

Towards an integrated approach to the recognition of professional competence and academic learning

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Abstract

This paper discusses the benefits of reclaiming the idea of professional competence and challenges what it describes as fragmented approaches to academic qualification and professional recognition. It is argued that academic programmes that are integrated with the requirements for professional recognition can resolve the potentially unhelpful differentiation between 'theory' and 'practice' and between 'knowledge' and 'competence'.

Three contextualised case studies are presented to demonstrate a range of possibilities for developing academic programmes that integrate professional competence in the fields of Construction, Aviation and Management. It is argued that the examples described provide some evidence that where competence is conceived of as a matter of open on-going professional development, it can be effectively integrated and aligned with the intended outcomes of academic qualifications. Furthermore, that the examples described demonstrate that the idea of professional competence can operate to ground knowledge in practice contexts and ensure that professional values are positioned as a requirement of being qualified.

The diversity of the examples provided across three distinct sectors illustrate the potential for wider curriculum development opportunities for higher education practitioners. The need to align professional body recognition with academic qualification for higher and degree apprenticeships may also indicate significant implications for policy in this area. The cases presented provide evidence that academic qualifications can be developed that are at the same time recognised by employers as delivering a professionally competent workforce. This kind of development activity can provide both an incentive for employers to pay for education and training and opening opportunities for career progression for those in work.

Key words

Competence; professions; qualifications; work-based learning; higher apprenticeships; curriculum development.

Introduction

Universities and professional bodies both have a role in recognising the knowledge, understanding and skills of individuals, yet there remains a degree of tension in terms of what each may think they are recognising. For example, universities may not generally consider that their programmes aim to develop and recognise 'competence', particularly if this is understood narrowly as the ability to complete identified tasks to a standard. Barnett (1994) highlights 'the limits of competence' with regards to his conception of higher education, both when it is defined as 'academic competence' and particularly as what he calls 'operational competence'. For Barnett, the limitations of academic competence are associated with its focus on mastery within an identified disciplinary knowledge domain, while the limitations of operational competence lie in the emphasis on outcomes and skill performance. Both conceptions are found wanting as a basis for higher education by Barnett to the extent that they underplay the role of values, understanding and criticality in the context of 'life-world' unpredictability.

Many professional and licensing bodies also have processes for accrediting academic qualifications so that they can contribute to professional recognition, but most also require that individuals demonstrate – in some form or another - that they have gained professional competence in the workplace. Although there may not now be quite as rigid a separation between the sequencing of disciplinary, technical-rational and practical learning as Schön (1983) noted over three decades ago, for the majority of professions there is still a sharp distinction between what is represented by an academic qualification and by the profession's final qualifying process. This demarcation also found its way into at least the initial version of the UK's higher-level apprenticeships, many of which aim to provide work-based routes into professions; typically, these contained 'knowledge' and 'competence' qualifications with the first commonly being delivered and assessed by an educational institution and the second at least partly in the workplace.

On the other hand, some definitions of professional competence seem largely indistinguishable from the way that academic learning outcomes are described. One example is provided by the UK Engineering Council, which defines competence as "integrat(ing) knowledge, understanding, skills and values" (Engineering Council, 2013). Another is Epstein and Hundert's definition of the professional competence of medical practitioners as:

"The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served" (Epstein and Hundert, 2002, p226).

There seems little in the above definitions (with the substitution in the second of 'professional' for 'clinical') that would not serve as an appropriate benchmark for professional competence in any area of practice. Epstein and Hundert also claim that professional competence involves attributes such as 'critical curiosity' and 'self-awareness' and that it is 'developmental, impermanent and context-dependent'. Understood in this way, it seems at least possible that such a conception of professional competence could operate to more effectively align the respective roles of universities and

professional associations in recognising, supporting and developing higher-level work-based and work-related learning that appropriately reflects the changing nature of our 'life-world'.

This paper will explore some of this landscape to provide the grounding for a more aligned approach to developing university qualifications that can enable the integration of higher education learning outcomes with professional competence through work-based learning. The paper will draw on case-studies from Middlesex University in London in three very different professional sectors, surveying and construction, aviation, and management, to illustrate how this can be achieved.

Professions, entry-routes and competence

Professions can be defined very roughly in an Anglophone tradition as occupations that set their qualifying requirements at the equivalent of degree level or above, and are normally (though not universally) subject to some form of authoritative membership association or regulatory body. Professions have traditionally been concerned with defining and structuring entry-routes, so that practitioners have an adequate grounding in the theory, practice and ethos of the profession before they can work independently, and with ensuring that adequate standards of practice are upheld. The dominant pattern of professional entry during the latter half of the twentieth century can be described as a sequential model, where the would-be practitioner learns first the 'science' or disciplinary knowledge underpinning the profession, followed by its 'applied science' or tools and techniques, and finally its practice (Schön, 1983; Bines, 1992). Until fairly recently the main concern of formal programmes and assessment has been with the first two of these stages, with the third stage frequently left to a period of supervised practice that would effectively be signed off by the employer.

From the 1980s onwards more attention started to be given to the level of proficiency of practitioners at the point of sign-off, so that while in the past the practical element of professional training could be little more than semi-structured timeserving, a trend emerged towards some form of assessment against explicit criteria (Lester, 2009). This increasing concern with professional proficiency and accountability coincided in the United Kingdom with the emergence of the National Occupational Standards (NOS) programme, a government-backed initiative to describe the work of occupations in assessable terms (see Mitchell and Mansfield, 1996). Although the initial concern of this programme was with work-based qualifications for trainees at further education level, it was later extended to higher-level occupations. NOS take what Eraut (1998) describes as an 'external' approach to competence, in that rather than focusing on the attributes of the individual they are concerned with expectations in terms of work performance. For professions, there is an obvious application of this approach to competence in terms of assessment at the point of licensing or sign-off, and from the early 1990s onwards professions began to experiment with using occupational standards, or similar functionally-based descriptions of competence, for practice-based assessment (Eraut and Cole, 1993). Nevertheless, the ability of NOS to express professional work adequately has been questioned widely (e.g. Elliott, 1991; Hodkinson, 1995; Grugulis, 2000 among others), and although professional bodies are often involved in developing the standards they have generally been wary of using them in their raw form (Lester 2009; 2014a).

Recent studies of professional competence standards such as those of Williams *et al* (2013) and Lester (2014b) indicate that although there is a wide variation in practice across professions, a pattern is emerging in which two major phases represent slightly different approaches to the way that competence is conceptualised. In the first, professions recognise that the practice-based stage of development needs to be given greater attention, particularly in an environment where professional accountability is emphasised and entry-routes are being broadened, the latter removing some of the security given by entrants coming through a standard training route. This has generally favoured the introduction of some form of competence model and associated assessment process. In the second, generally emergent, phase, the limitations of models based on a narrow version of competence are being realised and more sophisticated conceptions and approaches are appearing that have a less finite perspective, reflecting to some extent the idea of capability that emerged in higher education during the 1990s (O'Reilly *et al*, 1999; Lester, 2014c). In the first phase, the established sequential approach to development mentioned earlier remains unchallenged, as the competence model can be seen simply as formalising what needs to be covered and assessed during the practising stage. The second phase however begs the question of how the different stages of development interact, and in particular how the professional course and the period of supervised practice or its equivalent interrelate. This challenges sequential development routes and potentially favours a post-technocratic (Bines, 1992) or integrated (Lester, 2009) approach where practical, technical, and more theoretical learning are intertwined.

One initiative that provides fertile ground for developing a more integrated approach to professional learning and competence is the introduction in the UK of Higher Apprenticeships (HAs). Industrial and craft apprenticeships had declined along with the manufacturing sector from the 1960s onwards, but the principle of apprenticeships was revived in the early 1990s with the launch of what were initially called Modern Apprenticeships. These programmes were government-sponsored, structured around NOS, led to a competence-based National Vocational Qualification (NVQ) at level 3¹, and included inputs to develop literacy, numeracy and other generic skills; subsequently a requirement was added to include a minimum level of off-job study leading to a knowledge-based 'technical' certificate. Largely due to funding restrictions there was a clear demarcation between apprenticeships and all forms of higher-level provision, even those leading to professional qualifications in the workplace. From 2008 the apprenticeship model was extended to higher levels, at first in five areas dominated by junior-level accountancy. Initially HAs were restricted to levels 4 and 5 of the qualification spectrum, i.e. below degree level, and as previously noted generally included separate 'knowledge' and 'competence' qualifications; the facility to include a single integrated qualification was introduced alongside expansion of the HA programme in 2011 (Chappell, 2011), though subject at first to complex and inconsistent rules.

HAs were well-received by both employers and professional bodies (Williams and Hanson, 2011; Hamnett and Baker, 2012; Wilson, 2012), subject to some concerns about enabling them to better meet business needs, improve compatibility with higher education, and lead to professionally qualified status and senior job roles. Following a review by the National Apprenticeships Service (NAS, 2012)

¹ NVQs are certificates based on the demonstration of competence to occupational standards; while they no longer exist as a distinct category of qualification, some certificates were designated as NVQs within the former Qualifications and Credit Framework, or are designed in a similar way to NVQs. The English and Welsh system of qualification levels is used here.

a revised model for HAs was introduced in 2013, which extended them to levels 6 and 7 (i.e. first and master's degree level), brought the size of qualifications closer into line with the norm in higher education, enabled them to incorporate higher education qualifications at any level, and encouraged the use of integrated qualifications. This revised approach also opened the door to greater involvement of universities in HA development as has been discussed by Anderson *et al* (2012), and required that HAs should be developed in partnership with any relevant professional bodies and form a recognised pathway to professional registration. Further developments introduced in 2014 gave a stronger role to employers and professions in controlling apprenticeship standards, and created a *de facto* move at higher levels to emphasising professional standards rather than NOS; in 2015 a further initiative ('degree apprenticeships') specifically promoted apprenticeships incorporating degrees. Given that many professions are defining competence in a way that "integrates knowledge, understanding, skills and values" (Engineering Council, 2013), it might be reasonable to expect that professionally-oriented HA frameworks will increasingly favour qualifications that integrate knowledge and competence. A model that is beginning to emerge across sectors involves collaboration between an employer (or group of employers), a university, and a professional body, enabling work-based routes to be developed that lead both to higher education qualifications and to qualified status in a profession or registration in a regulated occupation.

Returning to Barnett's discussion of competence and its limitations, this emergent approach to developing professional competence echoes what he calls 'reflective knowing'. Similarly, the limitations of 'experiential learning' and 'propositional learning' in operational and academic competence are resolved for Barnett in what he calls 'metalearning':

"Metalearning for the life-world is a willingness critically to examine one's learning. Putting it grandly, what is indicated here is a form of continuous action learning, where one's projects and practices are ruthlessly evaluated by oneself, and jettisoned where appropriate." (Barnett, 1994, p182).

It is perhaps this more holistic notion of professional competence that provides the opportunity for the greatest alignment with work-based higher education qualifications that are predicated on such self-reflective professional learning.

The case-studies

Collaboration between universities and employers, professional bodies or industry sectors to create programmes that are academically accredited and located substantially in the workplace is now well-established, and predates the development of Higher Apprenticeships by at least a decade (Nixon *et al*, 2006; Lester and Costley, 2010). Programmes of this type generally involve a partnership between professional or industry interests and a university to develop a programme that satisfies academic criteria while also meeting professional and organisational goals (e.g. Banim and Evans, 2008; Bravenboer, 2011). The following case-studies illustrate three different approaches to integrating academic learning and professional accreditation, all in collaborations where Middlesex University is the academic partner. The first is a Higher Apprenticeship that is designed to lead to a work-based degree as well as enabling students to gain access to qualified status with the Royal

Institution of Chartered Surveyors (RICS) or Chartered Institute of Building (CIOB) on completion. The second is an integrated programme for commercial pilots that includes achievement of a degree alongside a Civil Aviation Authority (CAA) professional pilot's licence. The third is an agreement between the University and the Chartered Management Institute (CMI), where the learning outcomes from the university's work-based programmes have been mapped to the institute's membership grades and enable graduates to gain professional membership.

Surveying and Construction Management: a fast track to Chartered Membership through work-based learning

At the time of writing Middlesex University was one of only two UK universities to lead government funded HA development projects. One such project is a level 6 HA in Construction Management, where Middlesex has developed two work-based bachelor's degrees for specialist pathways based on needs identified by employers: BA (Hons) Professional Practice in Quantity Surveying and Commercial Management, and BA (Hons) Professional Practice in Construction Site Management. It was important to the sector that the qualifications provided the added value of professional recognition. The University had already established a relationship with the Royal Institution of Chartered Surveyors (RICS), who had previously recognised the University's Foundation degree in Professional Practice in Construction Operations Management (the qualification for the HA in Construction Management at level 5) for direct access to associate membership. A second professional body, the Chartered Institute of Building (CIOB), was relevant to the commercial management and construction site management aspects of the programmes and was also involved in the project. The employer-led working group for the project had established that a lack of awareness and understanding of the interrelation between construction managers undertaking differing professional roles was a significant barrier to effective working across professional teams in practice. The approach to the design of these programmes was strongly employer led and sought to enable those completing the programmes to not only be eligible to gain Chartered status with RICS and CIOB but also to contribute to transforming construction management practice.

The engagement with professional bodies aimed to integrate both RICS and CIOB professional requirements within the design of the programmes at the outset. Based on the positive experience and outcome of the interaction with RICS regarding the Foundation degree, Middlesex aimed to build on the approach taken to fully integrate RICS professional competencies within the design and fabric of the BA programmes. The development process also included working with the Construction Industry Training Board (CITB) and the Construction Industry Council (CIC), as well as conducting a series of development workshops with employers and qualified practitioners in the sector. Proposals for programme design were presented to these parties and feedback from these groups has informed the design and development of the programmes.

At the time of writing, the programmes have been submitted for accreditation by both RICS and CIOB. The potential benefits include the establishment of work-based university degrees that enable individuals who successfully complete them to gain direct access to Chartered Membership. Because the programmes are work-based, the evidence of professional competence can be gathered at the same time as they are undertaking them rather than post-qualification. This approach is a concrete

demonstration of the possibility of comprehensively aligning the recognition of professional competence with an academic qualification. In addition, the added benefit is that the practitioners who undertake these programmes will gain a much deeper understanding of complementary professional roles. Because the structure and professional practice themes of these programmes are closely related, greater understanding between, in this case, quantity surveyors and construction site managers will be established.

A practical benefit from the programme relates to improving the situation where the effectiveness of the construction sector is hindered by a lack of collaborative working between different professions. For example, in considering the relationships between environmental professionals and construction site managers, Gluch (2009) identified that established organisational structures and modes of communication can hinder meaning-making in the context of practice. Abdel-Wahab *et al* (2008) also argue that policies to increase training in the sector alone may not lead to the productivity improvements desired as a consequence of the fragmented nature of practice in the construction sector. Similarly, Fulford and Standing (2014) argue that there is a fragmentation of practice in the construction sector and collaborative working is impeded by a lack of trust and shared values across different areas of practice. Given this context of significant barriers to effective collaborative working, the integration of professional competence within the programmes' design has the potential to transform practice for the benefit of the sector as a whole.

Aviation: integrating professional pilot training within a work-based Honours degree

Middlesex University's engagement with the aviation sector came about through its work in developing HAs and its expertise in professional and work-based higher education programmes. Middlesex took part in a series of working group meetings with aviation sector employers, relevant Sector Skills Councils, the National Apprenticeship Service, private aviation training providers and other universities. The working groups were led by the Aviation Skills Partnership (a body initially established to support the development of a HA for the aviation sector). The outcomes of this activity was that Middlesex was selected as the organisation that was best placed to develop a work-based bachelor's degree that would fully integrate the required Civil Aviation Authority (CAA) approved professional pilot training. Following the development of the BSc (Hons) Professional Aviation Pilot Practice degree, the qualification was approved and listed in the nationally issued HA framework for Professional Pilots. The degree represented a collaboration between Middlesex University and CTC Aviation (an established private pilot training provider) and was validated as a joint programme. This qualification was the first work-based degree to fully integrate CAA approved professional pilot training leading to a commercial pilot's licence.

The context for the development included an identified need for over 100,000 professional pilots to be trained by 2031 (Witts, 2013), a level which could not be met by current entry rates. The fees for training as a professional pilot typically run to £80-100,000, which is normally payable by the individual without access to student finance; while successful completion leads to the necessary commercial pilot's licence, it does not lead to any other form of qualification that might be retained if for instance the individual chooses (or is forced for medical reasons) to pursue a different career.

This inevitably limits access to the profession and operates as a barrier to those who may be excellently suited to working as a pilot but are without access to finance.

A senior representative of the CAA chaired the Programme Board (coordinated by the Aviation Skills Partnership) that helped to steer the initial stages of development. In addition, interaction with the CAA was also mediated through CTC Aviation who were already required to regularly demonstrate that they were maintaining required professional standards. It was a required condition of the process of academic programme development that the CAA-approved components were maintained. The first stage of the development process utilised Middlesex University's facility to accredit external courses. Accreditation is a quality assured process by which the University recognises learning that takes place outside of its validated provision so that it can lead to the award of academic credit. This credit does not in itself constitute a University qualification but can count towards one. Middlesex assessed CTC Aviation's CAA approved pilot training (Ground School and Flying School) and this resulted in recognition that it was equivalent to 120 credits at level 4 plus 100 credits at level 5. This recognition was key to aligning the CAA required demonstration of professional competence with the academic standards of the University.

The CAA approved pilot training delivered by CTC Aviation led to the award of a 'frozen' Airline Transport Pilot Licence (ATPL), i.e. before it is activated the pilot needs to gain sufficient hours of flying as well as undertaking 'type rating' to fly particular kinds or aircraft. The second stage of development concerned constructing a full work-based Honours degree that would encompass both the Ground School and Flying School elements as well as the first year of practice (typically as a First Officer) employed by a commercial airline. This later stage of the programme was designed specifically around established aspects of practice as undertaken by early career pilots, including 'type rating' as well as other practices, such as post flying debriefing, that are undertaken to enable pilots to develop their professional awareness of things like threat and error management and evaluating and managing risks. The later stages of the work-based programme was specifically designed to both build on and reflect professional pilot practice and facilitate sufficient flexibility to accommodate the approaches taken by different airlines. Given the strong links between the degree, licensing and pilot practice, it was considered vital that a senior CAA representative took part in the validation of the academic programme.

The validation of the BSc (Hons) Professional Aviation Pilot Practice degree by Middlesex University in partnership with CTC Aviation constituted the first work-based degree that fully integrated CAA-approved professional pilot training. This not only meant that the achievement of the professional competencies required by the CAA would at the same time also be recognised through the award of academic credit but also that this credit would form part of a University Honours degree qualification. It also meant that for the first time aspects of the early career professional practice of licensed professional pilots would be formalised and used to construct the final stage of the degree through work-based learning. The facility to recognise higher-level learning that is undertaken and demonstrated in work is a key mechanism by which professional competence can be formally aligned with the award of academic credit and qualifications. This means that the starting point for programme development can be the identification of aspects of practice that can be used as evidence of

professional competence and that as such, alignment between this and the academic qualification is built in.

The development of a degree also means that those who are eligible can apply for student finance or grants, as well as providing a qualification that remains relevant should the pilot choose to change career. These factors have the potential to mitigate, to an extent, initial financial burden and risk, potentially opening up opportunities for a wider range of people who wish to embark on a professional pilot career. It might also make it more likely that the need for more professional pilots in the coming years will be met, while at the same time helping the profession to formalise the competencies required for early career pilots.

Management: aligning professional standards and academic learning outcomes.

The Chartered Management Institute (CMI) is a UK professional body that seeks to promote professional standards in management and leadership. The CMI is also an awarding body for QCF-recognised qualifications ranging from level 2 through to level 8 (the equivalent of doctoral level), which are linked to different grades of membership. The CMI has a network of approved centres of which Middlesex University is one. The CMI Code of Practice describes the requirements of professional membership as follows:

Professional managers apply specialist knowledge and skills for the benefit of their organisations, employees, colleagues, stakeholders, and wider society. In doing so they must:

- Apply expertise and sound judgement
- Motivate and support others
- Contribute positively to the achievement of the objectives of the organisation.

(CMI, 2011).

Initial discussions between CMI and Middlesex University indicated a very high level of correspondence between the University's Work Based Learning level descriptors (see table 1), which underpin all Middlesex work based learning and professional practice programmes, and the CMI professional standards and qualifications. The correlation between these transdisciplinary descriptions of higher-level learning and the professional standards required by CMI are clear and this provided the opportunity to articulate an alignment between them at a level above the outcomes specified by particular programmes of study. On the basis of this alignment CMI and Middlesex agreed to seek a formal means for this to be recognised to enable those who complete professional and work-based qualifications to simultaneously gain professional membership and qualifications.

The mapping of University Work Based Learning Framework qualifications, level descriptors and module learning outcomes against the CMI professional standards and membership requirements resulted in a detailed alignment where university qualifications at levels 4 and 5 were mapped to CMI associate membership, level 6 to full membership, and level 7 to Chartered membership. This means that an individual who successfully completes the Middlesex University Work Based Learning

qualifications will be eligible for the relevant level of CMI Membership (subject to additional requirements for Chartered membership), and will also be awarded the relevant CMI Management and Leadership qualification. This comprehensive alignment between academic qualifications and descriptions of professional standards and competence is a concrete demonstration of the added value that can be achieved when academic institutions and professional bodies are willing and able to work together. It provides evidence that academic qualifications and professional competencies cannot only be aligned on a programme by programme basis but that there is also the possibility for an alignment at curriculum framework level. The transdisciplinary Middlesex University Work Based Learning Level Descriptors are specifically designed to enable the recognition of higher level learning that is generated through undertaking work/practice and it is this approach that has opened the door to its alignment with professional standards (see Bravenboer and Workman, 2015; 2016). This perhaps supports Barnett's (1994) notion that academic competence that is too narrowly focused on mastery within an identified disciplinary knowledge domain may indeed have significant limits.

Table 1. The Middlesex University Work Based Learning level descriptor categories

<p>Knowledge and understanding</p> <ul style="list-style-type: none"> • Identification and application of work-based knowledge • Understanding and application of ethical principles to work/practice <p>Cognitive skills</p> <ul style="list-style-type: none"> • Analysis and evaluation of work-based information and concepts • Reflection on the wider contexts of work-based practice and learning • Work-based inquiry, action planning and problem solving <p>Practical skills</p> <ul style="list-style-type: none"> • Work-based project design and development skills • Professional networking and interpersonal skills • Communication and information management <p>Personal and enabling skills</p> <ul style="list-style-type: none"> • Self-directed professional development skills • Responsibility and leadership in work/practice contexts <p>(Middlesex University, 2011).</p>
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Implications for practice and policy

As discussed earlier in the paper, there has been a growing trend for professions to look beyond standardised entry-routes, to place more emphasis on the practice-based phase of development, and to evolve ways of expressing competence that are simpler and more sophisticated than both the lists of knowledge, skills and behaviours that were once widely used, and the functionally-oriented approach used in National Occupational Standards. This might have been expected to open up an array of new routes into professional-level careers or at least to have preserved non-graduate routes where these previously existed (cf. Milburn, 2009). In practice, while there are good examples of this such as the Association of Chartered Certified Accountants (ACCA) non-graduate route, the Institute

of Occupational Safety and Health's practice-based scheme, and the Institute of Conservation's open-access practising assessment, in the majority of professions routes of this type have accounted for only a small number of entrants, sometimes no more than single figures annually (Lester, 2009). Many professions that have created routes of this type have tended to struggle with recruiting and supporting entrants to take them, and with managing the related support structures and processes. Factors contributing to this situation include limited resources to develop and maintain the required infrastructures and support systems, limited availability of potential training posts, a lack of incentive to promote alternative entry-routes while the supply of graduates has remained strong, and a (generally misplaced) fear that non-standard entrants will be less capable than those coming through traditional pathways.

The emergence of higher and degree apprenticeships offers professions a framework within which to develop the partnerships and structures needed to facilitate work-based entry-routes. In the past professional bodies have tended to be supportive of apprenticeships without (with a few notable exceptions) engaging with them directly. The introduction of apprenticeships at levels 6 and 7, along with removal of previous requirements for NOS and for separate 'knowledge' and 'competence' qualifications, has made HAs much more suitable for use as entry routes to professions, and recent evidence suggests that the engineering, business and to some extent construction professions are beginning to support them (PARN, 2015). As the first two case-studies illustrate, the ability to integrate a practice-based academic qualification with developing professional competence (and critically with meeting the profession's standards for registration or qualified status) provides an eminently efficient and marketable way of creating work-based entry routes, both within and outside the overall framework of HAs. These changes, together with increasing interest in work-based entry routes both in professions as described above and in industry (e.g. CBI, 2013), also open up opportunities for universities with expertise in work-based learning to create pathways that form alternatives to conventional full- or part-time degrees.

The approach adopted in the case-studies also points to further opportunities to integrate professional competence with academic qualifications through the use of negotiated learning. Lester's studies of professional entry-routes and higher vocational programmes (Lester, 2009; 2014d) indicated that many nominally integrated programmes don't work that differently to parallel day- or block-release courses, in that theory is taught without reference to what students were doing at work, and the learning objectives for the work-based component can be isolated from those for other parts of the programme. On the other hand, a tension was recognised between integrating theoretical and practical learning, and making entry-routes widely accessible; as an example the approach used by ACCA, widely recognised as providing a route to professional status that is equally accessible to school-leavers, graduates and mature entrants, sacrifices close integration of theory and practice in favour of maximising flexibility. The negotiated learning approach on the other hand enables learners to draw on and integrate work experience with academic learning through appropriate learning agreements and negotiated assignments, without the need to pre-structure the relationship between different programme components at more than an outline level. A major benefit of this approach is that it allows flexibility to accommodate different patterns of work while maintaining a close relationship between academic and practical learning.

From a policy perspective, these kinds of integrated routes not only provide more diverse routes into professional careers consistent with the principle of fair access (Milburn, 2012), but also offer genuine alternatives to full-time higher education for young (and less young) people who are decided on a particular career or have already entered the labour-market. There has been already been substantial political support behind the Higher Apprenticeship model, but as yet this has only translated into a small fraction of enrolments (1.5% of university and higher vocational starts in 2014) and integrated academic/professional programmes have the potential to play a considerably larger role in the UK's higher education provision. The fact that some of these programmes attract large numbers of highly-qualified applicants is already demonstrating their appeal *vis-à-vis* full-time degrees, but making them a commonplace part of universities' offerings suggests a need for them to be given greater recognition within mainstream higher education policy.

Conclusions

A presumption that academic learning and professional competence are different enough in nature to preclude them being recognised through the same qualification or assessment process is frequently made both in universities and in bodies concerned with occupational competence, leading to a separation of programmes and certification for each. This presumption is reasonable if academic learning is defined as limited to acquiring the theoretical principles, knowledge-base and know-how relevant to the profession (Schön's 'science' and 'applied science'), and competence with the ability to meet practising standards in a narrow, technical sense. However, if the former is also recognised as concerned with critical thinking, reflection, evaluation and making judgements aligned with a consideration of professional values, and the latter defined in the more expansive sense suggested by the Engineering Council or Epstein and Hundert, a conception much closer to Barnett's idea of metalearning can be arrived at. This leaves barriers to integration more as a matter of organisation, logistics and regulations than one of underlying philosophy.

The case-studies provide examples of how this kind of integrated approach can be achieved in practice. In surveying and construction, the degree was explicitly constructed to meet professional body as well as university criteria, so that it could lead to formal recognition without additional assessment processes. In the aviation example, a set of professional requirements that incorporated highly specific demands for competence were integrated into the criteria for the degree, with the remaining academic requirements being linked closely to the initial phase of practice as a professional pilot. The final example effectively provides validation that the transdisciplinary criteria used for the academic work-based learning programme are also reflective of the generic competence required in professional and management roles. There is no implication that all professional development programmes can or need to take a strongly integrated approach to what are commonly thought of as different phases of learning, but the case-studies do suggest that barriers to integration are less limiting than may be commonly supposed.

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