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Developing research-based curricula in college-based higher education

Mick Healey, Alan Jenkins and John Lea

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Foreword

Recent government policy in the UK has paved the way for greater diversity of higher education (HE), including an explicit expectation that more HE will be provided by further education colleges (FECs) and college-based HE (CBHE) in general. It is estimated that, in England, somewhere between 8% and 10% of HE undergraduates are already being taught in FECs. Even though HE students in FECs in England are a minority of all HE students, there are numerically more of them than the total student population for the UK 50 years ago, as cited in the Robbins Report (Committee on Higher Education 1963). In Scotland, students enrolled in HE at FECs in 2009 represented 17% of the total Scottish HE population. In Wales, this was 15% in 2009-10, and in Northern Ireland, 18%.

The Higher Education Academy (HEA) has, since its inception in 2004, recognised the importance of all CBHE in providing high quality HE student learning experiences across the UK. In supporting this work it has been recognised that there are a number of key considerations for CBHE in developing and delivering their HE provision. One of the most important of these is the engagement that both tutors and their students have with scholarship and research. This lies at the heart of a high quality student learning experience and the HEA in the UK has prepared and delivered capacity-building workshops for CBHE focused on scholarship and research for a number of years. In 2012, the HEA/Quality Assurance Agency (QAA) College-HE Policy Forum asked the HEA and the Learning and Skills Improvement Service (LSIS) to inquire further into the broad area of scholarship, research and CBHE. The LSIS inquiry, undertaken by colleagues from the Mixed Economy Group, has focused on teachers' engagement with research and the HEA inquiry has focused on the different types of scholarship identified by Ernest Boyer, and how they relate to CBHE curricula.

This report examines ways in which students are enabled to engage with scholarship and research as an integral part of their learning experience throughout CBHE. The authors of the report are leading experts in the 'research–teaching nexus' in HE. Based on case studies they have collected, they describe a rich and varied landscape of scholarship in CBHE, contextualising the UK experience within a wider, global consideration, drawing on experience from Australasia, Europe and North America. The report hence makes a major contribution to our understanding of the development of research-based curricula in CBHE internationally. The publication also validates the ways in which UK FECs (in particular) have developed their HE curricula, and illustrates how these developments align to the most recent QAA guidance on degree-awarding powers for all CBHE providers. The report offers an invitation to any college developing its HE provision, wherever it is based, to draw from its findings to develop a culture of research-based learning and teaching in their own institution, with both students and staff.

Professor Philippa Levy
Deputy Chief Executive
Higher Education Academy

The authors

Mick Healey is an HE consultant and researcher and emeritus professor at the University of Gloucestershire, UK. He is also an adjunct professor at Macquarie University, Sydney and an International Teaching Fellow at University College Cork. He was one of the first people in the UK to be awarded a National Teaching Fellowship and to be made a Principal Fellow of the HEA. In 2013 he received a SEDA@20 Legacy Award for Disciplinary Development. He is often asked to act as an advisor to projects, universities and national governments on aspects of teaching and learning in HE. Mick is an experienced presenter. Since 1995 he has given over 500 educational workshops, seminars and conference papers in 18 different countries. He has written and edited over 150 papers, chapters, books and guides. Further information is available from his website: http://www.mickhealey.co.uk/.

Alan Jenkins long taught and researched geography and contemporary China studies in the UK and North America including at Joliet Junior College Illinois and Wausau College Wisconsin. He is now an educational developer and researcher on HE and emeritus professor at Oxford Brookes University, UK. He has recently been a consultant on teaching and research relations for the HEA and QAA Scotland. With Mick Healey, he is the editor for the International Section for the (US) Council on Undergraduate Research *CUR Quarterly*. He has presented and undertaken consultancies on students as researchers and inquirers in many different institutions and countries and researched and published widely in this area. Further information is available from his website: http://www.alanjenkins.info/.

John Lea is Assistant Director for Learning and Teaching at Canterbury Christ Church University UK, where he leads the University's academic professional development framework. He has worked in a number of roles throughout further and HE in the UK over the last thirty years, including periods at American universities and community colleges. From 2005-11 he was Vice-Chair, then Chair of the Universities' Council for the Education of Teachers (UCET) Post-16 Committee in the UK, and from 2010-13 he was a co-opted member of the Staff and Educational Development Association (SEDA) Executive Committee, as an adviser on the HE/FE interface. His main research interest is in developments at the HE/FE interface and he has written widely on this subject.

Acknowledgements

Executive summary

New models of curriculum… should all… incorporate research-based study for undergraduates.
(Ramsden 2008, pp. 10–11)

By focusing on CBHE this publication, which was funded by the UK HEA, aims to help fill a major gap in our knowledge and understanding of the development of research-based curricula. Much current international debate concerns the form that research and scholarship should take in the CBHE sector. Most of these discussions have concentrated on the implications for staff/faculty being research active. In this publication we extend this discussion to how students in CBHE may be engaged in research and inquiry, how curricula may be designed to achieve this and what departmental, institutional and national strategies are needed to foster these developments. We have argued previously that: "*All* undergraduate students in *all* higher education institutions should experience learning through, and about, research and inquiry" (Healey and Jenkins 2009, p. 3). Here we explore how this argument may play out in the CBHE sector.

CBHE takes many different forms in different countries, though commonly there are more part-time and adult students, a greater focus on professional and vocational subjects, a range of courses of varying lengths, and staff who are more focused on teaching than in university education and who have less autonomy on what they teach. Given this context we argue that a broader more rounded form of research and scholarship than is common in HE in general is needed for the CBHE sector, but one which may have implications for the rest of HE.

We have deliberately set out to inform UK practices and policies by what is happening elsewhere in the world and to contribute to wider international HE debates about what are variously described as students as researchers, inquirers, partners, scholars, producers and change agents. To that end we have collected over 50 case studies of interesting practices from a wide range of disciplines, levels and institutions concerning the development of research-based curricula in CBHE, of which about 40% come from outside the UK, including Australia, Canada, Ireland, Netherlands, New Zealand and the United States. The full set of case studies is available on the project website[1]. Here we discuss selected case studies and put them into the wider context of developing research-based curricula in HE. We also include some case studies from the university sector which we believe, with adaption, may be transferable to the CBHE sector. In time we hope that many of these may be replaced by other college-based examples, as colleagues in the sector are encouraged by this publication, and others, to develop and share their interesting practices.

HE is in a period of significant change and we are beginning to see some of the traditional distinctions and differences between CBHE and the rest of the HE sector break down. Hence this publication should be of interest not only to academic staff, senior managers and educational developers in CBHE, and to policy makers responsible for the sector, but also to those who hold similar roles in other higher education institutions (HEIs). Moreover, in advancing students' scholarly learning, it also presents CBHE teachers with the opportunity to advance their own scholarly activities, often collaboratively with students.

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[1] http://www.heacademy.ac.uk/college-based-he/research-based-curricula

Preface

The main aim of this publication is to contribute to discussions concerning the development of scholarly activity in CBHE, and specifically to focus on the development of the scholarly activity of students. A further aim is to demonstrate how this can contribute to the development of a distinct HE ethos within CBHE; the wider debate about scholarship among college staff; and a re-examination of the relationship between research and teaching throughout HE.

The context and nature of college-based higher education

CBHE straddles two common distinctions – the distinction between academic and vocational education, and the distinction between HE and further education (FE). Although the actual structure of post-secondary (sometimes referred to as tertiary, or post-compulsory) education varies from nation to nation, it is generally recognised that academic HE will be found in universities (and other HEIs, such as liberal arts colleges in the US), and the more technical and vocational education will be found in colleges.

This distinction between academic and vocational, however, is a rather crude one and often unhelpful pedagogically, particularly given that many vocational courses often have high level academic components and some of the professional learning courses found in universities are clearly vocational in nature. The distinction is also confused by different national sector conventions, for example, similar courses in the US would be called *higher* education, but in the UK, *further* education, simply because community colleges in the US are included in the HE sector, but FECs in the UK are not (notwithstanding the designated HE courses within FECs).

Education reforms have also complicated the relationship between the sectors. For example, one of the ways in which HE has been expanded in both Australia and the UK throughout the last half-century has been through the conversion of many technical (and similar) colleges into universities. This is not the place to discuss how and whether their courses were actually transformed in the process, only to confirm that the distinctions between academic and vocational, and higher and further, are over simplistic and the relations between those distinctions are complicated.

One other complication worth noting is that, throughout this period, the same or similar sub-degree qualifications could be found throughout post-secondary education, which, by definition, then count as higher, even if the institution delivering the qualification is not higher in name, or located in a HE sector. For example, in the UK, the Higher National Diploma (HND) has been delivered across higher and further education for many years, and likewise foundation degrees for the last ten years. The foundation degree in the UK also mirrors in many ways the associates degree in the US, particularly where students can begin to collect the credit needed for a full degree in their local FEC (often at reduced cost, and living at home), before 'topping up' to a full honours degree at a university in the UK (or transferring to a four-year school in the US). In the last few years in the UK around 10% of HE work has been consistently delivered in FECs. The Association of Colleges (AoC) estimates that this amounts to around 100,000 full-time equivalent students, but the numbers vary considerably between colleges – a few have over 3,000 students, but many more have fewer than 100 each. In the US it is estimated that nearly half the country's undergraduates (around 12 million students) are studying in community colleges, and around 25% of those will subsequently transfer to four-year schools (McCook 2011). The varied nature of CBHE in different countries is illustrated in Table Preface1.

Table Preface 1: The varied international nature of the college-based higher education sector

UK	HE taught in FECs "is modest in size but diverse in character. A whole range of higher education and higher-level qualifications is taught in the sector, but mostly at levels below the Bachelor's Degree and including a large number of non-prescribed courses and qualifications. The majority is studied on a part-time basis by adults holding a variety of qualifications (including previous higher education qualifications) and who work and live in the locality or region... A significant minority is studied on a full-time basis, mainly to young people studying for the Foundation Degree, the Bachelor's Degree or the HND" (Parry *et al.* 2012, p. 60). A growing number of 18-year olds are studying in CBHE, particularly in rural areas (Rebecca Turner, personal communication 2013). Much of the HE provision in colleges is validated by HEIs. Colleges also deliver HE-level courses for awarding bodies (e.g. Association of Chartered Certified Accountants, City & Guilds, Edexcel) (QAA 2012a). Devolution means that the governance and HE qualifications offered by colleges vary between England, Scotland, Wales and Northern Ireland.	**Canada**	There are 146 community, technical or general vocational colleges[2] in Canada; 103 colleges and institutes are engaged in applied research; 24,108 students are engaged in applied research in 2011-12, up by 77% from 2010-11[3].
		Ireland	Outside the seven universities HE is found in 14 institutes of technology, including the Dublin Institute of Technology and seven colleges of education. In addition, a number of other third-level institutions provide specialist education in such fields as art and design, medicine, business studies, rural development, theology, music and law[4].
		New Zealand	Polytechnics – there are 23 polytechnics or institutes of technology. Polytechnics have traditionally specialised in vocational training, but that role has expanded over the last decade. Many are involved in research activities, particularly in applied and technological areas and other degrees. Colleges of education – these provide programmes required for early childhood, primary and secondary school teaching qualifications. Wānanga – there are three Wānanga, Māori centres of tertiary learning in the public sector[5]
Australia	Australia has approximately 174 HE providers, which includes 37 publicly funded and three private universities. The remainder are a combination of private colleges and technical and further education institutes (TAFE), which are Australia's publicly funded institutes of vocational education. HE provision in TAFE is still quite small but it is growing rapidly. TAFEs offer two types of HE programs: the first are programs that have been accredited by the Tertiary Education Quality and Standards Agency [6] and TAFEs offer these programs in their own name. The second are programs they offer in partnership with universities through franchise type arrangements. TAFE's trajectory is to become comprehensive HE providers. Most private HE colleges focus on a small number of fields of education (Wheelahan *et al.* 2012).	**Netherlands**	HE is offered in two types of institution: the traditional universities and universities of applied sciences (*hogescholen*). The latter provide higher professional education. They have responsibility for the development of research-related skills as a direct result of the Lisbon and Bologna agreements (Griffioen 2013; de Weert and Van der Kaap 2014).
		US	In the United States, community colleges (once commonly called junior colleges) are primarily two-year public institutions of HE. After graduating from a community college, some students transfer to a university or liberal arts college to complete a Bachelors degree, while others enter the workforce. There is a trend, apparent in more than 20 states, for community colleges to offer full baccalaureate degrees, even though the actual number of students enrolled in these programs is as yet small[7]

[2] Collèges d'enseignement général et professionnel (http://en.wikipedia.org/wiki/CEGEP)
[3] http://www.canadian-universities.net/Community-Colleges/
[4] http://www.education.ie/en/The-Education-System/Higher-Education/
[5] http://www.studential.com/applying/studying-abroad/New-Zealand/Higher-Education-in-New-Zealand
[6] http://www.teqsa.gov.au/
[7] http://en.wikipedia.org/wiki/Community_colleges_in_the_United_States; http://www.accbd.org/

In the UK, these developments have usually been discussed under the blanket heading of 'HE in FE' (predating the more recent designation of CBHE) and it has a long history (Parry 2009; Scott 2009), itself complicated by the presence in the UK of 'duals', or 'mixed economy' colleges, that is, institutions which have always offered a mixture of higher and further education, as sometimes reflected in their title – colleges of higher and further education. This is itself further complicated where the institution has university status and can thereby validate its own HE awards, but where it has not, it would affiliate with a university to deliver that university's awards. In both cases – duals and partnerships – sound foundations for promoting widening participation were also established and promoted (Parry *et al.* 2012).

Following the Browne Review of HE in England (Browne Review 2010) and the subsequent Government White paper (Department for Business, Innovation and Skills 2011), some non-university institutions might be forgiven for reading these documents as a prompt to reinvent or rediscover some of their HE roots. They are now being encouraged to claim foundation degree awarding powers (FDAP) for themselves, and also, if appropriate, full teaching degree awarding powers (TDAP). This legislation is an important and far-reaching part of the current Coalition Government's marketisation agenda for HE, which is encouraging new private providers to seek these degree-awarding powers, and thereby make HE provision more competitive. In light of this, HE in FE is now set to become just one part of a much wider mix of CBHE.

While recognising the diverse nature of CBHE, including its fledgling nature among some of the newer providers, our key concern throughout the following chapters is with the opportunities that CBHE provides students to experience a scholarly form of HE, the central pillar of which is that: "*All* undergraduate students in *all* higher education institutions should experience learning through, and about, research and inquiry" (Healey and Jenkins 2009, p. 3). And furthermore that we should: "Encourage and enable students to learn in ways that parallel or reflect the ways academic staff themselves approach research and learn in their disciplines or professional area" (Healey and Jenkins 2009, p. 28). The diverse nature of CBHE will provide many examples where these exhortations will need to be examined carefully within particular contexts (Stevenson and O'Keefe 2011). This will include variations in staff perceptions about their roles and the feasibility and desirability of adapting these approaches to their work. In some contexts staff may feel particularly constrained by those contexts. While recognising this we also hope to demonstrate, particularly through the use of case studies, how an examination of the notion of scholarship can become a significant way to enhance student learning in *all* higher learning contexts, and, indeed, that it underpins the very essence of *higher* education.

In chapter one we contextualise our discussion by looking at some of the issues surrounding the terms 'research' and 'scholarship' in CBHE. In the following chapter we develop the idea of the importance of the link between research and teaching, and that one of the ways that link can be made stronger is in focusing more attention on curricula which emphasise the student as an inquirer and researcher. And here the CBHE teacher is well positioned to take advantage of this approach to curriculum design and delivery.

In chapter three we discuss the idea of a staged approach to developing the research and scholarly skills of students, by focusing on first-year courses, and recognising in the process how the dependent nature of many CBHE students – in needing to gain more confidence in the exercise of study skills – can be reoriented towards developing their own research and inquiry skills. This staged approach is then continued in the next chapter by looking at how final year and capstone projects can not only be used to cement growing forms of independent or autonomous learning, but also how this context can help forge both sophisticated and epistemologically grounded vocational relevance. Chapter five then looks specifically at the advantages to be gained by taking a course-level, departmental and institutional approach to developing these forms of scholarly activity. Finally, chapters six and seven attempt to draw the main themes together by providing some practical advice on how to develop these ideas and review their impact in particular college contexts.

1. Issues of research and scholarship in college-based higher education

The relationship between teacher and learner is … completely different in higher education from what it is in schools. At the higher level, the teacher is not there for the sake of the student, both have their justification in the service of scholarship. (von Humboldt 1810/1970, translated by Elton 2001, p. 45)

For the students who are the professionals of the future, developing the ability to investigate problems, make judgments on the basis of sound evidence, take decisions on a rational basis, and understand what they are doing and why is vital. Research and inquiry is not just for those who choose to pursue an academic career. It is central to professional life in the twenty-first century. (Brew 2007, p. 7)

In framing their own working definitions of scholarship/scholarly activity … [applicants for all degree awarding powers]… should reflect on the purposes of such activity. Internally, this would include impact on the curriculum, the quality of the learning opportunities provided for students, and the student experience of higher education. Externally, this would include engagement with external stakeholders and communities, including other academics who form part of a wider subject community, as well as employers, policy-makers, special interest groups and so on, which would contribute to the further development, academic health and currency of a subject. (QAA 2013, p. 6)

The problems with scholarship

While we believe that von Humboldt's exhortation above underpins the essence of HE, we also recognise the challenges it presents to the CBHE teacher, particularly in comparison to a typical university-based academic. For, it is unlikely that most CBHE teachers would have had the opportunities to develop the kind of research profiles one typically sees on the CVs or résumés of most university academics, particularly after a few years in post. And this has been echoed in academic literature on HE in FE in the UK, and neatly summarised in the titles of two articles: "Scholarship is the word that dare not speak its name" (Young 2002), and "Oh to be a scholar" (Feather 2012). Of course, one simple solution might be to adjust the conditions of service for those undertaking HE work in college-based settings, so that they have more time to engage in research activities, yet if it is that simple one has to ask why that does not happen much more often. But, this simple solution may also be masking some much deeper conceptual issues, which we discuss below. And in terms of our main argument running throughout the following chapters, unnecessarily focuses on *staff* scholarly activity, at the expense of *student* scholarly activity.

Scholarly activity and its discontents in CBHE

One of the main reasons that staff scholarly activity in CBHE contexts has been problematic is the predominance of the yardstick which measures the quality of scholarship by how close it approximates the kinds of original research which typify academic departments in the most research-intensive universities. In the UK, these can be found in the returns of academics entered in the old Research Assessment Exercise (RAE) (and now the Research Excellence Framework – REF), which measures research outputs in terms of their "originality, significance and rigour, with reference to international research quality standards" (REF 2012, p. 6). For convenience, we have taken UK definitions of research here, but this should also resonate with most universities around the world, particularly those that aspire to climb the world ranking league tables. Even when UK REF documents refer to scholarship they define this precisely as "the creation, development and maintenance of the intellectual infrastructure of subjects and disciplines, in forms such as dictionaries, scholarly editions, catalogues and contributions to major research databases" (REF 2012, p. 48).

Furthermore, the small volume of HE work undertaken in many colleges effectively prevents the kinds of internal peer review – for example, research seminars and conference presentations – which often act as the preliminary and preparatory exercises before one submits to the more rigorous forms of external peer review associated with the publication of findings in the kind of international academic journals one would normally expect to see from someone who is deemed research-active. Indeed, the allegiance to

discipline and subject one typically finds among university academics is usually forged in this environment of peer review, and it is hard to imagine how this could be effectively replicated in many of the small-scale CBHE settings. This problem might also be exacerbated for any UK CBHE teacher when they discover that the REF "excludes the development of teaching materials that do not embody original research … [and] … Impacts on students, teaching or other activities within the submitting HEI" (REF 2012, p. 428).

However, these arguments may be considered narrow, particularly when compared with those that challenge not just these conventions but also the definitions of research which underpin those conventions. These stronger arguments might also be considered much more pedagogically informed. These issues are contentious and we use them not only to underpin our own conception of how an HE environment should be experienced by students, but also in how exploring them they can help prompt a re-examination of debates about the aims and purposes for HE in general. One way into these issues is to consider the implications of the following:

> The pursuit of research takes academics into territory where they have to rethink, rework, explore and test fundamental concepts of their discipline. Through such work, scholars play a role in the development of their discipline and gain insights into the constitution of the problems that confront their peers. When they teach, they do not merely transmit knowledge but involve students in a common project. And when they teach, they don't simply communicate ideas read in books but also insights gained through the experience of pursuing research. (Furedi 2004).

The wider context for this paragraph was Furedi's reaction to Paul Ramsden's (then Chief Executive of the HEA in the UK) claim that he was agnostic about the merits of research-led teaching. Put simply, someone who is not research-active is much more likely to be around – giving of their time and focusing on their students and their teaching, rather than buried in, and preoccupied by, their research. Furedi's reaction is robust, and echoes von Humboldt's exhortations concerning the establishment of the University of Berlin. Here, the conception of the university is one where research and teaching are linked exercises, where each enriches the other, and, importantly, where students learn that the word 'higher' is essentially an exhortation to become scholarly, and what better way to learn how to be that than in an environment where one learns from scholars – actively participating in seminars rather than passively absorbing the knowledge of the lecture theatre.

In practice however, this conception is fraught with difficulties, not least of which is the sheer pressure to publish research, leaving little time to incorporate it within one's teaching, or indeed, teach at all. And this is surely what a UK vice-chancellor (since appointed Chief Executive of HEFCE) was alluding to when she said: "While research endeavour and teaching endeavour are believed to be conceptually related in higher education, that relationship needs active management and explicit support since the pressures to split the two apart are powerful" (Madeline Atkins, in Jenkins and Healey 2005, p. 2). Indeed, echoing Ramsden's general point, undergraduates, particularly in the early years of their programmes, may have limited contact with those academics centrally involved in research. Many American universities are actively seeking to redress this balance, for example, by requiring all tenured professors to teach at least some freshmen (first-years) each year.

But we should not let the general problem prevent us from looking at the other issues presented to us here. First, having one's teaching led by one's subject-related research findings may not always be possible, or even desirable, particularly in the case of, say, first-years or freshmen, where they may need a more general grounding in the basic concepts and theories of their chosen discipline or subject of study. Second, research-led teaching does not necessarily mean that the teaching itself is informed by research, that is, it is pedagogically informed (strictly speaking we might say the latter is research-informed teaching). And third, it is not clear that because someone is undertaking research that this necessarily puts him or her in the best position to incorporate the research findings of others, nor, perhaps more importantly, create a curriculum, which will be, at heart, interesting and stimulating to students. This wider notion of the relationship between research and teaching underpins much of what is discussed in the following chapters.

These issues are presented here as problems, but it could be argued that they are much more problematic to the typical university academic than they are to the typical CBHE teacher. Indeed, in the case of the latter, the previous paragraphs might be read as highly encouraging, recognising the central importance of teaching – of having an evidence base for appropriate pedagogical interventions – and of recognising the importance of curricula design (or modules/courses) which are underpinned by pedagogical principles. Another way of putting this is to say that the CBHE teacher might be in a good position to enact the approach to scholarship adopted by Ernest Boyer:

> What we urgently need today is a more inclusive view of what it means to be a scholar – a recognition that knowledge is acquired through research, through synthesis, through practice, and through teaching. We acknowledge that these four categories – the scholarship of discovery, of integration, of application, and of teaching – divide intellectual functions that are tied inseparably to each other. (Boyer 1990, 25)

The CBHE teacher might also be in a better position to enact the kind of university experience outlined by Newman in his seminal work on the idea of the university.

> It [a university] is a place of teaching universal knowledge. This implies that its object is, on the one hand, intellectual, not moral, and, on the other, that it is the diffusion and extension of knowledge rather than the advancement. If its object were scientific and philosophical discovery, I do not see why a University should have students. (Newman 1854/1982, p. xxxvii)

Put in its strongest terms the CBHE teacher may well be in a strong position to help restore the curriculum to centre stage (as opposed to original research) or perhaps better, help ensure that the latter, research, does not come to dominate the former, the curriculum, as the modus operandi of a university. Steve Fuller has explored these ideas through the contrast between the PhD and the Masters qualifications, arguing that over the last 300 years throughout Europe the former has come to dominate the latter as not just the pinnacle qualification, but also as what qualifies one to work in a university in the first place. In the process, the Masters qualification has become a stepping stone towards a PhD, which has had the effect not only of downgrading it, but also distorting its original, and well founded purpose, as a pedagogical qualification. In the Bachelors award one is inducted into the knowledge base of the discipline, and in the Masters one proves that one is worthy of disseminating that knowledge to others (Fuller 2013).

More provocatively one might argue that anyone can do research (its quality being judged later by others), and universities are only *one* of the places where research is undertaken – for example, in the cases of Marx, Freud, Darwin, and Einstein, none of their ground breaking work was undertaken in a university setting. But how often outside the university does one see a concerted effort to build a discipline and a curriculum which incorporates that research? Here, Boyer's scholarships of integration, application, and teaching and learning are to the fore. Some of the implications of this were defiantly advanced in the following:

> At BPP [a UK based private university college for professional studies] we recruit practitioners to teach our students, their experience is forged on the anvil of reality! Trial advocacy is best taught by somebody who has actually conducted countless trials in court. It does not matter to us that they have not then gone on to write up their experiences for the general public to read about it. A PhD is not a necessary qualification for expertise in teaching nor practice. The key issue is whether they bring their experiences to the classroom, either in terms of the materials they prepare for use in the classroom or the way in which they teach. The shared experience of our practitioner faculty is then used to enrich the curriculum and we take on board the published research in the area. (Carl Lygo, in King and Widdowson 2009, p. 16)

The main point that Lygo – the Principal of BPP University College – is presumably making is to help save HE from what he sees as unwarranted academic drift, but within it we might also be seeing the kernel of a distinct CBHE approach to scholarship. A similar point is made in the context of academic drift in Dutch non-university HE by Griffioen and de Jong (2013). In the UK the term 'HE in FE' is able to perform some

conceptual work because the context is clearly a hybrid one – it is not HE in HE, nor FE in FE, but one which borrows from both contexts and in the process creates its own unique offer. Specifically, this hybrid context is one that recognises the degree of pedagogical support that many FE-based students often need. And while recognising that the student profile might vary enormously from college to college:

> It has been pointed out that those studying for a degree in a [UK] further education college are: more likely to be over 25, more likely to study part-time, and more likely to come from areas with low rates of participation in HE than students in HEIs. (HEFCE 2006, p. 9)

That said, the Lygo quotation also speaks to that mission strand of FE as an engine of economic growth, fuelling the economy by helping to produce a highly skilled workforce, which in many cases has also been forged by close links with local industry and commerce. Of course, FE has not always put this strand first, but in the UK particularly, this has certainly been emphasised over the last ten years – elevating the building of vocational skills to its main mission, and in the process, perhaps, relegating the promotion of social inclusion and advancement, and achieving academic progress (Foster 2005).

In the following chapters it is not our intention to question this mission adjustment – which in the subsequent Leitch report was applied to HE as well as FE (Leitch 2006) – only to recognise that in enacting it we must not allow ourselves to lose sight of the essence of HE, nor the adjustment needed to accepted definitions of research and scholarship if these terms are to resonate meaningfully in a CBHE context.

Finally, it is also important to recognise the more overtly corporate nature of many colleges when compared with universities. In some cases the differences may be small, particularly given that forms of managerialism now typify most educational establishments in the western post-industrial world. That said, many authors have highlighted how the college sector has particularly embraced these developments (Randle and Brady 1997; Avis 2000) resulting in a much stricter adoption of business plans, performance management, mission statements, and a strong sense that one's allegiance is first and foremost to one's employing institution rather than to an academic discipline, or a notion of academia beyond institutional boundaries.

In the UK the combined effect of these pedagogical, economic and managerial dimensions have heightened the sense that CBHE must inevitably develop its own unique hybrid offer to its students, forged in part by the constraints imposed on it by this more predominant FEC culture (Bathmaker and Thomas 2009; Golding Lloyd and Griffiths 2008; Turner *et al.* 2009). It should also be noted at this point that, in the UK, most CBHE teachers will also be undertaking other strictly *further* education teaching alongside their HE work. For some this wider FEC culture has resulted in a somewhat stifled culture of compliance and surveillance (Lea 2009), or what has been referred to as the terrors of performativity (Ball 2003). In a research context this might also make it difficult for a college-based teacher to conceive of research going in whatever direction the research leads him or her, because, first and foremost all questions will need to be framed in terms of how the answers would enhance the effectiveness and status of the institution. But equally it can also offer to students the clear prospect that the institution in which they are studying is firmly focused of achieving its avowed aims, and that meeting their needs would be high on any research agenda – be that pedagogically or vocationally related.

Developing a scholarly activity agenda for CBHE

In piecing the above arguments together we are now in a position to assert that whether one believes that CBHE is unnecessarily constrained by its cultural context, or simply responding positively to its unique position, there is every prospect that the sector can help enact not only the vision of Boyer in trying to develop a more rounded picture of scholarship in HE but also, stretching further back, help recapture and place centre stage the importance of the *curriculum* in HE (Newman 1854) and the thoroughly scholarly nature of HE as a *pedagogical* experience (von Humboldt 1810).

Our assertion, however, does not come unqualified. Even though it is clear that most CBHE teachers are not in a position (nor would it be desirable for them) to develop themselves as *original* researchers, the general perception persists that to be taken seriously as a scholar one would need to be making some mark on the development of a discipline's knowledge base. It is important not to undermine that message, but to emphasise that it is equally important to encourage those other aspects of scholarship and, particularly for us here, those relating to the co-learning activities of staff and students, working together in scholarly mode. This notion currently underpins a lot of work in universities around the world under the heading of what the HEA in the UK refers to as 'students as partners', including 'students as scholars' (Miami University, Ohio, US), 'inquiry-based learning' (McMaster University, Canada), 'student as producer' (University of Lincoln, UK), 'students as change agents' (University of Exeter, UK), 'research active curriculum' (University of Sunderland, UK), 'research-based teaching and learning' (University of Zurich, Switzerland), 'research enhanced learning and teaching' (University of Sydney, Australia), and 'students as engaged scholars in the community' (Bates College, US) (Healey *et al.*, 2014). Most of these initiatives are transferable with adaptation to CBHE settings and we return to this in chapters five and seven.

Furthermore, and while recognising the importance of the skills agenda for CBHE, we should not allow it to undermine the essence of what the word 'higher' means in higher education. Some key characteristics of which are that students need to be increasingly made aware of the contested nature of knowledge; the conditions under which knowledge is discovered and manufactured; and in general that HE is as much concerned with what is *not* known, as what *is* known. Lygo's comments above are therefore useful in helping to tip the balance in CBHE away from the perceived aloof pursuits of university academics, but we should not allow ourselves to become unbalanced once again by concentrating on an equally misguided notion of vocational relevance, which ignores the epistemological essence of HE (Lea and Simmons 2012).

Throughout the following chapters we contend that a balanced approach is best forged by providing students with their own opportunities to explore these epistemological dimensions, through a curriculum which actively encourages them to become scholarly, and wherever possible to co-learn with staff in joint activities and projects. The next four chapters explore these dimensions through the use of case studies we have collected from CBHE around the world.

We believe that in promoting student scholarly activity in the ways we advocate and showcase in the following chapters CBHE can help enormously not only in adjusting accepted definitions of research and scholarship, but it can also help forge closer links with the types of scholarly activity that CHBE teachers would be able to meaningfully undertake, and which need not compromise their position as employees of particular types of business orientated corporations. Furthermore, and crucially, in putting their students in scholarly mode, CBHE teachers might also help build stronger bonds between research and teaching throughout HE. Finally, we hope that what we showcase here can be demonstrated to be thoroughly in keeping with the essence of what makes higher education *higher*, and that this conceptual issue is far more significant than the designation 'university' in the title of an institution.

2. Integrating student research and inquiry into courses

What kind of world is it that curricula in higher education are preparing students for? What kinds of capability, therefore, in general terms might curricula be fostering? Our view is that the modern world is characterized by heightened levels of complexity and uncertainty. Fluidity, fuzziness, instability, fragility, unpredictability, indeterminacy, turbulence, changeability, contestability: these are some of the terms that mark out the world of the twenty-first century. (Barnett and Coate 2005, p. 53)

Teaching and research are correlated when they are co-related … [One way to achieve this is to] exploit further the link between teaching and research in the design of courses. (Brew and Boud 1995, p. 272)

In chapter one we set out the UK and international policy context of 'higher' education in the college sector; explored what is 'higher' education and the meanings of terms such as 'scholarship' and 'research'; and how these terms relate to what and how the student should learn in HE. In particular our perspective is that the CBHE sector can help enact not only the vision of Boyer in trying to develop a more rounded picture of scholarship in HE, but also, stretching further back help recapture and place centre stage the importance of the curriculum in HE (Newman 1854) and the thoroughly scholarly nature of HE as a pedagogical experience (von Humboldt 1810).

In the rest of this publication our focus is on showing from a practical and policy perspective the extent to which that is already being achieved and how it can be more firmly embedded in the sector. But if research and scholarship lie at the 'centre' of what is HE, then we need to ensure that what this publication proposes is itself firmly grounded on the research and scholarly evidence.

The research evidence

The relationship between teaching and research in HE is a central issue in the international research on HE (Jenkins 2004). Arguably of particular importance to the CBHE sector, much of the early research focused on the attributes of individual teachers enquiring about the extent to which being an effective university teacher also requires one to be an effective researcher. In a seminal paper, Hattie and Marsh (1996) undertook a meta-analysis of such studies. In summary they stated:

Based on this review we concluded that the common belief that teaching and research were inextricably intertwined is an enduring myth. *At best teaching and research are very loosely coupled*. (Hattie and Marsh 1996, p. 529, emphasis added)

This research has been used to cast doubt on the potential benefits of disciplinary research to teaching. Thus a UK Government White Paper, *The Future of Higher Education* (Department for Education and Skills 2003), used this research to justify the development of what came to be called 'teaching only' universities. This, as Hattie and Marsh (2004) argued, was a misreading of their evidence. Rather, they suggested that their research indicates that the connection is not as direct and positive as some presume, and that:

the fundamental issue is what we wish the relationship to be, and we need to devise policies to enhance this wish… [and that to better ensure effective teaching research links] *we need to increase the skills of staff to teach emphasising the construction of knowledge by students*. (Hattie and Marsh 1996, pp. 533–4, emphasis added)

A related strand of research has focused on the student experience of 'university' research. Pulling together this research Brew (2006, p. 52) concluded that the evidence reveals that much current practice actually keeps students 'at arm's length' from the world of university research. That research, together with the work of Hattie and March, significantly shapes our overall perspective that a key way forward for all HEIs is to focus on integrating research into the curriculum and to ensure that students are brought into the various worlds of research.

Here there is more 'positive' evidence to guide our practice. In the US, and now increasingly internationally, one way to bring undergraduate students into research has been to create special 'undergraduate research' programmes where 'selected' students (generally those with higher grades) learn through some form of guided 'research' experience. These studies demonstrate:

> a broad set of benefits *as* arising from engagement in authentic research... Across the studies, these results underscore UR [undergraduate research] experience as offering a constellation of gains that collectively reflect students' personal, intellectual and professional growth. (Laursen *et al.* 2010, pp. 33-4)

Perhaps of particular interest to those teaching in CBHE is the evidence of those 'selective' undergraduate research programmes, such as that at the University of Michigan, which has supported first-year and pre-entry students from 'minority' backgrounds and families with limited or no experience of HE. These show that such programmes have strong impact on retention and student grades (Locks and Gregerman 2008). Of course, whether and how such programmes could be scaled up for many students are problematic, but they offer us ways forward in rethinking our curricula.

Related research has investigated the impact of integrating various forms of research-based learning in the mainstream curriculum for all students – where students learn through some form of inquiry, or research-based, or problem-based learning (Healey and Jenkins 2009; Levy 2011; Levy and Petrulis 2012; Spronken-Smith and Walker 2010). Broadly this research indicates the potential of curricula which require students to construct their understanding of complex knowledge actively.

We realise that while the research discussed above has certainly shaped, and in effect endorses, our focus on the curriculum, it does leave open and uncertain the extent to which organisations need a research 'presence'. Individual staff need research competence and understanding to support students involved in learning through some form of research or inquiry (for example, in a CBHE context, see Gray *et al.* 2013). We will return to this issue in chapters six and seven. Here our approach is to focus on the curriculum, which it is in the power of all institutions, and indeed all staff/faculty, to shape.

We recognise that the following research was conducted in a range of departments all of whom were recognised in the then UK RAE (now REF) but with different levels of research rating and, hence, caution is needed in applying it to the CBHE sector. The study examined student perceptions on their learning of the impact of these different research environments. The central conclusion was:

> Based on the results presented in this paper alone, increasing research active teaching staff in lower RAE contexts is unlikely to affect learning. However [the research results]... do suggest that action could be taken, not between different types of research context but within each context, to help more students experience the benefits of research-stimulated teaching environments. (Dunbar-Goddett and Trigwell 2007, p. 188)

Before we proceed to offer specific suggestions drawing on a range of international case studies we need to explain briefly what we mean by student research and inquiry.

Conceptions of student research and inquiry

As with the practice of 'research' by university staff (Brew 2001), there are contested meanings of the word 'research' at undergraduate level. In the US, much practice and policy sees 'undergraduate research' as students producing 'original' knowledge, suitable for publication in externally refereed journals. Others, however, define or conceive undergraduate research as students learning through courses which are designed to be as close as possible to the research processes in their discipline. In these cases, what is produced and learned may not be new knowledge *per se*; but it is new to the student and, perhaps more significantly, transforms their understanding of knowledge and research.

As we have argued elsewhere this approach to curriculum design puts the focus on the students' learning as participants in research and in the curriculum supporting their understanding of the processes and practices of research in their discipline or professional area (Jenkins and Healey 2012). Growing out of the research on teaching–research relations (Griffiths 2004), the following framework has been developed and widely adopted to help individual staff, course teams, and whole institutions analyse their curricula and consider ways of strengthening students' understanding of and through research. Curricula can be:

Research-led: learning about current research in the discipline.

Here the curriculum focus is to ensure that *what* students learn clearly reflects current and ongoing research in their discipline. This may include research done by staff teaching them.

Research-oriented: developing research skills and techniques.

Here the focus is on developing students' knowledge of and ability to carry out the research methodologies and methods appropriate to their discipline(s).

Research-based: undertaking research and inquiry.

Here the curriculum focus is on ensuring that as much as possible the student learns in research and or inquiry mode (i.e. the students become producers of knowledge not just consumers). The strongest curricula form of this is in those special undergraduate programmes for selected students, but such research and inquiry may also be mainstreamed for all or many students.

Research-tutored: engaging in research discussions.

Here the focus is on students and staff critically discussing research in the discipline as, for example, in many seminar-based courses.

These are shown in Figure 2.1. This model – slightly amended from the one in Healey (2005) – has two axes, one classifies the ways students may be engaged in research and inquiry according to the extent to which students are treated primarily as the audience or as participants, while the second axis classifies the approach as emphasising research content or research processes and problems.

The four ways of engaging students with research and inquiry are not independent. Thus if you use this framework to analyse the case studies included in this publication, and the linked website, you will see that many courses contain elements of more than one approach:

STUDENTS ARE PARTICIPANTS

Research-tutored	Research-based
Engaging in research discussions	Undertaking research and inquiry

EMPHASIS ON RESEARCH CONTENT

EMPHASIS ON RESEARCH PROCESSES AND PROBLEMS

Research-led	Research-oriented
Learning about current research in the discipline	Developing research and inquiry skills and techniques

STUDENTS FREQUENTLY ARE AN AUDIENCE
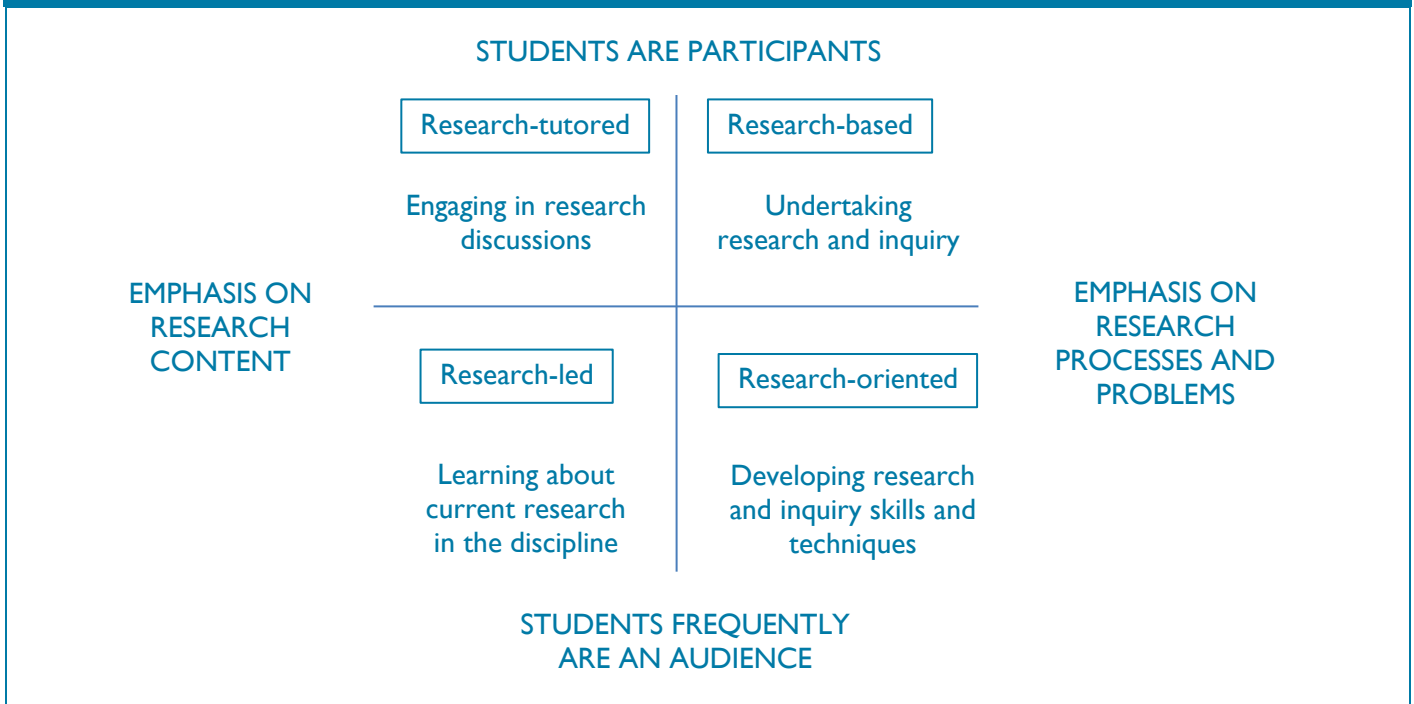
All four ways of engaging students with research and inquiry are valid and valuable, and curricula can and should contain elements of them all. So the question becomes not so much, "Do you engage your students in each of these ways?" as "What proportion of their time do they spend in each category and is this an appropriate balance given the students you teach, the type of course and discipline, and the departmental and institutional culture?". We argue that, in much of HE, too much teaching and learning is in the bottom half of the model, and students would benefit from spending more time in the top half. This framework provides a language to discuss such issues and talk over what aspects of these approaches are already in their programme and which they might want to strengthen. Thus here is how this model has been used by one course team in an Australian TAFE institute (case study 2.1).

Case study 2.1: Building a research identity in the Bachelor of Education (Early Years) at Northern Melbourne Institute of TAFE, Australia[9]

Students are introduced to research skills in year one. Subsequently, in the four-year programme students are introduced to research-led and research-oriented teaching and learning. Students are required to participate in critical reading and discussion of research literature in order to understand research structures broadly and the impact of research on the field of education. Pedagogical approaches replicate the strategies that characterise research methods; students are engaged in learning activities that require them to undertake problem posing, that is, generating a research question, data collection techniques – specifically those based on observation – and building their capacity to interpret data from a range of theoretical perspectives. In the third year of the program, research-based activity is introduced to students as they develop and implement a self-reflective action-oriented research project based on their allocated teaching practice placements. In the fourth year of the program, students are supervised to develop a research question in an area that interests them. They submit an ethics application and design their methodology accordingly. Students conduct this project and prepare a research report discussing the processes used and their findings.

A further useful distinction may be made between information-oriented and discovery-oriented inquiry (Levy 2011). In the former, students investigate mainly existing knowledge, which is new to them, while in the latter they are engaged in discovering knowledge which is largely new to society.

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[8] Source: Healey and Jenkins (2009, p. 7)
[9] Sources: correspondence with Karina Davis (karinadavis@nmit.edu.au) and Christine Spratt (christinespratt@nmit.edu.au); http//www.nmit.edu.au/courses/bachelor_of_education_(early_years)

Having established our approach and offered a range of conceptual frameworks we now turn to more specific suggestions supported by a range of case studies largely from the CBHE sector. We will start by considering first-year courses.

3. Engaging students in research and inquiry in first-year courses

Construct an Inquiry-Based Freshman Year – The first year of a university experience needs to provide new stimulation for intellectual growth and firm grounding in inquiry-based learning and communication of information and ideas. (Boyer Commission 1998, p. 19)

The principles of the teaching–research nexus should inform curriculum development and delivery from the first year as a way of promoting a sense of belonging to a community of scholars with a focus on discovery and creation of knowledge. (Krause 2006, p. 6)

Discussions and recommendations on linking teaching and research often focus on the final year of an undergraduate degree and, in particular, on the final-year dissertation or capstone project. Clearly these are important and are the focus of the following chapter. But arguably initiating such connections in year one courses is of equal or even greater importance, for that is where the course team, the department, the institution sets out its intentions – and either introduces students into the worlds of research, or keeps them at a distance. The two quotations above introduce this international perspective from key US and Australian thinkers on the curriculum in HE. This perspective is further developed in this conclusion of a system-wide review of teaching and research relations in the Scottish system:

The emphasis … of the Research–Teaching Linkages Enhancement Theme has always been that engaging students from the outset in research-type activities (such as enquiry-based approaches to learning, critiquing research papers, generating research information, debating issues) gives first-year students more responsibility for, and control over, their own learning outcomes. It is also likely to improve their transition experience, be it from schools or from other educational backgrounds. At a time when students are increasingly spending less time on campus it may also go some way in connecting them more closely to their learning environment. It may also facilitate a more intensive approach to individual feedback and allow students to become increasingly involved in the creation of content and encourage self-directed learning. (Land and Gordon 2008, pp. 62–3)

Year one and the developmental journey of a student: a key perspective

In chapter one we introduced the perspective that what makes HE distinctive is the focus on the complexity and the uncertainty of knowledge. Central to this perspective is the research by Baxter Magolda who over almost 30 years has tracked the conceptions of knowledge held by students she first interviewed as year one students at the Miami University, Ohio. Most of these year one students then saw knowledge as certain, as facts to be learnt. Based on this research Baxter Magolda has argued that:

University curricula need to support student and citizen development from *absolute knowing* [where] students view knowledge as certain; their role is to obtain it from authorities [to] *contextual knowing* [where] students believe that knowledge is constructed in a context based on judgement of evidence; their role is to exchange and compare perspectives, think through problems, and integrate and apply knowledge. (Baxter Magolda 1992, p. 75)

However, too often curricula "frame learning as the passive acquisition of knowledge" (Baxter Magolda 2009, p. 155).

Drawing on these ideas Hodge *et al.* (2008) – also based at Miami University – have mapped the student developmental journey to shape curricula interventions (Table 3.1).

Table 3.1: The developmental journey of the student[10]	
Developmental level	**Student traits**
Reliance on external references [*Foundations*]	• Knowledge viewed as certain • Reliance on authorities (eg, professors, parents) as source of knowledge • Externally defined value system and identity • Act in relationships to acquire approval
At the crossroads [*Intermediate Learning*]	• Evolving awareness of multiple perspectives and uncertainty • Evolving awareness of own values and identity and of limitations of dependent relationships
Self-authorship [*Capstone*]	• Awareness of knowledge as contextual • Development of internal belief system and sense of self capacity to engage in authentic, interdependent relationships

While students will go through these stages at different rates and many will not reach 'self-authorship' – that is, have developed an internal awareness of the complexity of knowledge by the end of their undergraduate course – this schema gives a further framework for course teams to shape their curricula – the focus of chapter two. But here we stress the key role it accords year one courses – opening up students' understanding of knowledge complexity. Indeed to anticipate the focus of chapter five on departmental and institutional strategies Miami University, Ohio has invested heavily in large year one courses to support students in making the move to seeing knowledge as complex and contested (Hodge *et al.* 2011). Such large-scale institutional interventions are important, and we will return to them in chapter five, but here our focus is on what individual staff, and in particular course teams, can do in year one courses – and we do this by illustrating our suggestions through presenting and analysing case studies largely from the international CBHE sector.

Strategies for engaging first-year students in research and inquiry

Here we outline and illustrate nine different strategies for introducing first-year students to the worlds of research and knowledge complexity (Table 3.2).

Table 3.2: Strategies for course teams to introduce year one students into research and knowledge complexity
1. Create a strong opening activity that involves students doing guided research
2. Help students to read academic literature critically
3. Involve library and other learning support staff
4. Demonstrate how research mindedness can support future employability
5. Guide students into the nature of research in their discipline(s)
6. Provide opportunities for students to make their research public
7. Recognise that students will find such work challenging
8. Ensure how the students are assessed supports research mindedness
9. Involve upper level students in supporting student research in year one

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[10] *Source*: Hodge *et al.* (2008)

1. Create a strong opening activity that involves students doing guided research

Consider the case study below and reflect what of this might be generalisable to other disciplinary and course team contexts (case study 3.1).

> **Case study 3.1: Psychology students research students' quality of life at York St John University, UK[11]**
>
> First-year psychology students undertook an eight-week project in which they collected data from themselves and three other students using four short inventories and a biographical questionnaire in order to research topics related to students' quality of life. This project provided students with the opportunity to collect 'live' data, contribute to a developing database, select data for analysis and write up findings. The topics available for selection by students were linked to the research interests of the lecturer, making the project mutually beneficial. A departmental technician provided assistance with questionnaire design, the development and maintenance of a database, data entry and tutoring on some portions of the project.

To us what is strong and generalisable about this case study is that from the beginning of their studies in year one students are put in an explicitly research active role. The topic chosen is one that is likely to both interest them and to be seen explicitly as relevant to them, while clearly being a research topic and one that will introduce them into key research issues of research methodology, including ethics, representativeness and so on. While the lecturer has provided a clear framework for the research – the students have some freedom in deciding the questions to pursue and certainly in drawing out provisional conclusions from the data. In terms of the typology of the model (Figure 2.1) we see the exercise as clearly 'research-based', in that the students are learning in research and or inquiry mode, but also 'research-orientated' in that students are being introduced to issues of research methodology. While clearly this is a psychology case study many of its basic features are generalisable to other disciplinary contexts.

2. Help students to read academic literature critically

Central to helping students understand knowledge as contested and uncertain is helping them to read academic literature. They need to develop a continually questioning attitude and move beyond seeing knowledge as fixed and certain. Case study 3.2 provides one initial exercise to support this transition.

> **Case study 3.2: Sitting in the 'hot seat' – supporting students on foundation degrees to read critically at East Durham College, UK[12]**
>
> This initiative began in years one and two of two Foundation Degrees (Early Years and later Education and Care) at East Durham College, a college franchise with the University of Sunderland. To help the students make the transition to higher-level reading we adapted the approach of Ginnis (2001) where the teacher sits in the 'hot seat' of the classroom and students interrogate the teacher about their reading and understanding of an academic text.
>
> They now model on a single occasion, the original strategy of Ginnis and in subsequent weeks reverse the strategy by asking students to seek out, and locate literature of their choice, week-by-week, reducing the level of guidance and enabling them to gain increasing independence, and autonomy in learning. When in class, they are asked to take a two to five minute slot, actively participating by being on the 'hot seat'. When seated, they begin to share their critique of literature, they isolate key themes and dominant ideas, attempt to make sense of what is written and not written explicitly. This is shared in class with their peers and lecturer.

[11] Source: http://www.heacademy.ac.uk/resources/detail/subjects/psychology/Akhurst-case-study
[12] Sources: correspondence with Jan Grinstead and Joan Goss (joan.goss@northumbria.ac.uk);
   Ginnis (2001); Goss and Grinstead (2013);
   Stevenson and O'Keefe (2011)

3. Involve library and other learning support staff

In helping students to make this transition from seeing knowledge as fixed facts to be learned, which can be both difficult and time consuming for both staff and students, teaching staff can draw on the expertise and time of what some institutions term 'support staff'. Librarians, information technology staff and laboratory technicians, in particular, can play key roles as demonstrated in case study 3.3. The role of library staff in supporting student information literacy in a range of small and medium-sized colleges in North America, including a number of community colleges, was the focus of a research study by the Primary Research Group (2013).

Case study 3.3: Library staff support students to find key information and explore research questions at the University of Sunderland[13]

University of Sunderland library staff collaborated with a college lecturer at Bishop Auckland College, a franchise college, to pilot two online workshops with foundation degree students taking courses in Education and Health and Health and Social Care. Using Vyew – the online collaborative web conferencing tool – online rooms were created to embed problem-based activities which would align with the curriculum. The features of Vyew encourage active learning and participation by providing an interactive whiteboard, editing tools, instant chat and virtual sticky notes which can be used to provide instant feedback. The rooms remained available following the live session for reference and to promote further learning.

The first workshop focused on in-depth exploration of research topics and finding relevant information sources. Three activities were designed, the first of which used a mind-mapping tool to help identify keywords and themes in chosen topics. The second activity involved the identification of appropriate tools to find sources and then searching for literature in four key areas of theory, professional practice, academic research and legislation/policy. The focus of the second workshop was on how the information sources could be effectively used in assignments. Initial feedback has led to adoption of the workshops for the 2013-14 academic year by all partnership FECs who run one of the two programmes.

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4. Demonstrate how research mindedness can support future employability

We should not assume that students will readily see the importance of developing research mindedness. There is strong evidence from the 'established' university sector that in professional disciplines, such as business and health care, students may question or not readily see the importance of a research approach (e.g. Booth and Harrington 2003). Thus one needs to find strategies which develop curricula that demonstrate the value of research to their future professional roles. For example, a Bioscience and Health Care course at Rutgers University had Health Care students working in teams investigating the extent to which community health care staff working with AIDS patients were basing their practice on current research (Monica Devanas, personal communication, 2001).

Such curricula are likely to help students see the value of a research approach and, to anticipate the next strategy, it helps if they also clearly demonstrate a focus on how research mindedness aids student employability. This is well demonstrated in case study 3.4 from the CBHE sector.

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[13] Source: Stevenson and Young (2013)

In the second semester of year one Foundation Degree in Sport Studies (FDSS) students develop a project proposal focused on researching the need for a local sports development project. Students complete a project proposal form which is then presented to a panel for assessment.

In year two students are encouraged to approach employers with their year one sports development project proposals, to fulfil the requirements of their double semester work-based learning (WBL) module. On average seven out of ten students use this opportunity with others seeking projects linked with marketing and management. Within WBL, students are required to network with employers to find a niche in the employers' market. Students develop, implement, analyse and reflect on their implemented project proposals and this forms the basis for a 5,000 word mini final project.

The nature of the inquiry-based project in year one enables learners to thoroughly research and investigate their potential projects prior to implementation in year two, clearly showing study progression and academic skill development. Examples include: a proposal to increase female sports participation which resulted in a cricket enrichment programme at a local secondary school for year eight female pupils and an employment opportunity for the FDSS student; a proposal to increase Sikh community sports opportunities which resulted in a varied sports enrichment programme at a local primary school within a Sikh community.

5. Guide students into the nature of research in their discipline(s)

The nature of research takes on different forms in the varied disciplines and subjects that students study. What is seen as 'research', the research methods that are dominant, and the way research is communicated varies across the disciplines. Thus in many of the sciences research is team based, often requiring technical equipment, with a strong focus on positivist methodologies, while in the humanities it may often be done by individuals and where the boundaries and links between 'research' and 'scholarship' are fluid. In a way one's role as a teacher in these early years of undergraduate study is to help students enter these particular 'communities of practice'. Here is how a researcher on ocean waves describes his role when teaching.

> *Science is a conversation*. The conversation has been in progress for a long time … science resembles the babble at a very large reception … The participants in the conversation have sorted themselves into groups, and sub groups, each dominated by a few brilliant conversationalists who set the subject and tone. Some scientists wander from group to group, while others remain fixed. Some groups talk about similar things, and occasionally snaps of conversation pass from one group to another. You have arrived in the middle of a party… *My job is to catch you up on the conversation and show you how to find your way to the bar*. (Kinsman 1965, p. 9, emphasis added)

Case study 3.5 shows how a course team introduce 'research sensibility' to students entering the conversations associated with particular forms of research common in the arts.

Case study 3.5: Developing a research orientation in undergraduate creative arts in the Bachelor of Illustration at Northern Melbourne Institute of TAFE, Australia[15]

Two large mural projects have been introduced in the first year of the three-year program to establish a 'research sensibility'. These projects provide industry-based opportunities for first-year students to research and engage in an enterprise that has a clearly defined product at completion. The initial investigative research aims to encourage exploration and broad enquiry, through the use of the library to develop information and academic literacies through the creation of relevant reference lists, bibliographies as well as accessing and compiling community resources relevant to the particular project.

During the early phase of the research there are factors for consideration that may involve the specific communities living within the intended locations of the artwork. In the mural projects example, the students' investigative research directed their attention to the need to become aware of sensitive cultural, political and religious requirements for appropriate imagery for public display within a diverse ethnic mix.

6. Provide opportunities for students to make their research public

Dissemination of research, be it through for example, conference presentations or journal articles, is central to the research process. In constructing curricula that in effect 'mimic' the faculty research practices, we need to build dissemination into the curriculum (as in case study 3.6). Such activities support students in feeling pride in their 'research', bring them further into the research culture and also challenge and sustain them to produce high quality work.

Case study 3.6: Year one poster presentation conference in engineering at Newcastle College, UK[16]

In May 2013, the School of Engineering and Science organised a first-year poster presentation conference. This provided an opportunity for students to disseminate the findings of their work-based learning (WBL) projects. WBL projects require first-year students to identify and research an issue in the workplace relevant to their engineering discipline. Part of the assessment process includes a poster and a verbal presentation on their findings delivered to a general audience.

The event was hosted by students, with lecturers providing assistance and assessing their work. Posters were displayed on walls around the venue, with students presenting their aims, methodology and findings to visitors. Some of the students also displayed creative products developed in response to their findings. The conference was advertised widely across the institution. The event was aligned with the monthly information, advice and guidance event which attracts prospective FE and HE students, some attending with their parents. The event contributed to the developing community of staff and student research within the school and it is hoped that the conference will become an annual feature in the academic calendar, and will be emulated in other areas of our HE provision.

7. Recognise that students will find such work challenging

Entering into the worlds of research can be challenging for many students – the seminal work of Baxter Magolda shows that many of the students she interviewed over almost thirty years did not really develop an understanding of the complexity of knowledge till their final year or indeed until well after graduation. A recent study of first-year students at Sheffield University concluded that:

[15] Sources: correspondence with Colleen Morris (colleenm-va@nmit.edu.au) and Christine Spratt (christinespratt@nmit.edu.au); http://www.nmit.edu.au/courses/bachelor_of_illustration
[16] Source: Jonathan Eaton (jonathan.eaton@ncl-coll.ac.uk); http://www.ncl-coll.ac.uk/higher-education/research-and-scholarly-activity

Students did not by any means always experience engagement in inquiry and research as easy, and over the year their accounts illuminated challenges in five key areas: information literacy; personal beliefs about learning and knowledge; personal self-confidence; inquiry framing and direction-setting; peer collaboration. Many described struggles and anxieties about using library services and the internet effectively, especially toward the start of the year, at which stage they most often emphasized difficulties with foundational information literacy capabilities associated with locating and sifting sources. At the same time, the purposes of open-ended exploration could be puzzling and unsettling to students who held strongly reproductive conceptions of learning. In sum, while most students were positive about the role of what they defined as inquiry and research in their experience, *the need for plenty of guidance and formative feedback was emphasised strongly*. (Levy and Petrulis 2012, pp. 95–6, emphasis added)

8. Ensure how the students are assessed supports research mindedness

We now need related research on the student experience of research in the CBHE sector to further guide our work, but the research from Sheffield University does emphasise the importance of providing strong and supportive assessment to students on their early entry into research. The materials developed by the Assessment Standards Knowledge exchange (ASKe) Centre at Oxford Brookes are one key resource to guide assessment practice[17]. One key perspective that is relevant to assessment in the college sector is the conception of assessment as *feed forward* ie the tutor comments on the work that has been done are mainly shaped to support the student when they next conduct an assessed task in this area. Case study 3.7 from Coventry University was shaped by the work of the ASKe Centre.

Case study 3.7: Supporting students' critical reading and writing in English in year one at Coventry University, UK[18]

To assist year one students moving from seeing knowledge as fixed, as facts to be learned, the compulsory module Academic and Professional Methods and Approaches focuses on preparing students for academic study at degree level; the nature and processes of research in a humanities discipline; and research methodology. In designing the course, much attention was paid to a range of formative and summative assessments that supported students in being able to obtain and review information sources and to write in an academic and critical manner. Course enrolment is high, some 140, but extensive use of online resources and assessment, and self and peer assessment has enabled staff to give regular and supportive 'feed forward' to students.

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[17] http://www.brookes.ac.uk/aske/index.html
[18] Sources: Orsini-Jones (2013);
   http://www.coventry.ac.uk/course-structure/2013/faculty-of-business-environment-and-society/undergraduate/english-ba-hons/?theme=main

9. Involve upper level students in supporting student research in year one

Staff can involve upper level students into guiding students into research. This can help staff to give more support to year one students and at the same time upper level students will gain from supporting year one students. These principles are well illustrated in case study 3.8.

> **Case study 3.8: Integration of years one and two undergraduate research experience in HND Applied Psychology at Truro-Penwith College, UK[19]**
>
> The second-year group project module for psychology students has been designed to overlap with the first-year course in two ways. The second-years design their research in groups of three to four students and in November they present to the first-years their research question and their current design ideas. The first-years are then encouraged to use what research methodology they have learnt to date to question the presenters, highlight strengths and possible weaknesses as well suggest alternative design ideas. At the end of the year the final projects are presented at a student conference where the first-years see the culmination of the discussions and the final findings.

The above case studies demonstrate that there is a range of interesting and effective interventions in year one of the CBHE sector to bring students in year one into the worlds of research and inquiry. Arguably such interventions are even more important in the college sector as many students have been out in the worlds of work and are perhaps uncertain about being able to 'succeed' in HE. Interventions in year one are an issue to which we will return to in chapter five when we look at structured interventions through a degree programme. But we now turn to the importance of providing some final-year research capstone, whether that is in two-year (foundation degree) programmes or three/four-year degree programmes.

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[19] Sources: correspondence with Cathy Schofield (cathys@Truro-Penwith.ac.uk);
http://www.truro-penwith.ac.uk/ft/hnd-applied-psychology/

4. Embedding student research and inquiry in final-year courses

All undergraduate programmes should **culminate with a capstone experience**. The final semester should focus on a major project and utilise to the full the research and communication skills learned in the previous years. (Boyer Commission 1998, p. 27, emphasis in original)

Re-imagining capstone projects has implications for students, faculty, departments and institutions, but greater diversity could enhance its relevance to students and employers, better aligning the student experience with the academic interests and future career demands of the 21st century graduate. (Hill *et al.* 2011, p. 331)

Embedding student research and inquiry in the final-year of courses in CBHE may take a variety of forms and include, for example, students undertaking problem-solving exercises in a commercial or vocational context. Such exercises can help students develop their research skills in line with those indicated in Table 3.1 (Hodge *et al.* 2008). In this chapter we will focus on one particular way of engaging students in research and inquiry, and arguably one of the most effective, that is, final-year projects (Healey 2014a; Healey *et al.* 2013).

The nature of final-year projects

The end of course final-year project is often seen as one of the most important pieces of work that students undertake. Engaging students in research and inquiry through a final-year project is one way in which institutions can demonstrate they support student development in line with the QAA Quality Code "that every student is enabled to develop as an independent learner, study their chosen subject(s) in depth and enhance their capacity for analytical, critical and creative thinking" (QAA 2012b, p. 6). The honours dissertation is often seen as the 'gold standard' in the undergraduate degree in the UK (Healey *et al.* 2013). In the United States, many students undertake a capstone project, which is meant to be a synthesising project looking backwards and integrating material covered elsewhere in the course and applying it to a problem or issue and, particularly in professional courses, a forward looking project providing a transition to the next stage in their professional career whether that be employment or further study. In both countries the final-year project provides an important indication of the student's intellectual development and their progress towards self-authorship (Baxter-Magolda 2009; see chapter two) and has been recognised as an activity which has a high impact on student learning (Kuh 2008).

The traditional dissertation in the UK is an 8,000 to 12,000 word single authored project. Shorter and perhaps more scaffolded projects may be more suitable for end of course projects at foundation degree and associate degree level. For example, at Sheffield College in the Policing Studies foundation degree students prepare a 4,000-word report usually linked to their work-based learning placement (case study 4.1).

Students are required to complete a research module in year two (level 5). This is of particular importance to those wishing to progress to the next year where they will be required to complete a dissertation. The topic or issue is usually drawn from the student's work-based learning placement. Examples from the current cohort are:

1. a special constable conducting research into the views of police colleagues towards the quality of personal protection equipment;

2. a student working with youths on the edges of criminality conducting research into the attitudes of young people in relation to stop and search.

Learners are expected to formulate specific, measurable aims, carry out a literature review, examine and employ appropriate research methods and collect and analyse findings. Overall, it is critical that consideration is given to research in methodological and 'real world' crime contexts. The assessed piece consists of a 4,000-word report and students are encouraged to discuss their findings and recommendations with their WBL employer and future potential employers.

There are, of course, differences in expectations of students taking foundation or associate degrees and those taking Bachelor degrees. These parallel differences expected in the UK for teaching staff competencies specified by the QAA for institutions applying for foundation degree awarding powers and teaching degree awarding powers (Table 6.1).

In this chapter, we explore ways of embedding student research and inquiry into the final year of courses lasting two years (e.g. foundation degrees and community college associate degrees), and three years (e.g. degree courses in England, Wales and Northern Ireland). We also include some examples from the final year of some four-year courses (e.g. Scottish and North American Bachelors degree courses).

Whether it is a two, three or four-year programme, the end of course project offers a capstone experience for undergraduate students. It provides an important indicator of the achievement of the outcomes of the programme. In the UK there is a growing interest in assessing programme-level outcomes rather than just individual modules or courses (PASS 2012). In Sweden, the quality of the final-year project is being used to assure the standard of degrees (Swedish National Agency for Higher Education 2011). Moreover in the US, as accountability pressures grow, end of course projects are increasingly seen as an important way to assess the learning experience of students in their major or degree programme (Jones *et al.* 2012). In Australia, such capstone projects are becoming more important with the increased emphasis on accountability through the Australian Qualifications Framework and the need to identify the achievement of programme outcomes (Matthews and Hodgson 2012) and threshold standards across the disciplines (Lee 2013).

In the remainder of this chapter we explore the purpose and characteristics of final-year projects, their transformative potential, and the case for diversifying their form and assessment. We go on to discuss the need to prepare students effectively for the experience and to celebrate and disseminate the project outcomes.

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[20] Source: correspondence with Joan Rudder (Joan.Rudder@sheffcol.ac.uk)

The purpose and characteristics of final-year projects and dissertations

According to Marshall (2009), final-year inquiry projects have a variety of functions including:

- addressing concerns to promote skills and employability;
- diversifying assessment;
- empowering learners;
- motivating students;
- promoting links between teaching and research;
- identifying potential research students.

Healey *et al.* (2013) identify ten characteristics of final-year projects and dissertations in Bachelors degrees (Table 4.1). As with all characterisations, not every project or dissertation can be expected to exhibit *all* of the characteristics. Some are generally applicable, but others are more relevant to particular disciplines, and some are aspirational rather than being a strict requirement. Similarly, not all final-year projects for foundation or associate degrees can be expected to meet all these characteristics. Nevertheless, it provides a useful list from which educators may pick, choose, adapt and add according to their specific discipline, institution and educational goals of their programme.

Table 4.1: Characteristics of a final-year project or dissertation
It should: 1. be an extended piece of work;   2. be relevant to a discipline or take an interdisciplinary approach;   3. be research or inquiry-based;   4. be underpinned by a range of relevant sources;   5. be contextualised and show recognition of the provisional nature of knowledge;   6. be clear what it is contributing;   7. have a clearly defined and justified methodology;   8. build up to its conclusions and where appropriate have an element of reflective commentary, including recommendations;   9. communicate the research outcomes appropriately and effectively.

With the growth of the CBHE sector, it is timely to reassert the importance of end-of-course projects and to rethink their role in the curriculum.

Designing transformative experiences

Preparing students to move into the world beyond HE is an underlying rationale for creating transformational experiences for final-year projects and capstone courses in many places (e.g. Lee 2006; Schermer and Gray 2012; Sill *et al.* 2009). Many students testify to the transformational learning effect of their experience of end of course projects (Derounian 2011). One reason for this is that many students are in a transitional phase from HE to joining the 'real' world, and the final-year project helps them to deal with more complex and uncertain problems (Barnett 2004; Brew 2006).

> In the capstone course students disengage (i.e. separate) from the undergraduate status and existential condition and re-emerge (i.e. incorporate) as graduates prepared to assess critically and act responsibly in civil society. Thus, the capstone course provides the liminal threshold at which students change their status. (Durel 1993, p. 223)

For example, at the University of Gloucestershire in the final semester of the foundation degree course in Community Engagement and Governance, students have to address a 'wicked' community problem, that is, one that is difficult to solve because of incomplete, contradictory, and changing requirements and hence resistant to resolution (Rittel and Webber 1973) (case study 4.2).

Case study 4.2: Community projects for foundation degree in Community Engagement and Governance students at University of Gloucestershire, UK[21]

Foundation degree Arts (FdA) second-year (level five) students studying *Community Engagement and Governance* are part-time, mature, distance learners, mainly studying online and scattered across Wales and England. Many of them are Parish Council clerks. The module *Community Projects* helps individuals to plan a project or solutions to community issues. It considers how needs, problems and opportunities in a community can be identified and examines resource planning as part of the project management process. There are linked assessments that encourage students to address a real life issue(s) or opportunity in a local community, while at the same time, gaining academic credit.

The final problem-solving assessment (30% of module marks; 2,400 words) is worked on in pairs. Each identifies a live 'wicked' community problem for the other to address. Individuals comment on their partner's recommendations for the problem they set; present a wicked problem they designed for their partner (and research and justify why they consider it 'wicked'), make recommendations related to their partner's issue, and reflect on the assignment and what they learned through the process.

Other courses provide transformative opportunities by linking work-based learning experiences with project work. For example, at Northern Alberta Institute of Technology students engage in applied research through industry sponsored collaborative capstone projects (case study 4.3).

Case study 4.3: Engaging students in applied research through industry sponsored collaborative capstone projects at Northern Alberta Institute of Technology (NAIT) Edmonton, Canada[22]

NAIT's applied research program gives students the opportunity to put their learning to work in an applied, real-world project. They work with faculty, industry, and community partners to investigate problems and opportunities proposed by our partners or sponsors.

For example, the Information Systems Development Major of the Bachelor of Applied Information Systems Technology (BAIST) degree program allows for students to interact and work with industry partners in the creation of a solution for a partner's needs. Students undertake two four month full time paid work experience. The work integrated learning internships make up the entire fourth year of the BAIST degree program. Students combine their technical and managerial skills to develop a scalable enterprise system for a real client. Some students have the option to engage in research work in integrating large system components into a complex organisation. They are expected to contribute fully to solving the companies' problems using IT. Students are also required to complete research paper(s) for grading. Along with demonstrations and presentations to stakeholders combined with what the students have learned over the program, this course prepares them to blend easily into a corporation's context.

There is compelling evidence that end of course projects have a beneficial impact on student learning. For example, recent research examining capstone courses at four American liberal arts colleges, where they are compulsory for all students, found they had a powerful effect on writing, oral-presentation, and critical-thinking skills. However, the students were weaker in integrating knowledge across courses and disciplines (Schermer and Gray 2012). A study of two service learning capstone projects in New Zealand,

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using the Australasian Survey of Student Engagement, found that student engagement was enhanced by the course and the gain was highest among the previously least engaged (O'Steen *et al.* 2010).

Diversifying the form and assessment of final-year projects

Despite the transformative experience that many traditional end-of-course projects provide, they do not suit the needs or aspirations of all students. This particularly applies to students taking vocational and professional courses, common in the CBHE sector, who may not see the relevance of the traditional research focused single authored projects common in the university sector. Indeed, Healey *et al.* (2013) argue that as the number and diversity of students in HE have risen across the whole of HE, diversity of approaches to designing and assessing end of course projects is needed. Moreover, they suggest that, where possible, students should be given a choice as to the form these take, because one size does not fit all.

While recognising the strengths of the traditional honours project, what are also needed are alternative types that provide students with a forward-looking experience and equip them to thrive in an uncertain, super-complex world (Barnett 2000; 2004).

> Giving students a choice of alternative forms of final-year projects and dissertations is important to ensure that the needs of *all* final-year students are met regardless of background, discipline, institution or life goals. (Healey *et al.* 2013, p. 12)

The Fine Art dissertation at Somerset College of Art (case study 4.4), the Product Design project at Nottingham Trent University (case study 4.5) and the Energy Systems Engineering Technology program at Holland College, Prince Edward Island (case study 4.6) provide good examples of giving students a choice concerning their final-year projects.

Case study 4.4: Developing of a creative research culture for fine art students through providing a choice of dissertations at Somerset College of Art, Taunton, UK[23]

NAIT's applied research program gives students the opportunity to put their learning to work in an applied, real-world project. They work with faculty, industry, and community partners to investigate problems and opportunities proposed by our partners or sponsors.

BA Fine Art students have a choice of three forms of dissertation:

1. the traditional 5,000–8,000 word Thesis module.

2. a 5,000–8,000 word Critical Commentary. This research form explores the students' work and ideas about their own Fine Art practice.

3. a Special Project that requires a 3,000–5,000 word research document and the production of three pieces of studio work.

All three options have consistently proved popular.

The diversity of research options empowers and motivates the students; emphasises active learning; facilitates learning through the production of artefacts; and encourages reflective practice and first-person enquiry. A sense of discovery, exploration and provisionality are therefore integrated into the research culture. Assuring standards across different forms requires careful discussion of marking criteria by staff. Students are placed in peer learning groups to support one another and, early on, to help discuss the relative merits of each of the research forms. A bridging module is also in place towards the end of the second year to help students get started on their third year so that the summer vacation can be used for primary and secondary research.

Case study 4.5: Giving students alternative assessment options for undertaking a product design project at Nottingham Trent University, UK

The course offers several possible routes. Assessment is based on a learning contract negotiated and agreed between the tutors and student. This contract stipulates the content of work, enabling students to complete one of the following options:

1. a 10,000-word dissertation and students produce a poster that summarises their work;

2. a 5,000-word conference paper with a supporting presentation delivered to peers and tutors;

3. a conceptual project with a 5,000-word critical justification. As well as a written outcome students are required to produce illustrations or simulations.

Prior to students undertaking their chosen assignment, there is a three-week intensive period when students complete a learning contract. The contract identifies what option the student will complete, what they hope to learn and how that learning will be demonstrated. The module involves students using a wide range of primary and secondary research skills.

Case study 4.6: Students complete applied research projects as part of the Energy Systems Engineering Technology program at Holland College, Prince Edward Island, Canada[25]

As a part of this two-year course, students are given a choice between completing on-the-job-training or conducting an applied research project with an energy company. If they choose the latter they complete individual applied research projects as a part of the *Capstone Project* course in the students' final-year of study. The projects focus on energy efficiency and renewable energy and can include information on consumer needs, habits, alternative energy sources, and recommendations. Students focus on the technical aspect of the project and are required to submit a proposal, write a report of their findings and present the final results to the class.

Variants from the traditional project form are already quite common in the CBHE sector. Many use group rather than individual projects and many are linked to employment or community-based learning opportunities. For example, in the final-year marketing project at Letterkenny Institute of Technology, students work in groups to address a research problem identified by a local business. The work is split over two long modules: in the first the students have to design a research proposal, and in the second they revise it in the light of feedback and carry out the research (case study 4.7). Similarly in New Zealand, the Bay of Plenty Polytechnic has strong connections with local industry and national bodies and wherever possible the diploma in Engineering projects are guided by jointly developed proposals which address real-world workplace issues (case study 4.8).

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[24] Source: Healey et al. (2013, pp. 25–6)
[25] Sources: correspondence with Audrey Penner (APenner@hollandcollege.com);
http://www.hollandcollege.com/programs/energy-systems-engineering-technology/;
http://www.hollandcollege.com/applied-research-at-holland-college/

All students taking the Bachelor of Business (Honours) Marketing complete a major marketing research project as a partial requirement for the fulfilment of their BBS Honours Marketing. The Marketing Research Project (five credits) module is the capstone marketing research module. Prior to this, all students complete two modules (equating to ten credits) specifically related to the field and practice of marketing research. In the research capstone module, learners must work in groups and source a business that has a research problem or opportunity that they can address. For example, one group of learners recently worked with an established hotel in the locality to investigate the consumer decision-making process for the selection of a wedding venue in County Donegal. The methodology for this project included a focus group with five couples who were married recently in County Donegal and a structured survey (n = 100).

The Marketing Research Project module is assessed by 100% continuous assessment: 80% of the marks available are for group work and the remaining 20% is for an individual submission. Group work is assessed in four stages: stage one (20% of group work) represents the literature review, stage two (20% of group work) represents the methodology, and stage three (40% of group work) represents the findings and analysis section. Learners are provided with marks and feedback on their performance at each of these three stages. Stage four (the final 20% of group work) is for the resubmission of the final document; the Marketing Research Report. This report is also presented to the business.

Undergraduate students completing the second year of a polytechnic diploma are required to undertake a semester-long research project as a culmination of their learning. Once the topic is agreed, students research existing solutions, create and trial variants or innovations, then record, assess and refine their processes. Bay of Plenty Polytechnic has strong connections with local industry and national bodies; wherever possible, the projects are guided by jointly developed proposals which address real-world workplace issues. Students are involved in every aspect of the project development and negotiate project parameters, scope, time-frame, resourcing and intended outcomes with both the industry sponsor, and the program teachers. They are required to follow good engineering practice and apply rigor to all phases of the research according to both industry and academic standards. Assessment is again a collaboration between the sponsor organisation and teaching staff. As well as research and practical skills, students learn about project management and liaison between stakeholders, and enhance their verbal and written communication skills. For some, the introduction to an industry organisation has led to employment and on-going opportunities.

In developing different forms of end-of-course projects it is essential to ensure that academic standards are maintained through the assessment process and that there is comparability between the different forms.

> Where options are offered … the clarity of the learning outcomes, assessment criteria and detailed module guides are key in ensuring standards. Although the outputs and nature of the projects can vary, if the expectations, in terms of student input and the nature of the research and inquiry, are equivalent then academic standards should be assured. (Healey *et al.* 2013, p. 53)

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[26] Sources: correspondence with Vicky O'Rourke (vicky.orourke@lyit.ie);
http://www.lyit.ie/courses/businessstudies/lybbussbmarketing/
[27] Sources: correspondence with Uli Fuerst (uli.fuerst@boppoly.ac.nz) and Mark Hendry (mark.hendry@boppoly.ac.nz);
https://www.boppoly.ac.nz/go/programmes-and-courses/electrotechnology-electrical/new-zealand-diploma-in-engineering-electrical

Significantly the UK Quality Code chapter on assessment states that: "Institutions can encourage staff to make use of different assessment methods by ensuring they have access to expertise, internal and external, to support the development of assessment that focuses on student achievement" (QAA 2011, p. 5).

Preparing students effectively for their final-year project

Critical to success in the final-year project is appropriate preparation in previous parts of the programme. At Myerscough College students carry out a group experiment and produce a poster reporting their main findings in the Applied Plant Science and Biotechnology courses. The assignment is "sufficiently early to enable them to apply the skills developed to their own dissertation in terms of establishing existing knowledge, developing hypotheses, designing the experiments, determining measurements, statistical analysis and the presentation and discussion of results" (case study 4.9).

Case study 4.9: Research project and poster presentation in applied plant science and biotechnology at Myerscough College, UK[28]

Undergraduate students experience research during the process of carrying out an experiment and producing a poster as an assignment for a third year (level six) module. As a group, they decide what hypothesis is to be tested, the treatments to be applied to test their hypothesis, and the measurements that need to be taken. They then undertake the experiment, so in the process develop aseptic techniques, consideration of replication and experimental design. They need to select appropriate statistical analysis and method of presenting the results. Students report what they think are the major findings as a poster.

This exercise complements their dissertation modules. The dissertation is 40 credits in length and is compulsory for the Honours degree. Although this exercise is delivered alongside the dissertation modules, the assignment is sufficiently early to enable them to apply the skills developed to their own dissertation in terms of establishing existing knowledge, developing hypotheses, designing the experiments, determining measurements, statistical analysis and the presentation and discussion of results. Even something as simple as developing an appropriate title is discussed during the poster assignment.

In the Early Years Bachelor of Education at Northern Melbourne Institute of TAFE they develop the research mindedness of students over the four-year programme in a structured developmental manner (case study 4.10).

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[28] Sources: correspondence with Mick Cottam (mcottam@myerscough.ac.uk), David Elphinstone (delphinstone@myerscough.ac.uk) and Irene Weir (IWeir@myerscough.ac.uk);
http://www.myerscough.ac.uk/downloads/pdfs/HE%20Module%20Catalogue/MR3203%20Applied%20Plant%20Science%20and%20Biotechnology.pdf

Case study 4.10: Building a research identity in the Bachelor of Education (Early Years) at Northern Melbourne Institute of TAFE, Australia[29]

The Bachelor of Education (Early Years) is a four-year undergraduate degree that prepares pre-service early years and primary school teachers. The program attracts students from diverse backgrounds, many of whom are not well prepared for tertiary study. The program is committed to developing in students a 'research identity' from the outset as developing scholarship and a scholarly mindset is crucial for professional teachers in practice. Students are introduced to research skills in year one. Subsequently, students are required to participate in critical reading and discussion of research literature in order to understand research structures broadly and the impact of research on the field of education.

In the third year of the program, research-based activity is introduced to students as they develop and implement a self-reflective action-oriented research project based on their allocated teaching practice placements. In the fourth year of the program, students then plan and implement a research project in an educational setting. This activity occurs in a subject dedicated to the development of students' research proposals and related activity. Students are supervised to develop a research question in an area that interests them, they submit an ethics application and design their methodology accordingly. Students conduct this project in an educational setting and prepare a research report discussing the processes used and their findings.

Celebrating and disseminating

Celebrating and disseminating the outcomes of final-year projects is an important part of the research process and provides public recognition of the student as producer. Such events provide the opportunity to invite potential employers and potential future students, as well as their peers, friends and relations to see the students' work. It is common to hold end of year shows in art and design courses and the performing arts, but the principle is transferable to other subjects, though the format may differ and include undergraduate research conferences and the preparation of papers for publication in undergraduate research journals (Healey and Jenkins 2009; Walkington and Jenkins 2008; Spronken-Smith *et al.* 2013).

> Going public with the students' work is one of the simplest ways to raise the standard of the work produced, because when they know their peers, friends, relations, academics, professionals and community members may see their work they are more likely to put in the effort to produce their best work. (Healey *et al.* 2013, p. 68)

In 2013 Newcastle College inaugurated their first Annual Conference to celebrate the work of second and final-year students and to encourage their pre-HE students to transfer onto their HE courses (see case study 5.8). The College has gone a stage further to promote the work of their final-year undergraduate and Masters students by establishing a student journal – *The Seven Bridges Management Journal* (case study 4.11).

A student-led online research journal has been established to disseminate student scholarship, usually the findings of dissertation projects, to an external audience. Entitled *The Seven Bridges Management Journal* (a title proposed by students), it provides a range of opportunities for their students, not only as authors but also as editors, peer reviewers and members of the editorial board. The editorial board is composed of both staff and students, with students in the majority. Each submission is peer reviewed by at least one student and one staff member. The editor is selected from the student body and allocated a number of staff advisors. Some of the papers have been written by collaborative partnerships of staff and students.

The end of course projects we have examined in this chapter is a key way of developing research-based curricula in the CBHE sector. At whatever level of undergraduate study it occurs it should be a transformative experience for students (Healey *et al.* 2013; Schermer and Gray 2012). However, given the wide variety of student backgrounds and motivations in studying in HE, this is a challenge, and one which is more likely to be achieved if students are given a choice as to the form and assessment of the final-year projects they are offered.

In the last two chapters we have explored ways of integrating research and inquiry into first-year courses and final-year projects. In the next chapter we address the issue of progression and how, strategically, to develop research-based curricula across courses, departments and institutions.

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[30] Sources: correspondence with Jonathan Eaton (Jonathan.Eaton@ncl-coll.ac.uk); sevenbridges.ncl-coll.ac.uk; http://www.ncl-coll.ac.uk/higher-education/research-and-scholarly-activity

5. Course team, departmental and institutional strategies to embed research and inquiry

> All undergraduate students in all higher education institutions should experience learning through, and about, research and inquiry. We argue … that such curricular experience should and can be mainstreamed for all or many students through a research-active curriculum. We argue that this can be achieved through **structured interventions at course team, departmental, institutional and national levels.** (Healey and Jenkins 2009, p. 3, emphasis added)

> While there are innovative examples of practice and policy in many course teams and departments, much of this is implicit and generally not systematically developed or supported. Course teams and departments should consider how to best develop this tacit practice in ways that do not stifle effective practice, but ensure it is both **supported and integrated into coherent course structures and departmental policies**. (Jenkins 2009, p. 21, emphasis added)

In chapters one and two we argued why students understandings of and abilities to carry out research and inquiry are central to what is or should be *higher* education. In chapters three and four we showed through a range of case studies from the college sector how this can be achieved in year one and in final-year courses. If we add to that perspective the large range of case studies and policy suggestions we have brought together from the 'traditional' international university sector (Jenkins and Healey 2005; Healey and Jenkins 2009; see also case studies[31]), many of which we think can be readily adapted to the CBHE sector, then much seems positive.

However, if we shift our focus from individual courses to structured interventions at course team, department, institutional and, indeed, national levels the picture from research and policy analyses is different and often not so positive. A study of departmental organisation in the UK showed that departmental managers found that: "it is more convenient for teaching and research activities to be treated as separate activities. On an academic level, however, managers would rather perceive the two to be synergistic" (Coate *et al.* 2001, p. 162). Relatedly in Scotland a QAA strategic intervention to ascertain the level of – and encourage the linking of – teaching and research revealed much good practice across the sector. But what were often missing were structured policies by course teams and institutions to clearly embed teaching and research links in the overall student and staff experience (Jenkins 2009).

Shifting our focus back to the CBHE sector, while we lack overall research evidence on practice and policy, it is probably significant that while we found much interesting practice in individual courses – as evidenced in chapters three and four and on the project web site – we have found very few examples from the college sector of structured course team, departmental and institutional strategies. That may in part reflect the early stage of this development in that sector, and hopefully this publication will assist that process. Accordingly, in this chapter we give more attention to overall policy suggestions and draw on the 'university' sector to indicate what can and should be achieved throughout HE and in particular in the CBHE sector.

Our central argument is stated in the quotation at the beginning of this chapter: that there is a need for structured interventions at course team, departmental and institutional levels as well as supportive national policies (Healey and Jenkins 2009). The balance of emphasis between the need for intervention at these different levels will vary in terms of how these levels are conceived in different institutions. Arguably, it is at course team level that the student experience is most central and where many staff see their central role; departments often play key roles in shaping the staff experience of both teaching and research and consultancy; and institutions can set up strong frameworks for departmental interventions and are in a strong position to link to outside agencies, including local employers. The need for coherent structured interventions is perhaps more significant in the CBHE sector, which is generally less well

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[31] http://www.mickhealey.co.uk/resources

funded and resourced and thus needs to ensure co-ordinated interventions to support an overall vision that puts students research mindedness as one of the central foci of the aims of programmes.

We start by setting up an overall framework for course teams and departments to review and reshape their current practice. In using this framework, many course teams may find they already have many appropriate practices, but it should also support them in defining areas they need to intervene to embed structured practice better. This has been our experience in using it in workshops and publications internationally in the university sector. In presenting the framework, we also indicate how some of the previous case studies in this publication exemplify these strategies (Table 5.1).

Table 5.1: Strategies for engaging students with research and inquiry within courses and programmes[32]
Strategy one – develop students' understanding of the role of research and inquiry in their discipline
• develop the curriculum to bring out current or previous research developments in the discipline;   • develop students' awareness of the nature of research and knowledge creation in their discipline.
Strategy two – develop students' abilities to carry out research
• students learn in ways that mirror research processes;   • assess students in ways that mirror research processes (eg requiring students to have their work assessed by peers according to the house-style of a journal before submitting it to you);   • provide training in relevant research skills and knowledge;   • ensure students experience courses that require them to do research projects; and that there is a progressive move to projects of greater scale, complexity and uncertainty (strategy three)   • develop student involvement in research;   • develop abilities of students to communicate the results of their research in ways that are appropriate to the disciplinary community in which they are now participating;   • while developing the research mindedness of all students, perhaps provide stronger research opportunities for selected students.
Strategy three – progressively develop students' understanding
• ensure that introductory courses induct students into the role of research in their discipline and present knowledge as created, uncertain and contested;   • ensure that advanced courses develop students' understanding of research, and progressively develop their capacities to do research;   • ensure that graduating year (capstone courses) require students to carry out a major research study and help them to integrate their understanding of the role of research in their discipline.
Strategy four – manage students' experience of research
• evaluate students' experience of research and feed that back into the curriculum;   • support students in making clear to them the employability elements of research; this is particularly important for those students whose focus is on using a degree to get employment, and who may not otherwise appreciate the value of a research-based approach.

Thus if one looks back at the case studies presented so far one can see their potential for others to adapt to their practice by analysing them in the context of this framework. Thus in case study 3.1, where

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[32] Source: based on Jenkins et al. (2003, p. 63–4) and Healey and Jenkins (2006, p. 49)

psychology students in year one research their, and their fellow students, quality of life, they are learning in a way that mirrors research processes in their discipline. In case study 3.2 year one students at East Durham College sit in a 'hot seat' and are inducted into seeing knowledge as created, uncertain and contested. In case study 3.4 students in sports studies at West Herts college work with local employers on policy relevant research projects, which clearly demonstrate the employability elements of research. The same happens in many of the capstone projects in chapter four, as, for example, in case study 4.2 part-time students in community engagement analyse a local community issue which is often one directly related to their current and future professional role; while in case study 4.9 students at Myerscough College produce a poster for public discussion, in an assignment linked to their dissertation, they are developing their abilities to communicate the results of their research.

As stated above, many course teams will find aspects of their programme exemplifying particular strategies in Table 5.I. However, as we have seen from the evidence of the university sector in Scotland (Jenkins 2009), there is limited evidence of structured interventions from entry at year to graduation to embed student inquiry and research throughout a programme. Case study 5.1 at Duchy College is an example of such a structured approach from the UK CBHE sector.

> ### Case study 5.1: Developing a programme strategy for research-based teaching in Equitation Science at Duchy College, UK[33]
>
> Equitation science is a recently emerged academic discipline supported by a Learned Society, the International Society for Equitation Science (ISES) (2013), whose mission is to "promote and encourage the application of objective research and advanced practice which will ultimately improve the welfare of horses in their associations with humans." ISES membership comprises academics and practitioners, all of whom recognise the fundamental need to use research outcomes to inform evidence-based practice.
>
> The first BSc (Hons) programme in Equitation Science was established at Duchy College in 2008. It is supported by the Academic Partnership network of the University of Plymouth and research-focused funding from Cornwall College. All HE students are encouraged to develop their independent inquiry skills, through a set of core research-based modules – research skills in year one (10 credits), research project in year two (20 credits) and a final year honours project (40 credits). Students undertaking research/honours projects have produced publishable outcomes, many of which have been presented at international conferences. A number of BSc (Hons) Equitation Science students progress to the Research Masters (Equitation Science) programme to pursue their research development further.

Strategies for embedding research and inquiry within departments and institutions

Consider case study 5.2 and see how it structures the student and, in particular, the staff experience at departmental level. Note how from a student perspective it offers a clear vision of a research active curriculum that is shaped by the discipline and students' likely future employment in that 'industry'. It also ensures that that the department's vision of an inquiry-based curriculum is developed in a progressive way throughout the curriculum. It is from a private teaching-focused institution that is now seeking to develop a research presence. We would caution – from strong research evidence – that as institutions try to develop a research presence a focus on the curriculum and the value given to teaching may well be threatened (e.g. Mayson and Schapper 2010). What is of general policy significance about this case study is that it also shows how departmental and institutional strategies for teaching and for research and consultancy can be linked, and how developing a research presence can, in effect, also support the curriculum.

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[33] Sources: correspondence with Hayley Randle (Hayley.randle@duchy.ac.uk);
Waran and Randle (2013);
http://www.cornwall.ac.uk/college-research;
http://www1.plymouth.ac.uk/academicpartnerships/Documents/Research%20and%20Scholarship%20strategyv10.pdf;
International Society for Equitation Science (2013)

Case study 5.2: Research project-based teaching in engineering – a departmental strategy at Taylor's University, Malaysia[34]

The curriculum in the School of Engineering had adopted a project-based learning approach where the students are required to take a Design module each semester for the first three years of their four-year study, and then a final-year capstone project. All the projects require students conducting a variety of inquiry-based, design and build activities in groups. Staff research groups are organised around the Grand Challenges themes identified by the (US) National Academy for Engineering (NAE) in 2008. Staff in these research groups are expected to perform the following duties:

1. adopt related core and elective modules. This includes developing, updating and teaching these modules. Staff members are encouraged to include aspects of their own research findings into the modules;

2. offer group design projects to the students in years one to three;

3. offer final-year research projects. Every fourth-year student is required to undertake a major research project and write a conference paper as a requirement for graduation. Their research findings are presented at the school's annual Engineering Undergraduate Research Catalyst Conference (EURECA).

This departmental strategy is now under consideration as an institution-wide strategy.

Distinctive, but generalisable features of this strategy are that: here research is broadly conceived to include staff consultancy and advanced professional practice; the staff research does clearly support students' research understanding and future employability; and there is an overall departmental vision to bring together the different aspects of the student and staff experience.

Related research strategies that feed directly into teaching, and vice versa, are illustrated by case studies 5.3 and 5.4. In these two institutions research is a focused applied activity that meets the needs of the local economy, where many of the students are likely to find employment.

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[34] Sources: Al-Atabi et al. (2013);
http://www.taylors.edu.my/en/university/schools/engineering;
http://www.taylors.edu.my/en/university/schools/engineering/why_taylors;
http://www.taylors.edu.my/en/university/schools/engineering/why_taylors;
http://www.taylors.edu.my/EURECA/2013/;
http://www.taylors.edu.my/en/university/schools/engineering/research

Case study 5.3: Developing student research in science and technology at Georgia Gwinnett College, US[35]

The college is a four-year degree institution founded in 1996, now with 9,000 plus students. In the early years few faculty were involved in research and relatedly there were few opportunities for students to conduct research in their courses or in special undergraduate research programmes.

The School of Science and Technology has developed a range of initiatives to support research by students and staff. In 2009 a multi-disciplinary introductory research course was introduced that was appropriate for students in all STEM programmes. To graduate in science or technology students have to complete an undergraduate research project or internship in their senior year. To support this, a website was developed that listed all the available opportunities for students to carry out research and faculty research interests. In 2010, the faculty convened the first Science, Technology and Research Show that highlighted the research done by students and faculty. In 2011, a 'meet and greet' event was initiated where students seeking research opportunities could meet faculty and learn what research they might be become involved with. In 2011, the degree programmes were reshaped to ensure that students were better involved in research-based coursework throughout their four-year programme. For example, authentic research experiences were introduced into 17 courses, nine of which were at the freshman and sophomore levels. This approach to embedding research in the undergraduate curriculum has supported the growth of the scholarly output of both students and faculty.

Case study 5.4: Institutional research office supports local economic development and student research at Holland College, Prince Edward Island, Canada[36]

The Applied Research Department at Holland College supports economic development for Prince Edward Island by solving technical and business problems for industry and community clients utilizing the college's expertise and facilities while enhancing the quality of college programmes. The research undertaken is focused on key areas closely linked to the college curricula particularly Social Innovation and Science and Technologies.

A central way that this external research feeds into the curriculum is through the Applied Research Department supporting capstone projects that are a key feature of the two-year applied degree program. Through its links with external local clients the Research Department provides the contacts and expertise for students to undertake a significant applied research capstone project. That, in Energy Systems Engineering Technology is described in case study 4.5. In the Applied Degree in Culinary Operations programme, capstone students conduct research in the food service industry within the Culinary Institute of Canada faculty and under employer supervision. Through the research process, students work independently with guidance from a faculty advisor and an industry liaison. The research projects enable students to implement new skills as they work to meet industry needs. Students are exposed to the entire research process from proposal and ethics application writing, to carrying out the actual project, compiling a report and finally preparing a presentation for a panel of experts.

We have previously pointed to how national systems shape the relations between teaching and research. The Dutch system is essentially a binary system consisting of elite research universities and more applied HEIs, which traditionally had little focus on research (de Weert and Van der Kaap 2014). That is now changing and may threaten the focus on undergraduates, but also offers the potential to ensure that they learn better in a research environment. The strategy at Amsterdam University of Applied Sciences is aimed to support both staff and students as researchers (case study 5.5). Newcastle College is also developing a strategy to help link teaching and research; although initially primarily aimed at staff it is planned to open this up to students as well (case study 5.6).

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[35] Sources: Sloop et al. (2013);
http://www.ggc.edu/academics/schools/school-of-science-and-technology/docs/stec-4500-syllabus.pdf;
http://www.ggc.edu/student-life/events-calendar/events-calendar/event/04/09/2013/L-Building%20A/T-science%20and%20technology/K-stars/stars-the-sciend-technology-and-research-show
[36] Sources: correspondence with Audrey Penner (APenner@hollandcollege.com);
http://www.hollandcollege.com/applied-research-at-holland-college/;
http://www.hollandcollege.com/applied-research-at-holland-college/social-innovation-pillar/;
http://www.hollandcollege.com/programs/applied-degree-in-culinary-operations/

Case study 5.5: Developing research capacity of staff and students at Amsterdam University of Applied Sciences, Netherlands[37]

The Netherlands has two main types of HEIs: 40+ universities of applied sciences (hogescholen) which offer professional programmes in the applied arts and sciences that prepare students for specific careers; and 13 research universities (universiteiten). Amsterdam University of Applied Sciences was established in its current form in1992 and now has approximately 43,000 students. Developing a culture of including research in the curriculum is seen as an institutional imperative. To achieve this they have a strategy to enhance the research capacity of both staff and students.

For staff the focus is on developing the research skills and qualifications through them doing graduate degrees and by making this part of the timetabled responsibilities. Additionally, in the upcoming years, policy aims indicate that all lecturers who have reached a Masters degree will do an 80 hours research internship every six years, and an increasing number of lecturers will have research responsibilities as part of their daily jobs. For students, an institutional norm is being developed for the level of research needed in all 89 educational programmes to meet the implicit national level quality requirement that all Bachelor level students should complete a research-based thesis. The intention is that students in all programmes in the University should:

1. develop research attitudes (dispositions);
2. achieve knowledge of the results of research;
3. base their professional actions on results of research;
4. have insight in the methodological and theoretical fundaments of research results;
5. develop instrumental research skills;
6. apply ethical guidelines of good research;
7. design and conduct full research projects.

Case study 5.6: An institutional approach to nurturing an inclusive community of research at Newcastle College, UK[38]

Newcastle College has developed a strategy for creating a community of research which engages both staff and students. Responsibility for overseeing the Research and Scholarly Activity (RSA) strategy lies with the institutional RSA Committee. This group is made up of teaching staff from across the academic schools, representatives of appropriate services (i.e. the Library and Group e-Learning Service) and members of the HE student body.

Within a large institution, it is often difficult to provide meaningful opportunities for staff to share best practice beyond their department or school. Newcastle College has created an RSA Hub, which allows staff to create online profiles that communicate their teaching practices, research interests and specialisms beyond their department and school. It also allows HE teaching staff at West Lancashire College to connect with colleagues in Newcastle. Each academic school has an assigned section of the Hub which allows examples of best practice to be stored and disseminated internally. Although currently accessible only to staff, it is anticipated that the RSA Hub will eventually be open to students.

A structured programme of training for all HE staff has been developed, which contains a strong focus on scholarly activity and student engagement. Other events allow both staff and students to engage with new research, including monthly research seminars and a series of public lectures. Research clusters allow staff and students with similar research interests to collaborate productively on new projects. The first such group, the Performance Research Cluster, was launched in early 2013.

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[37] Sources: correspondence with Didi Griffioen (d.m.e.griffioen@hva.nl);
Griffioen (2011)
[38] Sources: Jonathan Eaton (Jonathan.Eaton@ncl-coll.ac.uk); http://www.ncl-coll.ac.uk/higher-education/research-and-scholarly-activity;
http://www.ncl-coll.ac.uk/higher-education/public-lecture-series

Developing institutional and departmental curricula strategies to develop students' research and inquiry

The discussion and case studies we have just analysed are in institutions that want to draw strong links between teaching and developing research strategies. Such will meet the agendas of some CBHE institutions and departments. They do raise questions as to whether and how they would be more effective when supported by national and institutional strategies for *research* that help support the student curriculum, and to anticipate the final chapter in national systems and institutions which support staff to teach in ways that support student inquiry.

Partly prompted by the evidence from research and policy analyses outlined in chapter two, many institutions worldwide have recently created strong and imaginative policies for teaching – and to an extent for research – which seek to ensure students learn through research and inquiry. Many of these from the university sector are outlined in Jenkins and Healey (2005) and Healey and Jenkins (2009). For example:

- Miami University, Ohio US, developed an overall mission of 'students as scholars' and focused on large scale interventions in high enrolment year one courses (Hodge *et al.* 2008, Hodge *et al.* 2011);
- Durham University, UK requires all programmes of study as they come up for institutional validation and review to demonstrate how "research-led education [is] embedded within the curriculum" from year one[39];
- McMaster University, Canada, for over twenty years has had a strong focus on year one inquiry courses[40];
- University of Sydney, Australia has 'engaged enquiry' as a core value and has identified two signature pedagogies through which it seeks to engage students as enquiring learners; these are *Research-Enriched Learning and Teaching (RELT)* and *Community-Engaged Learning and Teaching (CELT)*[41];
- University of Exeter, UK and the University of Western Australia have developed strategies which centrally involve students in forms of research and enquiry where students act as institutional 'change agents' (Kay *et al.* 2010; Sandover *et al.* 2012).

All of these conceptions of student research and inquiry and, to an extent, the particular features of the strategies, are in our view adaptable to the CBHE sector; though aspects of them may well reflect the missions and resources of 'research universities', in particular their research culture and resources.

Case studies 5.7 to 5.11 are, we would suggest, adaptable to a wide range of college departments and institutions. Case study 5.7, induction to research at Gloucestershire, brings us back to the focus of chapter three: the importance of inducting students in year one into inquiry. At one level this needs to be done by course teams and departments in ways that reflect the nature of research in particular discipline or professional areas. But whole institutional strategies also have particular values and opportunities:

- they are perhaps more likely to shape the informal out-of-class student discussions;
- they, in effect, make a strong statement about what is expected of students in *higher* education;
- they can more readily draw in the resources of local businesses and community groups, and perhaps, the linked resources of partner universities.

Note how in case study 5.7, while this is in effect an institution-wide approach, much of student activity reflects the concerns of particular course teams, and also note the strong involvement of library staff.

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[39] https://www.dur.ac.uk/learningandteaching.handbook/3/principles/
[40] http://cll.mcmaster.ca/resources/inquiry.html
[41] http://www.itl.usyd.edu.au/projects/ee/

Case study 5.7: Undergraduate research begins in induction at Gloucestershire, UK[42]

In 2007, over 650 students in the Faculty of Education, Humanities and Science undertook discipline-based inquiry projects during induction week. This involved them working in small groups to collect information from the library and in the field, analyse it, present it to tutors in novel ways and receive formative feedback. For example, the human geographers and the sociologists researched the experience of Gloucester residents of the 'Great Flood of 2007'. The biologists and the psychologists investigated primate behaviour at Bristol Zoo. Other faculties in the University developed their own versions of undergraduate research as part of induction. It also proved a significant staff development activity both for the many academic tutors involved in designing inquiry-led activities and for the library staff who changed their approach to library induction to support the specific student research projects.

Case study 5.8 reports on how, in 2013, Newcastle College inaugurated their first Annual Conference to celebrate the work of second and final-year students and to encourage their pre-HE students to transfer onto their HE courses. This illustrates one of the strategies in Table 5.1 – the importance of developing the abilities of students to communicate the results of their research – and reinforces the central message of chapter four, of providing a strong research capstone for all students that meet their career aspirations and the form of research in their discipline or professional area. While case study 5.7 shows how an institution (and/or department) can provide a strong opening exercise that pulls students into research, case study 5.8 shows how an institution can provide a strong 'summit' where students and others can celebrate what students have achieved through inquiry. This well illustrates the argument of chapter four, that celebrating and disseminating the outcomes of final-year projects is an important part of the research process and provides public recognition of the student as producer.

Case study 5.8: HE student research conference at Newcastle College, UK[43]

The vocational nature of HE provision at Newcastle College ensures that students produce final projects and dissertations which have the potential to inform or enhance industry practice. Discussions with students indicated that they often perceived their research to be of minimal interest to a wider audience and, in a few instances, failed to recognise the value of research skills for their future progression plans. Newcastle College therefore established a dedicated HE Student Conference, to showcase and celebrate undergraduate years two and three student research from across the institution. The event has been organised as a collaborative endeavour by staff from the HE Directorate and a student organising panel representing a range of disciplines.

The HE Student Conference in 2013 was held shortly before the Graduation Ceremonies. The event featured academic papers, performances and poster presentations. Particular highlights included the launch of the business student-led Seven Bridges Management Journal (see case study 4.10) and a presentation by two students who were recently awarded a £25,000 start-up loan to fund their theatre company. Potential students were invited to attend in order to enhance their understanding of the College's HE offer.

Such student research conferences are a prominent feature in many US institutions and the web site of the Council on Undergraduate Research[44] provides a wide range of examples to adapt to the particular needs of an institution. These are often held at a time of the academic year when potential students, parents and alumni are visiting the campus. This gives added significance to the event for the students presenting, but also plays a key part in interesting potential students and local and national employers and sponsors.

Clearly national cultures shape the form of some institutional initiatives, but they can be adapted to other cultures. A central feature of US HE is the emphasis on what Boyer (1996) called the 'scholarship of engagement'. That is, where the university, its faculty and students work *with* the local community, but in

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[42] Source: http://insight.glos.ac.uk/tli/resources/toolkit/wal/sustainable/Documents/Induction.pdf
[43] Sources: Jonathan Eaton jonathan.eaton@ncl-coll.ac.uk; http://www.ncl-coll.ac.uk/higher-education/research-and-scholarly-activity
[44] http://www.cur.org/resources/institutions/celebration_days/

ways that are clearly scholarly. For example, at Bates College in Lewiston Maine, the Harward Centre[45] seeks to build long term partnerships with local organisations that meet the needs of those organisations and also draw on and develop the scholarly and research interests of students and faculty. Thus, one project with a local museum had students using oral research methodologies to interview former local millworkers to help produce a travelling exhibit about Lewiston's mills and millworkers. Case study 5.9 is of a community college which has a strong culture of community engagement. Arguably such programmes can be a strong feature of the CBHE sector as many students are local and will have strong interests and contacts in their community.

Case study 5.9: Institutionally supported community-based research, Pennsylvania State Brandywine, US[46]

Brandywine is one of the twenty campuses of the Pennsylvania State University system. Its primary mission is providing entrance after two years to disciplinary four-year courses at other institutions, in particular the nearby Pennsylvania State. The institution is small, not well resourced, lacks equipment and does not have any graduate students who commonly play a supportive role teaching undergraduates in other institutions. Yet, over the years, student involvement in research and inquiry has been embedded in a wide range of year one and year two courses.

A particular feature of the formal curriculum is the inter-college minor in Civic and Community Engagement (in many US institutions, students have a central focus on one discipline – their major – but they may well take a significant but smaller number of courses in another discipline – their minor). Programme faculty, drawn from across the University, encourage, recognise, and systematise student participation in public service or problem-based fieldwork and research. The minor culminates with an approved capstone project. This may be a significant paper, or annotated portfolio, or other demonstration of substantial reflection upon and integration of the minor experience and the broader issue of application of academic theory and practice in the civic community.

One of the cultural characteristics of the US undergraduate research movement is to see student involvement in research being for selected students, particularly those with high grades. That is why in Table 5.1 we offered this strategy: while developing the research mindedness of all students, perhaps provide stronger research opportunities for selected students. Such might be considered applicable to the CBHE sector, perhaps particularly for those students in two-year colleges seeking to transfer to the university sector. This is illustrated in case study 5.10 of Valencia College, Florida.

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[45] http://www.bates.edu/harward/
[46] Sources: Guertin and Esparragoza (2009);
    http://www.brandywine.psu.edu/;
    http://www.engage.bw.psu.edu/;
    http://www.brandywine.psu.edu/Academics/Degrees/civcom_minor.htm;
    http://www.brandywine.psu.edu/Information/Community/outreach.htm

Case study 5.10: Engaging honors students in research at Valencia College, Orlando, US[47]

Valencia is a two-year public community college with a high number of students transferring to the linked University of Central Florida. It benefits from strong endowment support from local industries. In 2012 it launched the Research Track for Honors students (in the US system honors is for selected students with high grades). This track requires both a curricular and co-curricular (i.e. outside the formal curriculum) components to their degree. The plan includes a two-credit course introducing them to the process of research including tools and resources necessary for them to successfully analyze and use information leading to honors research. There is also a study plan for students to select honors courses (12-15 credits) designed to enhance their research plan.

The capstone is an honors project that is completed under the guidance of a faculty advisor. It involves a research project following specific formatting requirements of the discipline. Students present their research to a board of their Faculty Advisor, Honors Director and small group of peers. They are to be prepared to not only present, but respond to questions from the board much like one would expect in presenting a thesis or dissertation.

The co-curricular component is participation in presenting original research at Valencia or conferences, or participating in the editing and publication of an honors research journal. Opportunities to attend undergraduate research conferences are also provided. A student research community was also established to encourage research for all students, honors or not. It provides workshops related to research, guest speakers from a range of disciplines and an opportunity to work with like-minded students.

Case studies 5.11, about developing a research active curriculum at Sunderland, and 5.12, about student as producer at Lincoln, are in a way a 'capstone' for this chapter and indeed this publication, for they provide linked, but alternative visions and frameworks for embedding student inquiry and research across an institution. They could of course be adapted to the philosophy and practice of a department, or a course team. Indeed, both grew out of more 'local' initiatives and then obtained the approval and support of other departments and senior management. As they are from teaching-focused universities they are perhaps more immediately adaptable to the CBHE sector than some from research-intensive universities.

Case study 5.11: Research active curriculum at University of Sunderland, UK[48]

Since 2010 the University of Sunderland has been revising its institutional teaching and quality assurance processes to deliver a curriculum that is 'research active'. The undergraduate curriculum is being redesigned to promote progressive development of graduate research attributes fostered through increasing student engagement in enquiry and understanding of research in a structured way through all levels. Final-year programmes are being designed to ensure that students experience a suitable synoptic activity which helps them bring together their understanding of their discipline and professional area, and prepare them for their subsequent employment and civic engagement. Implementation of this broad framework is at faculty level. In the Business School the programmes are being redesigned to offer a common first-year comprising an 80-credit 'super module' in which students will work in multi-disciplinary teams to research and design a business start-up; a 20-credit 'Contemporary debates in … ' module, where experts from the various disciplines of business and management will lead debates on topical and controversial issues in their subject area to raise student awareness of the uncertainty, subjectivity and the dynamic nature of knowledge. The research active curriculum is now also being developed in the community colleges linked to the University.

[47] Sources: correspondence with Diana Ciesko (dciesko@valenciacollege.edu);
http://valenciacollege.edu/; http://en.wikipedia.org/wiki/Valencia_College;
http://valenciacollege.edu/learningcouncil/documents/CLCDraftMinutesPacket11.4.10.pdf
[48] Sources: https://docushare.sunderland.ac.uk/docushare/dsweb/Get/Document-5568/AQH-A10+Research+Active+Curriculum.pdf;
http://www.sunderland.ac.uk/research/;
Stevenson and O'Keefe (2011)

Case study 5.12: Student as producer is the organising principle for learning across the University at Lincoln, UK[49]

The focus of 'student as producer' is the undergraduate student, working in collaboration with other students and academics in real research projects, or projects which replicate the process of research in their discipline. Undergraduate students work alongside staff in the design and delivery of their teaching and learning programmes, and in the production of work of academic content and value. Students are supported by student services and professional staff so they can take greater responsibility, not only for their own teaching and learning, but for the way in which they manage the experience of being a student at the University of Lincoln. Staff and students can apply for development funds to the Undergraduate Research Opportunities Scheme (UROS) and the Fund for Educational Development (FED). Student as Producer is making research-engaged teaching an institutional priority. As courses come up for validation, staff and students are asked to consider how they are implementing this framework.

Conclusion

This chapter has largely adopted the framework we set out in chapter two, to focus on the curriculum. With chapters three to five we have demonstrated how in the CBHE sector, students' understanding of knowledge complexity through involvement in research and inquiry can be achieved through structured interventions from individual course tutors to institutional levels. This chapter has also gone back to an issue briefly introduced in chapter two, the extent to which institutions need to develop a research presence to support this agenda. This issue is developed in the next two chapters, but the overall focus of these chapters is on how to support staff to teach in ways that develop student research and inquiry.

[49] Sources: Neary with Winn (2009);
Neary (2010, 2011);
http://studentasproducer.lincoln.ac.uk/;
http://www.researchengaged.blogs.lincoln.ac.uk/

6. Supporting staff to engage students in research and inquiry

> In the case of bachelor's and master's degrees, the presumption that subject knowledge is to be acquired and extended leads to an expectation that teaching will be informed, if not led, by the research/scholarship interests of staff working in the field… Such activity does not necessarily mean doing original research but it does mean doing more than simply professional development. (QAA 2013, p. 5).

> Scholarly activity, rather than research, is undertaken and is predicated on enhancing the classroom experience as opposed to creating new knowledge. Staff teaching HE in FE are proud of their professional status and consider that their success in the classroom owes much to this training. However, several of our free responses suggest that the lack of time for anything other than professional updating is clearly still a topic of some debate. (King and Widdowson 2012, p. 13).
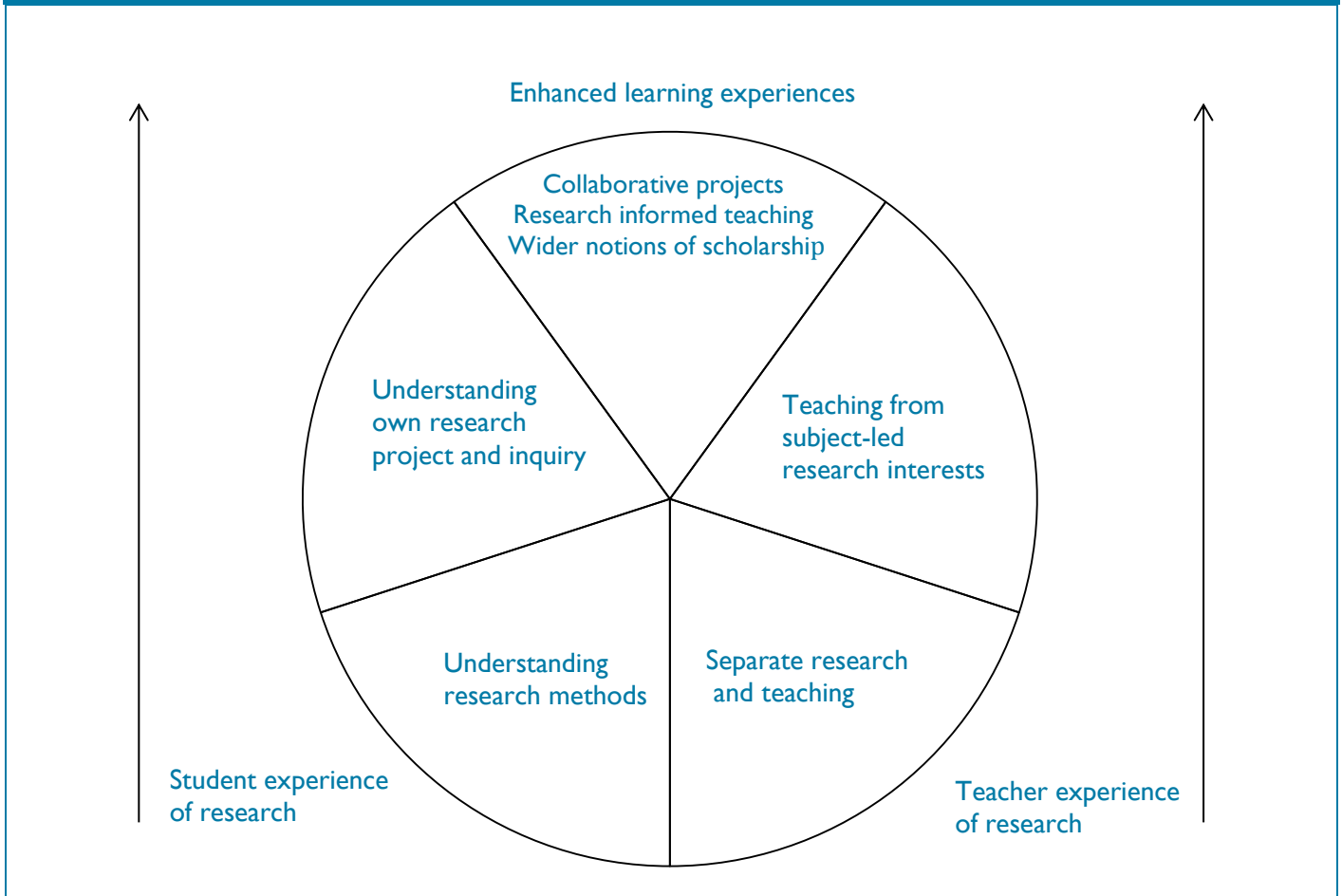
We stated in the preface that: "*All* undergraduate students in *all* HEIs should experience learning through, and about, research and inquiry" (Healey and Jenkins 2009, p. 2). And furthermore, that we should: "Encourage and enable students to learn in ways that parallel or reflect the ways academic staff themselves approach research and learn in their disciplines or professional area" (Healey and Jenkins 2009, p. 28). On the first point we have showcased how CBHE teachers have been rising to this challenge by setting assignment tasks which progressively encourage students to learn *about* research and inquiry, and then increasingly learn *through* their own inquiries and research. On the second point we have demonstrated the need to re-examine the definition and forms of scholarship which are appropriate in a CBHE context. We hope that this has also resonated with those who believe that a more rounded notion of scholarship may be beneficial to all HE regardless of context. It may be useful to read these in the wider context that Gibbs (2009) sets out as a guide to transforming institutional learning cultures.

Charting the extent of scholarly engagements in CBHE

This chapter draws together these arguments and initially invites CBHE teachers and course teams to look at ways in which they might enhance their own practice in the light of these arguments. In the following chapter we turn to how departments, institutions and national systems can support CBHE "staff to teach emphasising the construction of knowledge by students" (Hattie and Marsh 1996, pp. 533–4).

A good starting point is to consider some of the implications of Figure 6.1. The bottom segments of the figure depicts two stereotypes of how undergraduates and academics might experience research: for students by simply learning about the research methods which are available within their discipline area; and for staff by a crude separation of their time, split between the pursuit of their research interests and their teaching commitments, where the two have little or no connection. For both students and teachers, their research and teaching engagements can become more actively connected pedagogically (see Gray *et al*. 2013 for a discussion in the context of CBHE). And in the top segments of the figure we begin to see how the activities can also become more multi-faceted and linked.

Figure 6.1: Typology of possible staff and student experiences of research

Enhanced learning experiences

Collaborative projects
Research informed teaching
Wider notions of scholarship

Understanding own research project and inquiry

Teaching from subject-led research interests

Understanding research methods

Separate research and teaching

Student experience of research

Teacher experience of research

The top part of the figure is also intended to chime with some of the important threads running throughout the previous chapters, particularly chapter one, in enacting the scholarly essence of HE (von Humboldt 1810); "supporting students to move towards *contextual knowing* (where) students believe that knowledge is constructed in a context based on judgement of evidence" (Baxter Magolda 1992, p. 75); in making the curriculum the central axis of HE (Newman 1854); in conceiving students as producers rather than just consumers of knowledge (Neary and Winn 2009); and inviting a more rounded consideration of scholarship (Boyer1990) (Figure 6.2).

Figure 6.2: Boyer's four scholarships[50]

Scholarship of integration

Scholarship of application

Well rounded scholar

Scholarship of teaching
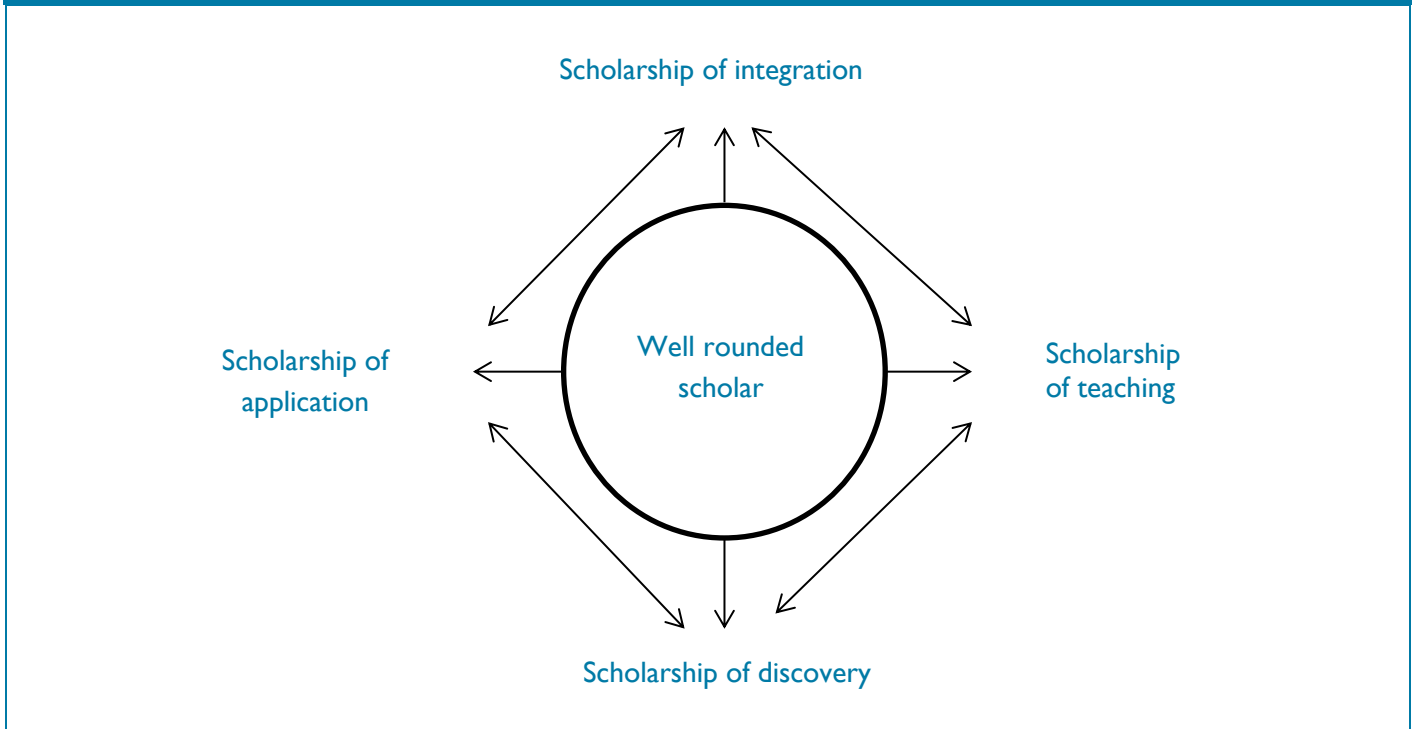
Scholarship of discovery

Table 6.1 takes some of the terms used by the QAA in the UK to establish the key differences between the various academic levels (i.e. first year and second year for foundation degree, and third year for full degree), the nature of the expected student learning experience and, below that, the expectations concerning research and scholarly activity. Examining this alongside Table 3.1 (from chapter three) helps make explicit how increasingly higher forms of learning might be experienced by students through staff encouraging them to engage in (level) appropriate forms of self-inquiry and research-led activities, and how these might also be useful to staff in evidencing their own scholarly activity.

In chapter one we highlighted how the more explicitly corporate nature of many CBHE institutions might affect their approach to research and scholarship, notwithstanding the fact that most teachers in these contexts will primarily be employed to teach rather than undertake research (Feather 2010; Gale *et al.* 2011; Mason *et al.* 2010). We do not wish to downplay some of the constraints that these conditions of service might place on CBHE teachers in developing a scholarly profile, but simply to emphasise that, in widening the general understanding of what it means to be a scholar, these constraints can be reconfigured as opportunities. Furthermore, although the strategic aims of many colleges might also require them to be seen to be overtly serving their immediate 'clients' (students and employers) this need not compromise scholarly activity. Indeed, if the notion of scholarship is reconfigured, all these aims can become complementary. Some of the opportunities and threats presented in this context are depicted in the Figure 6.3.

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[50] Source: adapted from Boyer (1990)

Figure 6.3: Possible effects of different allegiances on scholarly activity
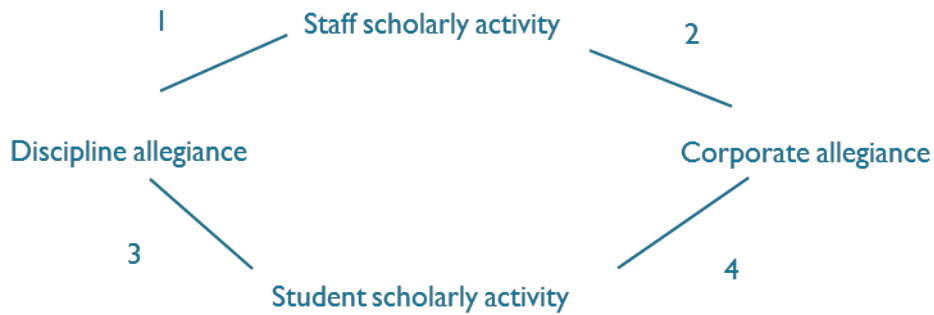
1. Traditional university – where allegiance to discipline and higher-level external recognised research can skew the nature of scholarly activity
2. Traditional college – where allegiance to achievement of corporate goals can skew the nature of scholarly activity
3. Effect on students – tendency to be taught with a predominately subject-based research-led teaching focus
4. Effect on students – tendency to be taught with a predominately pedagogy research-informed teaching focus

Table 6.1: Differences between evidence required for foundation degree awarding powers and teaching degree awarding power applications in the UK[51]		
	For FDAP (first- and second-year HE)	**For TDAP (third-year and Masters)**
With reference to qualification level descriptors and nature of the expected student learning experience	• A sound understanding of the principles in their field of study; • learned to apply those principles more widely; • Learned to evaluate the appropriateness of different approaches to solving problems; • Their studies may well have had a vocational orientation… enabling them to perform effectively in their chosen field; • Qualities necessary for employment in situations requiring the exercise of personal responsibility and decision-making	• Understanding of a complex body of knowledge, some of it at the current boundaries of an academic discipline; • Analytical techniques and problem-solving skills that can be applied in many types of employment; • Evaluate evidence, arguments and assumptions, to reach sound judgments and to communicate them effectively; • The qualities needed for employment in situations requiring the exercise of personal responsibility, and decision-making in complex and unpredictable circumstances.
With reference to the statement that "Scholarship and research lie at the heart of higher education"	• Scholarship in support of the foundation degree is likely to involve an employer-driven focus and a tightly structured approach to learning, reflecting the vocational orientation of the qualification; • Keeping up with employer trends is an important form of professional development; • Staff to have the necessary knowledge and understanding of current scholarly developments in their discipline area; • To integrate academic and work-based learning and to ensure an appropriate balance between intellectual and practical skills.	• Bachelors and taught Masters degrees may also have a vocational orientation… but they are also likely to have a greater subject focus and academic orientation, reflected in more open-ended enquiry and the development of students as independent learners; • Teaching will be informed, if not led, by the research/scholarship interests of staff working in the field; • The majority of staff are expected to be actively engaged in scholarly activity (leading to scholarly output, for example) that informs their teaching and contributes to the development and enhancement of students' understanding of their subject; • Evidence of productive scholarly activity by its staff, demonstrating active involvement in the generation or reformulation of academic knowledge and the dissemination of understanding or ideas to both internal and external audiences.
Overall, with regard to research and scholarly activity	• A close and professional understanding of current developments in research and scholarship in their subjects; • Relevant knowledge and understanding of current research and advanced scholarship in their discipline area and that such knowledge and understanding directly inform and enhance their teaching.	• Responsibility for ensuring that staff maintain a close and professional understanding of current developments in research and scholarship in their subjects and that structured opportunities for them to do so are widely taken up; • Relevant knowledge and understanding of current research and advanced scholarship in their discipline area and that such knowledge and understanding directly inform and enhance their teaching.

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[51] *Source:* adapted from QAA (2013); with thanks to Jonathan Simmons

Here, two stereotypes are presented to demonstrate how an original research agenda in a traditional university might skew the wider notions of scholarship we have been articulating and, specifically, skew it away from a meaningful engagement with scholarship for students. But, equally, in a college context there might also be a different skewing; this time towards research being understood predominantly as the evaluation of effective practice. Whereas both stereotypes might be equally undesirable, it is also possible to see possibilities for CBHE teachers in deliberately not pursuing an original research agenda, but instead looking at ways in which, by evaluating their practice (thereby serving immediate client needs), they can also generate rich scholarly activities both for students and staff. Particularly, they can generate activities which invite staff to use their professional knowledge to engage students in work-related projects; staff and students to carry out enquiries that can benefit the local community; and to become involved in the evaluation of pedagogic effectiveness.

These forms of scholarly engagement far from compromising corporate aims should be able to enhance them, and they also chime with the warnings about academic drift referred to in chapter one and the desire to place more emphasis in the curriculum on applied research and knowledge transfer through consultancy (Durning and Jenkins 2005; Gibbons *et al.* 1994). More specifically in terms of our main focus, they may also help to recognise "that engagement in these activities by students is an appropriate way to develop research skills in the professions" (Healey and Jenkins 2009, p. 51).

We hope it is clear that the ideas presented throughout the previous chapters might help not only to reorient some of the ways in which scholarship might be understood in a CBHE context, but also how some of these ideas might be presented in the UK and elsewhere as evidence in making an application to achieve degree awarding powers or professional recognition of degree level work.

Scholarly activity and curriculum design

Individual assignments requiring students to work on their own projects and inquiries can significantly enhance their engagement with their studies and enhance their learning. But in order to maximise this potential we believe it is important that these assignments are not experienced as either isolated from, or as a bolt-on to, a curriculum which does not fully prepare students to realise that potential. To this end the previous chapter looked at student scholarly activity from an institutional and curriculum perspective. In this section we highlight some of the important continuing professional development messages that might be drawn from this.

Alongside the move towards more flexible forms of learning and a growth in student expectations, a significant trend throughout HE over the last 30 years has been a movement away from an emphasis on teachers' teaching, towards learners' learning, and allied to that a movement away from the assessment *of* learning towards assessment *for* learning (Barr and Tagg 1995; Knight 1995). One of the ways in which these ideas have become embedded at institutional level is to require course and programme teams to articulate explicitly a learning, teaching and assessment strategy, which highlights to students what will be the nature of their learning experience. We believe these strategies could be further enhanced by a course design review which prompts teams and departments to consider how the *whole* curriculum supports students in developing their research and inquiry capabilities. This would include a consideration of ways in which other courses at the same academic level could be mutually supportive, as well as how each year's courses can progressively support the next year of study. In much the same way that many institutions are now looking at how learning outcomes and assignment tasks can be meshed and staged more effectively, we suggest the same for student scholarly activity.

Course or programme validation and accreditation events often demand that teaching teams demonstrate that the staff or faculty have the appropriate qualifications to teach on the relevant courses. An obvious way of ensuring that CBHE teachers are suitably qualified is to ensure that they are being provided with opportunities to register for higher qualifications themselves. But it is equally important to monitor the opportunities that these qualifications are providing for staff to develop their own research and scholarship skills (see Gray *et al.* 2013 for a discussion of the significance of this in a CBHE context); also, and crucially, the extent to which a teaching team overall would be able to support the development

of their prospective students' research and scholarship skills. In this context a simple review of the spread of Boyer's (1990) fours scholarships among a teaching team might be a useful course design exercise (see later in this chapter).

An important implication of what we have been promoting in the previous chapters is to design courses and programmes by engineering the space to develop the necessary scholarly skills we have been advocating. Not only does this require a process – as opposed to a strictly content – approach to developing appropriate learning outcomes, it also requires a certain degree of confidence in not feeling the need to fill up the curriculum with overtly teacher-led activities (Barnett and Coate 2005). Crucially, it may require teams to consider the whole question of learning space to ensure that the architecture of an institution does not dictate a didactic approach to pedagogy (Neary and Thody 2009; Temple 2007). Furthermore, it may demand a much more profound negotiated approach to learning activities and curriculum design in order to prepare students adequately for that "Fluidity, fuzziness, instability, fragility, unpredictability, indeterminacy, turbulence, changeability, [and] contestability" (Barnett and Coate 2005, p. 53) referred to in the quotations which prefaced chapter two.

This context also brings to the fore the role of students not just as partners in learning or (co-) producers of knowledge when it comes to the product of their learning, but also as agents in the design of the curriculum, and in the production of appropriate session and/or course learning outcomes. This is also an important echo of von Humboldt's (1810) exhortation to see the seminar rather than the lecture as the axis for HE, emphasising that higher knowledge involves what is not known, and that higher learning is more likely to take place when it is non-prescriptive.

Students as change agents

Most of the examples we have used in this publication are about engaging students in research and inquiry into their discipline or professional area. A further way, which is attracting much interest currently across HE, is engaging students in research and inquiry into the teaching and learning they experience and the design of courses and learning resources. This is an important way of engaging 'students as partners' (HEA 2013) and is sometimes referred to as 'students as change agents'. Exeter University's use of this term has been mentioned earlier in this publication (Kay *et al.* 2010). The argument here is that we should go beyond the student voice and engage students as co-researchers and co-designers of teaching and learning in HE. A specific example from the CBHE sector is the Community College of Philadelphia, which ran a year-long pilot program on *the Students as Learners and Teachers* programme developed at Bryn Mawr College, which "pairs undergraduate students with faculty members who wish to analyze and, perhaps, revise their pedagogical approaches" (Cook-Sather *et al.* 2014). Many more examples of students as change agents are available in the set of case studies collected by one of the authors of this publication (Healey 2014b).

Some self-assessment review tools

We offer the following suggestions as *aide memoires* or review tools for individual CBHE teachers when considering the implications of some of the arguments we have presented.

1. A scholarly activity continuum

In the quotation which prefaced this chapter the UK QAA invites colleges who are applying for degree awarding powers to demonstrate evidence that their scholarly activity, while perhaps not constituting original research, goes beyond professional development. This presents us with the following simple continuum:

Original research ⟷ **Professional development**

If we accept that at either end of the continuum we will have activities which are divorced from the majority of ideas we have presented throughout the previous chapters; the continuum thereby offers us a

simple self-assessment review tool to consider: (a) what lies between; (b) where it lies between; and (c) at what point an activity might start to drift towards the polar extremes. For example, attendance at a curriculum validation-training event might need to be considered solely as professional development, unless and until it involves engagement with the types of scholarly activities we have been discussing above. Similarly, and at the other extreme, the publication of a subject-based article in a peer-reviewed journal may need to be considered as only original research unless and until its implications for the curriculum are considered.

2. Boyer's four scholarships

The previous depiction of Boyer's work might also be usefully adapted to become a self-assessment review tool (Table 6.2). It is clear to us that most teachers working in CBHE are regularly involved in scholarly activities, but when it comes to recording these activities there is a tendency still to see engagement with activities leading towards forms of original research as being the most worthy, or what one should be ultimately aspiring to. With this in mind it might be useful to: list all the activities that one regularly engages in; in which Boyer category they might fall; how well-rounded these activities are; and, importantly, how they might contribute to the engagement of students in their scholarly activity, or in linked ways. In the UK the HEA has a 'students as partners' thematic area, which might prompt further exploration of how these dimensions might be engaged with, and enhanced, as forms of scholarly activity.

Table 6.2: Examples of ways in which learners may engage with Boyer's four scholarships	
Types of scholarship	Illustrative example of ways of engaging learners
Scholarship of discovery	Engage in inquiry-based learning; undergraduate research and consultancy projects; co-research projects with staff.
Scholarship of integration	Engage in integrating material from different sources, including across disciplines; integrate life and work experience with academic studies; reflect on implications of studies for personal development.
Scholarship of application/engagement	Engage with local, national, and international community service projects; volunteering; knowledge exchange projects; apply knowledge and skills in work-based placements.
Scholarship of teaching and learning	Engage in mentoring; peer support and assessment; collaborative group work; learners as explicit partners in educational development and inquiry.

3. Peer review

Most colleges and universities around the world have systems or processes for peer review. In universities this often includes a wide range of academic practice and not simply the observation of teaching. Many colleges however may limit peer review solely to the observation of teaching. In the UK it is also not uncommon for these observations of teaching in CBHE to use a graded proforma following the Office for Standards in Education, Children's Services and Skills (Ofsted) guidelines, even though Ofsted only inspects school and FE (and the initial teacher education programmes validated by universities which are aimed at those sectors). With this in mind a useful professional development exercise might be to compare the ways in which a college and a local university conducts peer review (Turner *et al.* 2009), and then consider the ways in which any proformas or templates might be usefully

adjusted in the light of that exercise. Recommendations for the development of good practice in these areas can also be found in the work of, for example, Gosling and O'Connor (2009), Gray (2010), and Nasta (2011).

One important consideration in this exercise might be to consider whether the observation of teaching could be widened to include other forms of relevant academic or scholarly practice, and include those which engage students in the process. Furthermore, some of the prompt questions often used in templates might invite more overt commentary from peers on the extent to which students have been engaged in the kinds of activities we have been promoting throughout the previous chapters. For example: 'What activities were used to promote the scholarly engagement of students?' 'In what ways were the research skills of students being actively promoted?' 'What opportunities were being provided for students and staff to work together in scholarly ways?' and, in general, 'What activities were students being invited to engage in which would promote forms of autonomous or independent learning?'

4. Initial teacher education and continuing professional development

Finally, there may be some merit in looking at the ways in which CBHE teachers are inducted into their roles, and the forms of continuing professional development (CPD) they routinely engage with. In many countries a Masters qualification is considered the appropriate perquisite qualification for being able to teach in a college-based setting. But, if there is evidence that the vast majority of Masters qualifications have become a stepping stone towards a PhD qualification (Fuller 2013), and/or that a Masters curriculum provided little or no opportunity to consider the wider dissemination of the subject being studied, we may need to take seriously the need for other qualifications and forms of professional development to supplement a Masters qualification.

In the UK there is also another important dimension to this debate, for most CBHE teachers are employed by FECs, and for this reason are expected to engage with preparatory qualifications and related CPD which will prepare them to undertake FE (rather than HE) teaching. This begs the question of whether preparing to teach in FE is also an adequate training for teaching in HE. Addressing this issue might itself become a useful CPD exercise, leading to a further consideration of how any gaps might be addressed when that question is answered negatively.

Two published attempts have been made to map the expectations of the two leading professional standards frameworks in the UK (Lea 2011; Price 2011). For HE, the relevant framework is the UK Professional Standards Framework (UKPSF – see case study 7.14), and for FE, the relevant framework is the Lifelong Learning UK (LLUK) standards (currently under review following the disbandment of the LLUK). It would be a useful CPD exercise for UK based CBHE teachers to consider the ways in which their engagement with the LLUK standards might need to be enhanced by a further engagement with the UKPSF. They could then consider making an application for the appropriate category of Fellowship of the HEA, either directly via the HEA's experience route or via an accredited programme/CPD framework, if their college has one in place.

Colleges with a significant HE offer may well wish to consider subscribing to the HEA and developing their own CPD Schemes for accreditation (perhaps in collaboration with other subscribing colleges) which will enable them to recognise their own staff at the appropriate categories.

One final simple self-assessment exercise might be to consider the ways in which a CBHE context would enable one to engage with the principles outlined in Lea (2012) and/or the ideas in Stevenson and O'Keefe (2011).

Conclusion

In this chapter we have looked at some of the ways that individuals and teams may begin to enact or enhance their scholarly activities so that they develop their students' abilities to become more scholarly themselves. In the following linked chapter we focus more on how this might become more embedded at institutional and national level in CBHE. This is illustrated by case studies from around the world demonstrating some of the ways in which these more strategic approaches have been adopted successfully.

7. Departmental, institutional and national strategies to increase the skills of staff to teach emphasising the construction of knowledge by students

At best teaching and research are very loosely coupled … the fundamental issue is what we wish the relationship to be, and we need to devise policies to enhance this wish … (and that to better ensure effective teaching research links) **we need to increase the skills of staff to teach emphasising the construction of knowledge by students.** (Hattie and Marsh 1996, pp. 529, 533–4, emphasis added).

The Quality Code sets out the following Expectation about learning and teaching … Higher education providers, working with their staff, students and other stakeholders, articulate and systematically review and enhance the provision of learning opportunities and teaching practices, so that every student is enabled to develop as an independent learner, study their chosen subject(s) in depth and enhance their capacity for analytical, critical and creative thinking. (QAA 2012b, p. 6).

The central focus of this publication has been on the curriculum and seeing structured interventions from year one to the capstone/final year as the key way to ensure that (CBHE) students in HE develop a strong awareness of knowledge complexity. But for such interventions to succeed those teaching these courses need support to teach in ways that develop students' abilities to research and inquire. Chapter six set out conceptual frameworks to support staff to develop a scholarly approach to support student development. While there is much that individual staff and course teams can do, these local initiatives will be far more effective when supported by effective departmental, institutional and national frameworks and initiatives. Here we outline selected departmental and institutional strategies and then national strategies that focus on supporting staff to *teach* in ways that support student research and inquiry illustrated through selected case studies. We well realise that aspects of this chapter may seem beyond what is immediately possible in some institutional and national contexts. However, we hope that you will see that some aspects of these strategies are part of the context in which you work and others offer you strategies to work towards.

Relatedly, most of the case studies we have found that exemplify these strategies are drawn from the university sector, as we have found few from the international college sector that demonstrate such structured large-scale interventions. Perhaps that reflects the relative neglect of the CBHE sector by national systems; or perhaps it reflects the current state of developments in this sector internationally. Nevertheless, we hope that the strategies and case studies that we present here offer the CBHE sector structured ways to enhance "the skills of staff to teach emphasising the construction of knowledge by students" (Hattie and Marsh 1996, p. 534). We would argue that this section is particularly relevant throughout the whole of HE – for in all sectors the prevailing conceptual and policy agendas have focused on developing the research capacities of staff rather than focusing on how staff and students can teach and learn through student research and inquiry. But we think this approach is particularly suited to the college sector and the central focus of staff on 'quality' teaching. In the UK, and perhaps elsewhere, given the heterogeneous nature of the relationships between HEIs and CBHE providers, ranging from validation to full franchise arrangements, one broad way forward is for college and university leaders to work together to support college staff teaching HE in ways that promote student inquiry. The strategies below provide conceptual frameworks and case studies to adapt to your particular contexts.

Departmental and institutional strategies to increase the skills of staff to teach emphasising the construction of knowledge by students

We now focus on institutional strategies but recognise that in certain contexts in the CBHE sector it may be more applicable to refer to departmental strategies because in many colleges the HE section is relatively small and is often based in a department. Table 7.1 offers a framework that organises the discussion of selected initiatives.

1. Celebrate and share what is already in place
2. Create opportunities for staff and students to experiment
3. Review and enhance what is in place
4. Ensure initial training in teaching and subsequent CPD includes an emphasis on supporting student inquiry
5. Require and support all programmes to be redesigned
6. Reshape the timetable structure
7. Create alternative learning spaces

1. Celebrate and share what is already in place

Drawing on their experience of running workshops promoting research and scholarship in CBHE in the UK, Turner and Carpenter (2012, p. 4) noted that "There was a sense that participants' research activities were rarely discussed or shared within their own institutions, let alone more widely through conferences and publications". A similar statement might also be made about the opportunities to share interesting practices and strategies for embedding research-based curricula. However, our experience is that there is a lot of interesting practices already occurring in the CBHE sector, as illustrated by the more than 50 case studies we have on the project website. However, many staff do not use terms such as 'research-based curricula', even though they have developed interesting practices which would fit under this heading, and there are few opportunities to share these practices. If departmental and institutional leaders wish to promote the kind of activities discussed in this publication a good starting point is to celebrate and share interesting practices across institutions, departments and course teams. One effective way that the University of Gloucestershire has used to do this is to run a 'swap shop' (case study 7.1).

Case study 7.1: Academic staff celebrate student engagement in inquiry and research through a 'swap shop' at the University of Gloucestershire, UK[52]

A key strategy for the Centre of Active Learning, a HEFCE funded Centre of Teaching Excellence at the University of Gloucestershire (2005-10), was to celebrate ways in which academic staff already engaged their students in inquiry and research. One way in which this was done was to run a 'swap shop' in each faculty and some departments. Academic staff were invited to come to a workshop with an interesting practice they would like to 'swap'. After an introduction contextualising the nature of the practices to be exchanged colleagues sat at tables with two to three other colleagues. They each had five minutes to outline their practice and five minutes to answer questions about it. Colleagues then went to another table and repeated the process. This was followed by a plenary discussing key ideas learnt and how the interesting practices could be publicised further.

2. Create opportunities for staff and students to experiment

One way to move practice forward is to create special events and structures which enable and in some cases require staff and student to experiment with teaching approaches that emphasise students constructing knowledge. This could be a limited experimental activity, such as case study 7.2 from Oxford Polytechnic (now Oxford Brookes University), then a clearly teaching-focused institution. Case

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[52] Sources: correspondence with Mick Healey (mhealey@glos.ac.uk);
  Healey and Roberts (2004);
  http://www.insight.glos.ac.uk/tli/activities/activelearning/Documents/CeAL%20Self-evaluation%20Document.pdf

study 5.7, on engaging students in inquiry in the induction week at the University of Gloucestershire, may also be seen as an example of such a strategy.

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Case Study 7.2: Non-traditional teaching week at Oxford Polytechnic UK[53]

From 1986-1989 Oxford Polytechnic designated a week in term two (of a three term year) as 'non-traditional' teaching week. Staff were reassured that they should teach the same *content* as normal, but should not lecture or give the traditional teacher-led seminar or laboratory session. They were urged to use methods *where the emphasis is on student activity and involvement*. The week was organised with close involvement of the Student Union who led on certain key events including a completion between staff and student volunteers to give the most boring lecture. The week inspired IT Term in 1996, a term long period of innovation and public events to stimulate the use of information technology in courses.

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Such experimental periods could become 'permanent features' of the institutional structure. Massachusetts Institute of Technology (MIT), where the US form of 'undergraduate research' was first initiated, has a period each year between the two normal semesters called *The Independent Activities Period* (IAP) lasting about three weeks.

During IAP, students are encouraged to set their own educational agendas, pursue independent projects, meet with faculty, or pursue many other options not possible during the semester. Faculty are free to introduce innovative educational experiments as IAP activities (MIT 2013).

3. Review and enhance what is in place

Most institutions have policies that require programmes of study to be periodically reviewed and enhanced. Making supporting student inquiry a feature of such reviews can ensure that programmes see that as a priority. Institutions can also run structured events in advance of such reviews to support programmes in enhancing their practice, for example, by publicising particular features of some programmes from within the institution which are seen as 'good' practice and by publicising other interesting practices from elsewhere in the college and university sectors. The policy to embed research-led education across all degree programmes at Durham University is a transferable one (case study 7.3).

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Case study 7.3: Research-led education programme requirements at Durham University, UK[54]

In March 2011 Senate (the governing body of the University) required research-led education – understood "as in its broadest sense encompassing all four types of research-led education" [see Figure 2.1] – to be embedded within the curriculum of all programmes of study in a three-year implementation plan. Other required curricula principles are employability and skills, and internationalisation. Specific requirements include:

"Research-led education will be… a coherent, progressive and explicit strand at all stages of a programme. The University will expect that this begins at Level 1 of undergraduate programmes (and Level 0 for those programmes incorporating a foundation year)… All degree programmes will include a major research project, dissertation or equivalent … This major… will provide a 'capstone' to their Durham education that allows students to demonstrate their ability as independent learners and researchers."

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[53] Source: Jenkins (1999);
   Pepper and Jenkins (1988)
[54] Sources: https://www.dur.ac.uk/learningandteaching.handbook/4/4/5/;
   http://www.dur.ac.uk/learningandteaching.handbook/10/10.2/;
   https://www.dur.ac.uk/learningandteaching.handbook/3/principles/

4. Ensure initial training in teaching and subsequent CPD includes an emphasis on supporting student inquiry

In chapter six we raised the question of how in the CBHE sector teachers are inducted into their roles, and the forms of continuing professional development (CPD) that are appropriate to teaching in *higher* education. Internationally, in part prompted by moves to a mass HE system, there has been a range of national initiatives (see next section) to encourage or require initial professional training for those teaching in *higher* education. The forms these take reflect both national and institutional strategies. We argue that such courses should have a strong emphasis on supporting staff to teach emphasising the construction of knowledge by students. Jenkins and Healey (2012) provide a guide to those taking these courses on how to link teaching and research. Case studies 7.4, from Plymouth University, and 7.5, from Valencia College, offer two ways of achieving this; that from Plymouth reflects the national UK requirements detailed later in case study 7.14; that from Valencia is very much a local college initiative reflecting US HE culture.

Case study 7.4: 'Teaching Research' course at University of Plymouth, UK[55]

Plymouth University was one of the first in the UK to consider the links between teaching and research in its post-graduate certificate programme for lecturers. A 20-credit Masters level course on 'Teaching Research' was developed which provided the opportunity for both new academics and established members of staff to examine the links between research in their own discipline and their teaching. However, as an optional course, it was felt that this did not go far enough in terms of ensuring that all participants could explain the principles and critically appreciate the practices of teaching research. Therefore, a recent change has me ant that the key elements of 'Teaching Research' form part of the core course and a new optional course on 'Research Management' is available for those who wish to pursue the issue (or related topics) in greater depth. These courses are open to staff in partner colleges.

Case study 7.5: Faculty development program at Valencia College, Orlando, US[56]

Valencia is a two-year public community college with a selective undergraduate research program (case study 5.8). A teaching development program is open to all faculty. To complete the program successfully, the faculty member must complete a minimum of eight hours in two foundational courses, six hours in Honours pedagogy courses, and six hours in optional learning opportunities. These courses include many that are focused on helping faculty to support student research and inquiry. Those taking this course are financially supported to attend selected disciplinary and pedagogic conferences.

Appraisal of teaching and teachers is a feature of many institutions. However, we recognise that it can be a top-down process and in certain contexts, perhaps particularly in the college sector, may actually deter staff from engaging students in inquiry. Thus a research study on the process of appraisal of an English university faculty, whose main provision is through franchise arrangements with partner colleges of FE, observed that the appraisal process in these colleges used the Ofsted methodology for FE teaching (for the latest version, see Ofsted 2013):

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[55] Sources: correspondence with Debby Cotton (D.Cotton@plymouth.ac.uk);
http://www1.plymouth.ac.uk/ouruniversity/teachlearn/teachingqualificationsHEAaccreditation/Pages/PGCAP.aspx
[56] Sources: correspondence with Diana Ciesko (dciesko@valenciacollege.edu);
http://valenciacollege.edu/faculty/development/;
http://valenciacollege.edu/faculty/development/programs/SeneffCert.cfm

> One of the most persistent irritants for staff teaching HE in FE colleges has been the nature of the Ofsted methodology and its lack of relevance (as expressed by staff) to HE. Much of the problem can be seen in the prescriptive and formulaic nature of Ofsted criteria which present a 'recipe' for the perfect lesson – a recipe which many staff feel is at odds with their practice when engaged in HE teaching. In some instances staff have been graded as a 'four' (unsatisfactory) by a non-subject specialist, when engaged in activity that has been noted as 'good practice' by the external examiner, or university subject liaison. (Gray 2010, p. 2)

Ideally appraisal of teaching and teachers should support staff to teach in ways that promote student inquiry. Case study 7.6 is an example from the college sector of such a supportive framework.

Case study 7.6: Faculty performance indicators supporting student inquiry at Valencia College, Orlando, US[57]

Institutional requirements for effective teaching include the following list of evidence of learning that the faculty member will:

1. employ strategies that guide students to become more active learners (e.g. reference interview, counseling inquiry, engaging lectures, discussion, experiential learning, scenarios, role-play, case study, problem-based learning, inquiry-based learning, etc.);

2. encourage students to challenge ideas and sources;

3. use co-operative/collaborative learning strategies;

4. integrate concrete, real-life situations into learning strategies (e.g. in counseling, library or classroom settings);

5. invite student input on their educational experience (e.g. choice among assignment topics, learning activities, etc.)

6. employ methods that develop student understanding of discipline's thinking, practice and procedures (e.g. through guided learning opportunities the student will apply the use of the discipline's 'ways of knowing');

7. employ methods that develop student academic literacy in the discipline or field (e.g. reading, writing, numeracy, technology skills, etc.);

8. employ methods that motivate students to learn.

Relatedly, the institutional appraisal and observation framework developed by Sheffield Hallam since 2004 offers a well 'tested' structure that could be adapted by other institutions, but with perhaps a stronger focus on supporting student inquiry (Purvis *et al.* 2009; Sheffield Business School 2011).

The above interventions are ones which we think can be selectively incorporated in many departments and institutions as 'permanent' structures and policies. By contrast, the following strategies are clearly for those occasional periods when an institution goes through significant large-scale change. Institutional and departmental leaders may consider implementing these strategies at such times.

5. Require and support all programmes to be redesigned to support student inquiry

Case study 7.7 was initially shaped by a major institutional change from a three-term structure to two semesters.

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[57] Source: correspondence with Diana Ciesko (dciesko@valenciacollege.edu);
based on http://valenciacollege.edu/faculty/development/programs/tla/Candidate/documents/EssentialCompetenciesCurrentrevised9-11.pdf

6. Reshape the timetable structure

Institutions world-wide are reviewing the structure of their curriculum timetables, shaped by the development of various online learning initiatives and moving away from the once dominant one hour teaching slot. Arguably, such is particularly important to the CBHE sector where many students are mature, part-time and with family commitments. So a move to, for example, a more extended two to four hour teaching block may be seen as a strategic priority if it has not already been undertaken. Such changes can also significantly support student inquiry, for such activities generally require more extended times than the one-hour block. Fieldwork disciplines, such as Biosciences, Geography, and Geology are often enabled by institutional policies to have extended periods – generally three to seven days – where students can investigate issues in depth in the field. It might be argued that such need to be an institution-wide feature of the timetable and the curriculum for all programmes and students, but sensitive to the pedagogies of different disciplines. Case study 7.8 clearly illustrates a major restructuring of the traditional timetable.

Quest University was able to introduce a radical structure from the beginning. This would be more difficult for larger existing institutions to implement. Grand Challenges at Exeter University incorporates some aspects of the Quest curriculum, but its small scale makes it more adaptable to other institutions (case study 7.9). There are similarities between the Exeter Challenges and the Independent Activities Period at MIT (see p. 62).

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[58] Source: Huggins et al. (2005; 2007)
[59] Sources: Millar (2012); Helfand (2013);
  http://www.questu.ca/;
  http://www.questu.ca/about_quest/a_quest_degree.php;
  http://www.questu.ca/academics/the_block_plan.php;
  http://www.questu.ca/academics/experiential_learning.php

Case study 7.9: Grand Challenges 2013 – a researcher-led programme for first-year undergraduates at University of Exeter, UK[60]

This programme provides first-year students with a researcher led 11 day educational experience at the end of the academic year. Students produce solutions and ideas to tackle some of the key dilemmas of the 21st century, like climate change, ageing, ethical banking, child health and international security. The programme includes a cultural, social and sporting festival on campus during the middle weekend. Central to the programme are 12 interdisciplinary 21st century dilemmas. Students work in cross-disciplinary groups to address significant cultural, social, economic and/or environmental issues. Divided into small groups facilitated by a postgraduate inquiry group facilitator, students research key questions and produce negotiated outputs which are communicated to wider audiences. Examples include writing a policy paper, YouTube videos, debates, awareness campaigns and dramatic presentations.

7. Create alternative learning spaces

Note how the newly built Quest campus has no lecture theatres (case study 7.8). Arguably these represent a dated pedagogy, that is, the formal lecture and one that has been shown by many research studies to have limited impact in moving students towards knowledge complexity (Bligh 2000). Many course teams and institutions nevertheless want to have such lecture theatres as part of the institutional structure. However, prompted by the move to various forms of online learning support many institutions world-wide are now significantly reshaping or creating new learning spaces to better support student inquiry (Narum 2004).

These often involve close co-operation between institutional curricula leaders and heads of library and information technology resources, such as the massively redesigned 'Learning Commons' at Hong Kong University which was designed to support a large scale institutional curricula reform[61].

Case study 7.10 of Swinburne, an institution with a strong applied focus and links with external partners, presents general principles of classroom redesign that are relevant to the college sector. Indeed it reinforces the 'messages' of case study 3.3 from Bishop Auckland College, where learning spaces were redesigned to enable students to use new technologies and work in groups on problem-based activities.

Case study 7.10: The 'Project Hub' at Swinburne University of Technology, Australia[62]

Swinburne University's Hawthorn Project Hub was designed as a learning space offering 24-hour, seven-day-a-week access to approximately 2,000 students who are undertaking capstone subjects in the final year of their undergraduate degrees. It contains meeting rooms, state-of-the-art technology and social, open working spaces. In 2009, the institution decreed all final-year students would undertake a major capstone project – with an emphasis on interdisciplinary group work, industry/professional relevance and links with external organisations. It was built as a result of undergraduate students stating that the most important thing Swinburne could do to improve the capstone group project learning experience would be to provide facilities dedicated to undergraduate projects and group work.

Other examples of recently redesigned institutional learning spaces include the newly built Anglia Ruskin Business School building with spaces for student informal group learning. At London's BPP Business School, they have gone one step further. Katie Best, BPP's director of MBA programmes states "Our teaching staff are given a strict brief not to talk at students for more than 15 minutes …. Our two-year-old building contains only one formal lecture theatre. As a result, only minimal teaching from the front

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[60] Sources: correspondence with Sue Burkill (Sue.Burkill@exeter.ac.uk);
http://www.exeter.ac.uk/grandchallenges/;
Kay (2013)
[61] http://learningspacedesignanddevelopment.blogspot.co.uk/2012/04/hong-kong-university-library-learning.html
[62] Sources: Lee (2009);
http://www.future.swinburne.edu.au/student-life/why-swinburne/capstone-projects/;
http://www.swinburne.edu.au/spl/learningspacesproject/trials/index.html

takes place, fundamentally changing how our students learn." BPP's home is located next to the Gherkin skyscraper in the heart of the City of London. "Our spaces are specifically designed to emulate the environments you find in the business world that surrounds us," adds Best. "For example, we organise our seminar rooms to work for small group meetings, reflecting the way that companies operate" (Thompson 2011).

National strategies to increase the skills of staff to teach emphasising the construction of knowledge by students

Clearly what is possible and desirable in different institutions will vary. Such differences are even more the case at national level where cultural, organisational, governance and funding systems vary significantly. Yet national systems can learn from each and adapt others' innovations. We offer this typology of strategies and selected case studies for national and institutional CBHE leaders in particular to consider the relevance to their particular contexts (Table 7.2).

Table 7.2: Selected strategies for national systems to increase the skills of staff to support student inquiry
1. celebrate and share what is already in place and recommend good practice;
2. define national requirements for degree-level work;
3. review and enhance what is in place;
4. ensure national requirements for training in teaching and subsequent CPD includes an emphasis on supporting student inquiry;
5. create special organisational frameworks to support staff to develop student inquiry in the college sector;
6. create special funding schemes to support staff to develop student inquiry in the college sector.

1. Celebrate and share what is already in place and recommend good practice

National organisations can do much to spread good practice by publicising and disseminating the 'good' practice in the college sector, particularly in their own national system, but also drawing on international experience. Clearly this publication, supported by the UK HEA, aims to do that, as do other initiatives by the HEA in the college sector[63]. In the US the Council on Undergraduate Research (CUR) has a range of publications (e.g. Cedja and Hensell 2010) and has organised national and regional conferences aimed at the community college sector. It has a special list service to support undergraduate research in the college sector[64]. It also devised and publicised a list of recommendations to institutions and state governments (case study 7.11).

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[63] http://www.heacademy.ac.uk/college-based-he
[64] http://www.cur.org/projects_and_services/cc_list_subscribe/

> **Case study 7.11: Council on Undergraduate Research recommendations to institutions and state governments on engaging college students in research[65]**

If undergraduate research is to expand and thrive on community college campuses, several steps must be taken:

- boards of trustees need to recognise that engaging students in research is a legitimate and powerful teaching strategy. Boards need to affirm the interests of faculty members in engaging in research and support the efforts of students to do so;

- state legislators must provide the financial support to meet community colleges' infrastructure needs for up-to-date buildings, laboratories, and equipment so that faculty members can engage in developmentally appropriate collaborative research with their students;

- community college administrators need to support and encourage faculty members' involvement in their disciplinary or professional organizations so that professors can remain current in their fields and be aware of future directions;

- community college administrators also need to find ways of supporting faculty members for outside-the-classroom mentoring of students engaged in collaborative research;

- faculty members need to consider ways in which the development of research skills can be incorporated into the curriculum;

- student-affairs personnel at community colleges need to recognize the importance of undergraduate research for students' transfer and career opportunities and encourage students to participate in research activities;

- local employers need to provide research opportunities for community college students as well as students from four-year institutions;

- community college administrators need to provide support for faculty members to write proposals for external funding;

- community colleges should expand their partnerships with nearby four-year colleges, local industries, and local government and non-profit agencies to provide additional research opportunities for students.

Clearly national disciplinary organisations and structures can also play key roles in spreading good practice in the CBHE sector. For example, CUR has nine disciplinary hubs, such as arts and humanities, that support discipline-based undergraduate research in US HE[66]. In the UK the HEA ran a linked programme in three locations where the discipline leads for Business Studies, Education and Art & Design – the subjects with the highest proportion of CBHE students – presented what was seen as 'good' practice in the HE sector[67].

2. Define national requirements for degree level work

Most national systems have some legislative or cultural framework to define what meets the requirements for degree-level work. In highly centralised systems, such as the UK, these can be determined by organisations strongly linked to central government; in other more decentralised systems, such as the US, these may be formed more by voluntary agreements within the HE system. But in the US, regional accrediting organisations and national professional accrediting organisations play a central part in formulating such requirements. For, as we have shown in chapter one and the introduction to this chapter, defining what makes HE *higher* is the central issue under discussion. Case study 7.12 provides an example of national requirements that encourage staff to teach in ways that promote student inquiry.

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[65] Source: Hensel (2010)
[66] http://www.cur.org/governance/divisions/
[67] http://www.heacademy.ac.uk/events/detail/2013/09_May_CBHE_Bristol

The Honours degree benchmark statements, of which there are currently over 50, almost all refer to aspects of the teaching and research nexus as central to the requirement for honours classification. For example, the benchmark statement for General Business and Management states that graduates should be able to demonstrate "effective problem solving and decision making using appropriate quantitative and qualitative skills including identifying, formulating and solving business problems" (QAA 2007, p. 3).

3. Review and enhance what is in place

National organisations such as the QAA and professional organisations can periodically require institutions to demonstrate what is in place for them to have degree awarding powers. Internationally, such an audit focus is moving more to a focus on supporting and *enhancing* what is in place. The work of the QAA Scotland has deservedly received much international interest in developing an enhancement approach to learning and teaching, including its work on enhancing teaching research links at institutional level and within disciplinary communities (case study 7.13).

> **Case Study 7.13: Research–teaching linkages as part of QAA's quality enhancement theme in Scotland, UK[69]**

Scotland's quality assurance system has a strong focus on enhancement and collaboration between different agencies – with particular themes identified as areas for action. From 2006-8 research–teaching links was one such theme. Activities included sector-wide discussions reflecting on, and exploring research–teaching linkages and how they can be maximised to enhance the achievement of graduate attributes and a secondary discipline-level strand which focused on, the sharing of and developing of, current and emerging practice at the discipline level. Both strands were supported by funded projects. Subsequent work by QAA Scotland has further developed this theme by linking it to subsequent work on year one, the curriculum, and graduate attributes.

4. Ensure national requirements for training in teaching and subsequent CPD includes an emphasis on supporting student inquiry

Many national systems are moving to, or have already developed, formal frameworks or informal structures to set out requirements or simply recommendations on what is seen as effective practice for teaching in HE. These frameworks often start at initial teacher training, but certainly in the UK they are moving to requirements and recommendations for continuing professional development (CPD) (Turner *et al.* 2013). Many of these frameworks focus, in part, on supporting staff to teach in ways that support student inquiry (case study 7.14).

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[68] Sources: QAA (2007);
  http://www.qaa.ac.uk/AssuringStandardsAndQuality/subject-guidance/Pages/Honours-degree-benchmark-statements.aspx
[69] Sources: http://www.enhancementthemes.ac.uk/enhancement-themes/completed-enhancement-themes/research-teaching-linkages;
  Jenkins (2009)

> **Case study 7.14: Professional standards framework for teaching and supporting learning in higher education, UK[70]**
>
> The UK Professional Standards Framework (UKPSF) for teaching and supporting learning in HE has been developed for institutions to support the initial and continuing professional development of staff engaged in teaching and supporting learning. They underpin the HEA accredited professional development provision and the recognition of Academy Fellows (Associate, Fellow, Senior and Principal). There are three dimensions of the Framework – Areas of Activity (5), Core Knowledge (6) and Professional Values (4) – all of which need to be evidenced at Fellowship level and above.
>
> *Activity 5* states: "Engage in continuing professional development in subjects, disciplines and their pedagogy, incorporating research, scholarship and the evaluation of professional practices."
>
> *Professional Value 3* states: "Use evidence-informed approaches and the outcomes from research, scholarship and continuing professional development."

5. Create special organisational frameworks to support staff to develop student inquiry in the college sector

In the US, where CBHE has long been a key feature of the HE system and where the central government is only one key agent, there is a more diverse decentralised structure and a range of ways to support student inquiry, including specifically to the community college sector (case studies 7.15 and 7.16).

> **Case study 7.15: The Council on Undergraduate Research (CUR) supports community-based undergraduate research in the US[71]**
>
> CUR supports undergraduate research across the diverse US HE system and is supported by institutional contributions. It has a wide range of programmes and activities at national level and supports regional and local activities which bring students into the worlds of research. These activities include specific initiatives regarding the college sector, including conferences, special publications (e.g. Cedja and Hensel 2010), disciplinary resources and a range of funded projects – often funded through bids to the National Science Foundation (case study 7.19).

> **Case study 7.16: Community College Undergraduate Research Initiative – A national STEM consortium at Finger Lakes Community College, Canandaigua, NY, US[72]**
>
> The Community College Undergraduate Research Initiative (CCURI) is a national consortium of community colleges, four-year schools, government agencies, and private organizations dedicated to the development, implementation, and assessment of a sustainable model for integrating an undergraduate research (UR) experience into a community college Biology curriculum. In partnership with the Council on Undergraduate Research (CUR), CCURI has developed a model for fully integrating undergraduate research at a community college. The model elements focus on the unique barriers that these institutions face as they work toward comprehensive curriculum reform. CCURI currently supports 32 community college partners throughout the United States.

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[70] Source: http://www.heacademy.ac.uk/professional-recognition
[71] Sources: www.cur.org; www.cur.org/projects_and_services/special_projects/community_colleges/
[72] Sources: http://www.ccuri.org;
http://www.ccdaily.com/Pages/Academic-Programs/Research-projects-spur-student-engagement-in-learning.aspx;
http://www.sciencemag.org/content/333/6049/1572.summary

For staff to learn from the expertise of staff outside their institution they need supportive frameworks and informal structures to see how students have been taught in ways that promote student inquiry and perhaps in particular to see and hear first-hand from students who have learned through forms of undergraduate research. In the US this has long been a feature of an annual national conference now organised by CUR[73]. Shaped by this US exemplar, similar conferences are now an annual feature in Ireland[74], Australia[75] and the UK (case study 7.17).

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Case study 7.17: British conference on undergraduate research (BCUR), UK[76]

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BCUR was launched in 2010 to promote undergraduate research in all disciplines. It holds an annual spring conference at a different university venue each year (UCLAN 2010, Warwick 2012, Plymouth 2013, Nottingham 2014, and Winchester 2015). Undergraduates of all levels are invited to submit papers, posters, workshops and performances to the conference. Abstracts are peer-reviewed and those accepted will be invited to attend the conference. Conference fees are usually paid by the student's own university. BCUR also accepts submissions from students outside of the UK. The call for papers is usually published in the autumn. A linked session for staff and supervisors is also held at the conference. Over 200 students participated in Plymouth in 2013. The first 'Posters in Parliament' exhibition was also held in 2013.

6. Create special funding schemes to support staff to develop student inquiry in the college sector

In many national systems government funding for teaching is by forms of a 'block grant' which funds all activities with respect to teaching leaving institutions some latitude in how that money is spent. However, in some cases, national organisations may want to prioritise some forms of curricula – including supporting staff to teach in ways that support student inquiry. This was the central focus of the development of research-informed teaching environments in England, which benefited selected CBHE institutions (case study 7.18). In some cases this type of funding has been specifically directed to the college sector as in the case of selected US National Science Foundation funding schemes (case study 7.19).

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Case study 7.18: The Higher Education Funding Council for England (HEFCE) supported the development of research-informed teaching environments, with funds allocated inversely proportional to an institution's research funding in England, UK[77]

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In March 2006 HEFCE announced additional funding to support research informed teaching (RIT) to be allocated in inverse proportion to an institution's research funding. This was part of HEFCE's Teaching Quality Enhancement Fund. £40 million was allocated over three years. The division between which HEIs (including FE colleges with over 100 ftes in HE level work) received funding and those which did not, largely mirrored the old/new university and college divide. HEFCE (2006, pp. 6–7) stated:

Areas where institutions could invest funds included:

- keeping the curriculum up to date and active, effectively supported by appropriate learning resources linked to recent research;

- ensuring that courses are designed in ways that support the development of learning outcomes appropriate to the knowledge economy, including appropriate pedagogy – that is, students experiencing research, and developing research skills.

[73] http://www.cur.org/ncur_2014/
[74] http://www.drhea.ie/enhancement.php?page=102
[75] http://www.mq.edu.au/ltc/altc/ug_research/acur2013/
[76] Source: correspondence with Stuart Hampton Reeves (shampton-reeves@uclan.ac.uk); http://bcur.org/
[77] Source: http://www.hefce.ac.uk/whatwedo/lt/howfund/supportforteachingenhancement/

The Undergraduate Research Collaboratives (URC) Program funded in 2006 sought new models and partnerships with the potential (1) to expand the reach of undergraduate research to include first-year and second-year college students; (2) to broaden participation and increase diversity in the student talent pool from which the nation's future technical workforce will be drawn; and (3) to enhance the research capacity, infrastructure, and culture of participating institutions. This program has helped stimulate a range of initiatives and funding schemes by the NSF to support undergraduate research, including primarily undergraduate institutions.

Each award provided approximately $3 million over a five-year period. The projects provided blueprints for research-oriented curricula for thousands of first-year and second-year college students. An initial award for a project led by the Center for Authentic Science Practice in Education, Purdue University, includes nine academic institutions in Illinois and Indiana[79].

As of 2012 the success of such programs has resulted in a range of NSF programs to support undergraduate research including programs aimed at primarily undergraduate institutions to promote a more diversified undergraduate population and diverse research workforce.

We recognise that this chapter presents an ambitious agenda. As we noted at the beginning, we realise that aspects of this chapter may seem beyond what is immediately possible in some institutional and national contexts. However, we hope that you will see that some aspects of these strategies are part of the context in which you work and others offer you strategies to work towards. We think that the chapter has provided a set of conceptual ideas and a wide range of strategies – including from the college sector – to support institutions and national systems to support staff in the CBHE sector to teach in ways that support student inquiry. In conclusion to this publication, we set these arguments in the wider context of the publication's central message and provide some further ideas on taking this agenda forward.

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[78] Sources: http://www.nsf.gov/pubs/2006/nsf06521/nsf06521.htm;
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6675&org=CHE;
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5518;
http://www.nsf.gov/pubs/2012/nsf12569/nsf12569.htm;
Slocum and School (2013).
[79] www.purdue.edu/discoverypark/caspie/

An overall conclusion

This publication is a start of a journey of understanding and dissemination of interesting practices and strategies for developing research-based curricula in CBHE. Our hope is that it will encourage more colleagues to develop and share their case studies, particularly strategies at course, department, institutional, and national levels. Our aim has been to reshape the debate as to the form that research and scholarship should take in the CBHE sector. Most of the previous discussions have concentrated on the implications for *staff/faculty*; in this publication we have extended this discussion to how *students* in CBHE may be engaged in research and inquiry, how curricula may be designed to achieve this and what departmental, institutional and national strategies are needed to foster these developments.

While we hope that we have made progress in that agenda, we recognise the difficulties staff in many institutions face in progressing these issues – for, internationally, the college sector is often underfunded and in many contexts suffers from governance structures and cultures that do not support a scholarly approach. We further emphasise that while valuing employment-focused curricula, unless students are being supported in understanding 'knowledge complexity' then they are not experiencing 'higher education'. We think that our focus on the curriculum will support college students in reaching towards that goal. We would also like to emphasise, that in advancing students' scholarly learning, it also presents CBHE teachers with the opportunity to advance their own scholarly activities, often collaboratively with students. However, that still leaves open the question of the extent to which staff teaching at degree and sub-degree levels need to be 'skilled' and involved in research and scholarship themselves and how institutions and national systems can effectively support them. We also note the need for more case studies from institutions and national agencies that are advancing this agenda explicitly in the CBHE sector. We hope that this publication will encourage more research on these issues and for more national organisations (governments; funding agencies, including research councils; and educational development associations) to develop and share good practice in this area.

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Appendix 1: List of college-based higher education case studies

Space only allows us to include selected summarised CBHE case studies in the text. The full case studies of these and other examples collected during the project may be found on the project website[82] in the order given below. Where a summary is included in the text, the case study number used is given in *italics* at the end of the case study title. Several other non-CBHE case studies are included in the text where the practices and policies illustrated are potentially transferable to the CBHE sector. Case studies submitted after the end of the project are included in the CBHE handout[83].

1. Arts, design, media and humanities examples

1.1. Shaping dissertation research in dance and music theatre: critical approaches and shifting methodologies at London Studio Centre, UK

1.2. Engaging students with the latest research and publications in architectural design at Adam Smith College, Dundee College and Abertay University, UK

1.3. Developing a research orientation in undergraduate creative arts in the Bachelor of Illustration at Northern Melbourne Institute of TAFE, Australia (case study 3.5)

1.4. Developing of a creative research culture for fine art students through providing a choice of dissertations at Somerset College of Art, Taunton, UK (case study 4.4)

1.5. Integration of research-based learning with professional practice in the Art and Design (Foundation) Diploma (FdA) at Kingston College, UK

2. Business, hospitality, law, sport and tourism examples

2.1. Linking first and second year assessment strategies through researching the need for a local sports development project in a work based learning module at West Herts College, UK (case study 3.4)

2.2. Students on the Foundation Degree Business Management and Enterprise undertake a management consultancy project at Sheffield College, UK

2.3. Student-led research journal in business at Newcastle College, UK (case study 4.11)

2.4. Marketing final-year research project at Letterkenny Institute of Technology, Ireland (case study 4.7)

2.5. Introduction to academic publications in first-year sports studies courses at Newcastle College, UK

2.6. Learning and development practice exhibition for first-year students at North Lindsey College, UK

2.7. Second year business students undertake a research-based paper at Bay of Plenty Polytechnic, Tauranga, New Zealand

3. Education, social, environmental, and health sciences examples

3.1. Engaging students with the research literature through discussion in social care at Shetland College, University of Highlands and Islands, UK

3.2. Giving Community College students in US their first experience of research in archaeology, US

3.3. Students undertake a vocational research project in the Foundation Degree Public Services: Policing Studies at Sheffield College, UK (case study 4.1)

3.4. Integration of years 1 and 2 undergraduate research experience in HND Applied Psychology at Truro-Penwith College, UK (case study 3.8)

3.5. Sitting in the 'hot seat': Supporting students on foundation degrees to read critically at East Durham College, UK (case study 3.2)

3.6. Building a research identity in the Bachelor of Education (Early Years) at Northern Melbourne Institute of TAFE, Australia (case study 4.10)

3.7. Student research development on a Foundation Degree in Working with Children and Young People and BA (Hons) Childhood Studies at Stockport College, UK

3.8. Developing contemporary curricula and experiencing practitioner-as-researcher through action research projects in Community Mental Health at Chisholm Institute, Australia

3.9. Year one students undertaking a Certificate of HE explore the principles of community engagement through a group project at Gloucestershire University, UK

3.10. Community projects for Foundation Degree in Community Engagement and Governance students at University of Gloucestershire, UK (case study 4.2)

3.11. Students in the Bachelor of Nursing Degree undertake a research proposal during their second year at Holmesglen, Melbourne, Australia

3.12. Research in early years' education at Kingston College, UK

3.13. Students studying Bachelor of Early Childhood Education and Care undertake an action research project at TAFE NSW, Australia

3.14. Engaging selected first-year degree students in a collaborative research project on disability and rurality at Combined Universities Cornwall, Cornwall College, UK

4. Science, technology, engineering and mathematics examples

4.1. Biotechnology students work as part of a research team at Massachusetts Bay Community College, US

4.2. A collaborative research approach to the honours dissertation in computing and games design

4.3. Research project and poster presentation in applied plant science and biotechnology at Myerscough College, UK (case study 4.9)

4.4. Course and program integration of early research experiences at Finger Lakes Community College, Canandaigua, NY, US

4.5. Year 1 poster presentation conference in Engineering at Newcastle College, UK (case study 3.6)

4.6. Researching public perceptions of squirrels in FdSc Species and Ecosystems course at Otley College, UK

4.7. Engaging students in group projects lasting several years in Viticulture and Winemaking at Northern Melbourne Institute of TAFE, Australia

4.8. Engaging students in applied research through industry sponsored collaborative capstone projects at Northern Alberta Institute of Technology (NAIT) Edmonton, Canada

4.9. Inquiry-based learning in the Digital Media and IT (DMIT) program at Northern Alberta Institute of Technology (NAIT) Edmonton, Canada

4.10. An experiment with client defined applied research in a two-year engineering technology program at Northern Alberta Institute of Technology (NAIT) Edmonton, Canada

4.11. Undergraduate research experiences for chemical technology students at Ivy Tech Community College, Indiana, US

4.12. Students undertaking Diploma in Engineering analyse mechanical or electrical engineering design problems and identify possible solutions in final project at Bay of Plenty Polytechnic, New Zealand (case study 4.8)

4.13. Partnering with local small businesses gives students the opportunity to do laboratory research and work with entrepreneurs at Harold Washington College, Chicago, US

5. Interdisciplinary

5.1. Enhancing employability via community challenge research at Blackburn College, UK

5.2. Theme-based interdisciplinary research at Harold Washington College, Chicago, US

5.3. Developing research led ability to discuss concepts in the training, welfare and husbandry of horses at Hadlow College, Tonbridge, Kent, UK

5.4. Developing a programme strategy for research-based teaching in Equitation Science at Duchy College, UK (case study 5.1)

6. Institutional

6.1. HE student research conference at Newcastle College, UK

6.2. Librarians support development of research skills with foundation degree students at University of Sunderland, UK (case study 3.3)

6.3. Students complete applied research projects as part of their programs at Holland College, Prince Edward Island, Canada (case studies 4.6 and 5.4)

6.4. Developing student research in science and technology at Georgia Gwinnett College, US (case study 5.3)

6.5. Institutional supported community-based research Penn State Brandywine, US

6.6. Partnering with four-year colleges to support community college student STEM research and transfer opportunities in Chicago, US

6.7. Engaging honors students in research at Valencia College, Orlando, US (case study 5.10)

6.8. Faculty development program at Valencia College, Orlando, US (case study 7.)

6.9. Faculty performance indicators supporting student inquiry at Valencia College, Orlando, US (case study 7.6)

6.10. Developing research capacity of staff and students at Amsterdam University of Applied Sciences, Netherlands (case study 5.5)

6.11. An institutional approach to nurturing an inclusive community of research at Newcastle College, UK (case study 5.6)

7. National

7.1. Community College Undergraduate Research Initiative – A national STEM consortium at Finger Lakes Community College, Canandaigua, NY, US (case study 7.16)

7.2. The Council on Undergraduate Research supports community-based undergraduate research in the US (case study 7.15)

7.3. The Higher Education Funding Council for England (HEFCE) supported the development of research-informed teaching environments, with funds allocated inversely proportional to an institution's research funding in England, UK (case study 7.18)

7.4. National Science Foundation (NSF) established the Undergraduate Research Collaborative Program which sought to include first and second year college students, US (case study 7.19)

7.5. Council on Undergraduate Research recommendations to institutions and state governments on engaging college students in research, US (case study 7.11)

Contact us

The Higher Education Academy
Innovation Way
York Science Park
Heslington
York
YO10 5BR

+44 (0)1904 717500
enquiries@heacademy.ac.uk

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