office
University of Glamorgan
Pontypridd CF37 1DL
rhneale@glam.ac.uk

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Abstract

LINKAGES between research, scholarship and teaching are a topic of contemporary interest in UK universities, driven by pressures such as traditional views of the nature and purpose of universities, reputation, student expectations of their teachers, educational enhancement through up-to-date research and scholarly input, and personal ambitions and satisfaction. The paper describes a study of these linkages at the Beijing Institute of Technology (BIT) during 2006 within the Sino-UK Higher Education Leadership Development Programme, which allows for senior academics from China and the UK to study a particular management issue to identify good practice which they can apply in their institution. The activities included a preliminary workshop in the UK, a two-week visit to BIT in and a workshop in Beijing. My study was conducted through a semi-structured interview programme with a wide range of academics and administrators. It was enlightening to find that a leading Chinese university, which operates within quite different systems and cultures from the UK, nevertheless has similar issues, imperatives and problems. My overall conclusion is that there is international agreement that research and scholarly performance underpins the credibility of academic staff to teach at a university, which in turn attracts good students and research staff.

Key words: China, nexus, research, scholarship, teaching, universities

Introduction

LINKAGES between research, scholarship and teaching for a topic of contemporary interest in UK universities, driven by a wide range of external and internal pressures, which principally include:

- **Tradition.** A historically-based perception that universities are communities of leading scholars who also teach at the highest intellectual level.
- **'Branding'.** This is a term that has penetrated higher education management in the UK, perhaps superseding the more traditional terms 'reputation' and 'prestige'. Research and scholarship have always been two of the most prestigious measures of a university's brand.
- **Student expectations.** Both university applicants and students increasingly expect their teachers to show evidence that they are scholars and that their scholarship is recognised by their peers. There is an international expectation that university lecturers are actively engaged in developing their subjects as well as teaching and examining them. This is especially the case with international applicants who, from distant places, seek some readily available evidence of the academic credibility of the people who are offering to teach them.
- **Enhancement of teaching and learning.** There is a widely accepted notion that the content of a university course should be informed by the research and scholarly activities of its teachers. Academics who have their work accepted by their peers after public scrutiny are deemed to be up to date and to have a deep and meaningful grasp of their subjects.
- **Academic careers and personal satisfaction.** This manifests itself most commonly in promotion and recruitment processes, but the personal satisfaction and individual prestige that an academic derives from

research and scholarly successes is a very strong institutional influence.

The last two pressures above can create the well-known polarity of behaviour: academics who see themselves as 'teachers' may be reluctant to engage in research and scholarly activities, while 'researchers' can be so totally immersed in their research that they are reluctant to teach. I have been Head of two Academic Schools, Dean of Research and Consultancy and now Director of Research. This polarised behaviour, linked by a whole spectrum of individuals 'positioning' themselves academically, has been one of the major concerns of my managerial life at Glamorgan and I take a deep interest in it. So, when an opportunity arose to participate in the Sino-UK Higher Education Leadership Development Programme¹, I quite naturally chose the subject of this paper—sometimes referred to as the 'nexus between teaching and research'—to be the central topic of study. The programme allows for senior academics from China and the UK to experience and reflect on a particular management issue with the intention of identifying good practice which they can apply in their home institution.

This paper summarises my participation in this programme. The activities included a preliminary workshop in the UK in February 2006, which involved almost all of the participants in the programme (both Chinese and British), my personal visit to the Beijing Institute of Technology (BIT) from 17 to 25 April 2006, and a final workshop in Beijing on 26 April for all the participants in the programme. The paper begins with a brief description of BIT, followed by a discussion of the study topic from which some research questions were derived. The programme of study within BIT is then summarised and discussed, followed by some conclusions.

Beijing Institute of Technology (BIT)

FOUNDED in Yan An in 1940 as an academy of natural sciences, the Institute moved to Beijing in 1952 and assumed its current title. There are now two additional and substantial campuses in Liangxiang and Zhuhai. It is classified by the Ministry of Education as a 'key university', and is very much a 'research-leading' university. In 1984 it became one of the first 10 key universities to establish a graduate school, was one of the first 15 universities in the '211 project'² and is also a leading university in the subsequent '985 project'³. Both of these projects have substantial funding allocations designed to enhance prestige and the research and teaching capabilities of selected universities.

¹ The programme is managed by the Leadership Foundation for Higher Education (<http://www.lfhe.ac.uk/international/sinoukprogramme.html>)

² '21st century, 100 world leading research universities'.

³ The President of China made a speech reinforcing '211' in May 1985, at a celebration of the 100th anniversary of Beijing University.

The University is organised into 12 schools which provide a comprehensive academic coverage of science, engineering, technology, humanities, social sciences, management, economics and art and design, although their literature indicates a bias towards technology. There are about 38,000 students, including 5,000 Masters students and 900 PhD students. In 1999 the Ministry of Education rated the undergraduate programmes 'excellent'. BIT had a total research income in 2004 of RMB625m (£44m) and has extensive international academic connections and research and development links with more than 100 companies.

The study topic: 'Linkages between research, scholarship and teaching in universities in China'

Purpose

The notion is widely held internationally that research, scholarship and teaching are closely linked and mutually reinforcing. My experience as an academic in two quite different UK universities (one largely 'research-led' and the other largely 'teaching-led') over a period of some 35 years leads me to the view that the strength, effectiveness and visibility of these linkages can be quite varied and in some cases quite tenuous. There is a range of reasons for this variability, obvious examples being academic staff who do no research and academic staff who do research that is far too advanced to be incorporated easily in taught courses. So, as stated in the Introduction, I chose to enhance my own understanding of these linkages as the subject for my personal leadership development programme.

Selective review of relevant literature

A literature search revealed quite quickly that there is an extensive and diverse range of publications on the study topic. For the purpose of this relatively limited study, I found four publications to be particularly relevant. Since the Sino-UK HE Leadership Development Programme is a UK Government project, it seemed sensible to start at national level, with the UK Quality Assurance Agency for Higher Education (QAA). It publishes guidance on the criteria for granting degree-awarding powers and the title 'university' (QAA, 2004), from which following key principles were extracted:

1. The institution must function effectively as an academic whole.

2. Academic staff must teach effectively and thoroughly.
3. The teaching must incorporate up-to-date research and scholarship.
4. Academic staff should be respected externally by their peers.
5. A good proportion of academic staff should be personally active in research.
6. There should be an appropriate staff development programme.

The terms 'scholarly' and 'scholarship' appear repeatedly in the QAA document, so at this juncture it is worth noting that the *Chambers 20th Century Dictionary* defines a 'scholar' as: "one whose learning is extensive and exact, or whose approach to learning is scrupulous and critical." However, although this definition centres on 'learning' it offers no reference as to whether scholars should acquire learning from research they themselves have performed. This is particularly relevant to the teaching-research debate because a central issue is to what extent and how current research feeds into teaching.

The fifth point above concerns academics conducting research themselves and this is of particular interest to me, because there is much debate about whether all university teachers should be personally active in research. The QAA position seems to be pragmatic, and personally I was surprised that this 'good proportion' was set at such a low value of one-third, although it is argued that:

A genuine higher education today cannot be offered entirely separately from some kind of research base. But that does not mean that either institutions of higher education or their staff are obliged to conduct research. Staff, though, do need to have the time and resources to so keep up with their field of study that they are immersed in its conversations.

Barnett (1992, p636)

Barnett also argues for teaching being up-to-date and scholarly but that academic staff need not be personally research active to achieve this:

Introducing research into the curriculum is justifiable provided it is used to expand the students' intellectual horizons, and not because it propels students towards becoming embryonic researchers. The relationship between research

and higher education is such that someone, somewhere, should have engaged in research; but that does not mean that research is part of the meaning of higher education.

Barnett (1992, p628)

The issue is therefore complex, not least because HEIs have their own unique aims, characteristics and research cultures and so respond in different ways. It seems to me that the challenge for senior university managers is to bring these requirements together so as to provide a coherent set of performance criteria across the spectrum of their academic staff.

One author stands out in this literature, whose work is extensively quoted throughout: the seminal study by Ernest Boyer (1990) in the USA. He claimed that: "The time has come to move beyond the tired old 'teaching versus research debate' and give the familiar and honourable term scholarship a broader, more capacious meaning, one that brings legitimacy to the full scope of academic work." His view was that academic merit was too rigidly associated with research rather than teaching and that the perceived detachment between the two was in need of reevaluation. In particular Boyer (1990) proposed four scholarly but overlapping academic functions:

- The scholarship of **discovery**, which is what is generally meant by research.
- The scholarship of **integration**, whereby scholars reflect on research findings and "give meaning to isolated facts, putting them in perspective".
- The scholarship of **application**: "How can knowledge be applied?"; "Can social problems themselves define an agenda for scholarly investigation?".
- The scholarship of **teaching**: "When defined as scholarship...teaching both educates and entices future scholars"; "Teaching can be well-regarded only as professors are widely read and steeped in the knowledge of their fields".

This functional analysis brings the key activities of the academic job into the single concept of 'scholarship'. It seems to be appropriate in the current environment of rapid global change in which university academic staff find themselves, allowing individual academics scope to position themselves in ways that suits their abilities and inclinations.

Boyer (1990) also suggests a framework of 18 strategies by which HE institutions can improve the relationship between research and teaching, grouped under four general categories that serve to support the research-teaching nexus:

- Developing institutional awareness and mission.
- Developing pedagogy and curricula.
- Developing research policies and strategies.
- Developing staff and university structures.

1. What are the legal, formal and institutional requirements?
2. What are the philosophical, traditional and cultural expectations?
3. What happens in reality?
4. What could be done to enhance the linkages for the benefit of the students and possibly the communities that the university serves?

The UK Higher Education Academy has published a comprehensive analysis of the links (or 'nexus') between research and teaching (Jenkins and Healy, 2005), from which Figure 1 is derived. This diagram highlights four different approaches to how research can underpin teaching and teaching content, and some of the principles will be presented later in this paper.

The principal research method used semi-structured interviews to enable the subject to be explored in ways that suited the expertise and knowledge of the staff involved. Such an approach also allowed flexibility for pertinent issues to be discussed in more detail as they arose. I also collected some documentary evidence as the study proceeded. Accordingly, I devised a three-page 'Research Framework' which summarised the project and included a sampling frame and an 'Ethical and Confidentiality Agreement', which was also translated into Chinese. This document was approved by the

The study at Bir

Research questions and method

As a result of the literature review and my own understanding and experience, I decided to address four key research questions in relation to teaching and research in China:

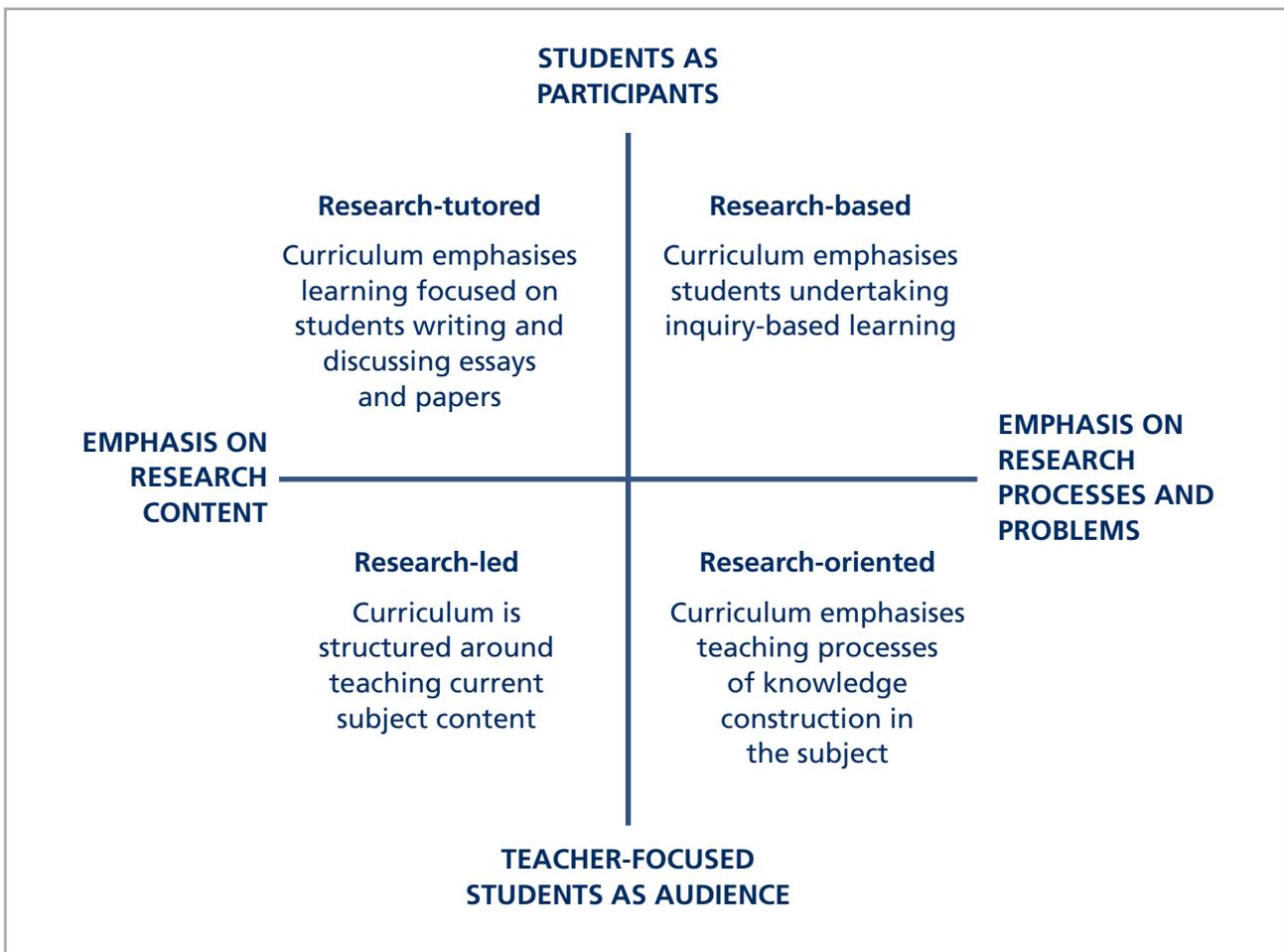


Figure 1: Curriculum design and the research-teaching nexus

Source: Jenkins and Healey (2005)

University of Glamorgan's Ethics Committee and sent to the programme organisers.

Organisation of the study

My visit was managed by a member of the BIR international office, who attended all the meetings and translated some of the conversations (many of the people I spoke to had quite good English but not all of them). The semi-structured interviews were held with a wide range of participants and the key issues that arose are discussed in more detail.

Subjects of the meetings and discussions

Introductory meeting: Vice President for Academic Affairs; Director of the International Office; Director of Human Resources; Deputy Registrar; Deputy Director of the Development & Planning Office

School of Information Science and Technology

School of Mechanical and Vehicular Engineering

School of Management and Economics

School of Art and Design

School of Humanities and Social Sciences

Final workshop in Beijing: all participants came together for review and discussion

All the participants of the programme attended the final workshop and there were some excellent discussions. One real benefit was the opportunity to pose questions that had arisen during my meetings at BIR to a broad and very knowledgeable group of senior Chinese academics, which helped me to crystallise my conclusions.

Summary of the discussions

THE FOUR research questions posed for this study were addressed in the order stated.

1. What are the legal, formal and institutional requirements?

The UK requirements for degree-awarding powers and university title are reflected in the extracts from the relevant QAA document given above. I was unable to acquire any comparable documents relating to similar requirements in China and no-one I spoke to at BIR seemed to have detailed knowledge of such requirements. Nevertheless, the existence of the very

politically prominent '211' and '985' programmes indicates that requirements for teaching and research excellence by the universities in these projects must be carefully documented, and this was confirmed at the Sino-UK Workshop; in fact, there was quite a lot of discussion on this topic. The criteria include quantitative assessment of infrastructure, research and teaching performance, and also a judgmental factor of 'reputation'. It seems that nothing similar to the QAA guidelines existed and universities were required to define the detail of their strategic plans and organisational structures and systems themselves.

The institutional framework within which academics work in China seems to be quite complex. As a generalisation, they draw salaries from two sources: one is from the central or regional government education ministry and the other from the institution itself. In addition, most academic staff live on campus in accommodation allocated to them by the university according to their rank, and there are other allowances — 'vegetable money' was mentioned at the workshop. They are also paid additionally for research, typically receiving a proportion of the income from their projects and some receive direct financial awards for good publications. Government funding was seen to be more prestigious than commercial funding. There was much diverse discussion about the details of this at the workshop, but that is the general principle. There was an increasing expectation that applicants for lectureships should have a PhD, and there is a three-year probation period during which research was supported and assessed.

Although there is a direct financial incentive for academics to undertake research, this is balanced by quite comprehensive systems of teaching quality assurance. At BIR, students are required to register online for examination at the end of each module, and at the same time they must complete an online questionnaire about the quality of the teaching they have received. Although the detailed operation of such schemes seems to vary across China, student assessment of this kind is very common.

BIR also has a semi-independent unit which assesses the quality of the teaching and learning comprehensively, including direct observation of teaching. The results are then summarised and the teacher receives an overall assessment. If this is unsatisfactory, measures are taken; these may include being reallocated to an 'easier subject' or to a different type of job, possibly non-teaching, altogether.

In addition, the university has to respond to 'national key disciplines' (it has set up 12) and 'ministerial key disciplines' (25), and furthermore all programmes, including Masters and PhDs, have to be approved by the Ministry of Education.

2. What are the philosophical, traditional and cultural expectations?

The discussion was based on the literature review presented above, principally Boyer's four-part notion of 'scholarship' and ways in which research and teaching can be linked (as shown in Figure 1).

Research success was of paramount importance. It determined to a large extent the culture of the whole institution, which was taking its '211' role very seriously; BIR's website states that the goal is to become "a first class and world-renowned research-oriented university". It was quite clear that no-one became professor through teaching; it was only research that was assessed. Typically, professors were required to publish at least four papers a year, and there were rules about the quantity and quality of publications required for promotion. The importance of research was further emphasised by development programmes for younger staff and their placement in established research groups where they were allocated some resources to help them to initiate their own research programmes, although it was also made clear to them that they should seek external funding. Apparently a common question from many young applicants is: "How will you support my research?", so the importance of research is widely accepted.

Since the quality control of teaching was clearly established, much discussion revolved around ways in which their research influenced the curriculum content and how the students became involved in research. One of the key determinants was the academic discipline. Science and engineering subjects were working very much within 'teaching schedules' and in the earlier years of the courses these were very well established. There was some scope for academic individuality later on, but this seemed to be limited to 'giving examples'. So, in these subjects in a '211' university like BIR, the research-teaching nexus was firmly in the 'Research-led' quadrant of Figure 1. Paradoxically, the same academic staff emphasised how important it was that students were taught by research-active staff; to quote one senior professor: "Otherwise, how can they learn to be innovative and creative?"

At the other end of the spectrum, the designers were operating in the 'Research-based' quadrant of Figure 1. Their research is practice-based, so it is easier for the students to get involved. Other Schools were within this spectrum, and the School of Management and Economics embraced both approaches because the MBA and Executive MBA were offered to professional managers and so required staff with extensive practical management experience, whereas the more 'scientific courses' required more academic, research-based and largely quantitative skills. More than 90 universities

in China offer MBAs, so this is a very competitive market in which teaching quality is paramount. Basically, the 'teaching professors' had to do some research and have some scholarly outputs and the 'research professors' had to do some teaching.

Boyer's 'scholarship of application' was relevant to most of those I spoke to; they were aware that universities had a significant role to play in the development of their country, but there was tension between the criteria for research excellence and its application.

3. What happens in reality?

An interesting requirement was that all academic staff, including professors, have to teach, although of course the time involved varies; figures quoted varied between 150 and 240 hours per year. This requirement was partly influenced by student expectations—they were very keen to be 'taught by the best'. This reinforces the principle that research performance is related quite closely to the prestige and reputation of the individuals and of course the university as a whole. In fact, it seemed that the strongest link between research and teaching may in fact be that, in a very competitive student market-place, research prestige draws in the best students, who then—possibly through their own questioning and energetic participation—demand good teaching and challenges to the academic staff. The best researchers also attract the best PhD students, so reinforcing their position. One common thread of the discussion with all schools was some criticism that the specification of 'research excellence' may be drawing academics away from practical applications; some felt this quite strongly. There is of course a tension of priorities for individual members of staff between teaching and research: "which has to be managed", to quote one senior academic.

Another aspect of 'reality' is that academic staff are paid extra for engaging in research projects and are under quite severe systems of teaching quality control (it actually is quality control rather than quality assurance). For example, the teacher's personal appearance was part of the student assessment. In terms of promotion and general non-monetary rewards, it was certainly the case at BIR that promotion is based on research performance and that although good teaching is only peripheral to career advancement poor teaching can damage it. This appears to be the case throughout China and in some universities the penalties for poor teaching can be quite severe, with loss of up to three months of the university proportion of the salary and the loss of one month's university salary for answering a mobile phone while giving a lecture. Thus research and teaching run to two quite different human resources management systems, although there

was a suggestion in the workshop that those with a very good research record may not be treated quite as harshly for poor teaching as those who did not.

The governmental constraints on courses would indicate that there is probably quite a lot of 'the scholarship of integration' within the teaching, with direct input of the academics own work in final year first degree and higher degree work.

Finally, there is quite extensive 'scholarship of application', with most of the people I spoke to being engaged in external work. To quote one of the Deans:

China is now a state and market economy and this will influence course content and student employment. The Government is trying to create an innovative society, and also recognises the importance of multidisciplinary research, but they are pursuing these aims cautiously.

This presents opportunities for management skills transfer into growing enterprises and also for economic advice, and socially there is a need for practical research into the issues raised by China's ageing population. The Beijing Olympics 2008 was beginning to dominate Beijing, and examples of involvement from those I met ranged from electric buses to a review of the infrastructure of Beijing for disability access.

4. What could be done to enhance the linkages for the benefit of the students and possibly the communities that the University serves?

I have drawn a fairly polarised picture of BIT: it pursues academic research at a very high level, which dominates the success criteria and rewards systems; at the other end of the scale, it operates a quite rigorous system of teaching quality control. I am sure that this polarity will continue and perhaps increase, but between these poles is a system of applied research and consultancy which seems to be regulated in a quite fluid way.

Academic staff at BIT can, in some cases, take most of the income, and they engage directly with real-life issues. They do seem to be in demand by Government, industry and commercial firms, and there is not the rigorous delineation and regulation of these activities that we have at Glamorgan. Most of the academic staff I spoke to said that some of this work found its way into their teaching, in ways stated above (examples, direct involvement by the students etc). There was also general agreement that this work resulted in deeper knowledge, confidence and personal satisfaction.

Discussion and conclusions

UK UNIVERSITIES and many universities in China are driven by similar external and internal influences and the institutions and their staff have a similar diversity of academic aims and values. I felt on familiar ground in most of the discussions and I was reassured to find that, within the obvious limitations of this study, the issues that we discuss at the University of Glamorgan are not peculiar to us or indeed to other universities in the UK with which I am familiar. Jenkins and Healy's structuring of the dimensions of the research-teaching nexus (Figure 1) was particularly apt and useful, and Barnett's point that not everyone needs to research personally found resonance in a substantial number of academics. There was a strong correlation between the traditions, cultures and rewards systems between high-level 'research-leading' Chinese universities such as BIT and those of the UK Russell Group.

Although excellence in teaching and research were of crucial importance, there were no obvious, consistent and institution-led linkages between them; again I was on familiar ground. Elton provides the authoritative quotation:

It has become increasingly clear over the past decade that the question of a positive link between research and teaching has no simple or general answer.

Elton (2001, p43)

Thus, although some clear ideas about how teaching and research should interrelate can be derived and broad commonalities seem apparent in both the UK and China, it is perhaps at the local, institutional level that decisions need to be made that reflect each university's particular research and teaching needs. It was enlightening to find that a leading Chinese university, which operates within quite different systems and cultures from the UK, nevertheless has similar issues, imperatives and problems—all the external and internal pressures listed in the Introduction were apparent. One contrasting feature though, is one of emphasis: Chinese academics are more strongly motivated to do research than those in the UK because they receive substantial financial rewards, and the management of teaching performance is much stronger and the penalties quite severe.

My overall conclusion is that there is international agreement that research performance underpins the credibility of academic staff to teach at a university, which is after all the pinnacle of the educational hierarchy (as emphasised by the Welsh word for university, 'prifysgol', which means 'first school'). This credibility in turn attracts good students and research staff—it is part of 'the brand'. I have also discovered that Boyer's four-part definition of 'scholarship' is both rele-

vant and useful. The key issue to me is that scholarship defined in this way enables us to consider the issue of 'academic credibility' broadly and flexibly. This will be of value as we develop our future research strategy, especially in regard to post-RAE2008.

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