Developing a Transdisciplinary Work Based Learning Curriculum: a model for recognising learning from work

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ABSTRACT
This chapter presents Middlesex University's transdisciplinary work-based learning curriculum framework as a coherent and innovative means to provide flexible and open learning opportunities for those in work. The framework presented is concerned with open learning in three key ways: as a means to open opportunities and widen access to higher education for those in work by credentialing work-based learning; by promoting learning beyond the limitations of traditional academic disciplines to confer university awards in a transdisciplinary field of study designed to enhance professional practice; and lastly, as a vehicle for open learning opportunities through flexible, learner-centred, negotiated approaches supported by online technologies and blended learning strategies. The chapter describes the underpinning theory that constitutes the work-based learning field of study as well as the structure and components of the curriculum framework. Through illustrative case studies the chapter demonstrates how the Middlesex transdisciplinary framework has provided opportunities for a variety of working learners to gain access to higher education qualifications that would otherwise have been closed. Each case study illustrates a different aspect of the framework and how it has operated to create opportunities for open learning and credentialing at the level of the individual, the organisation and lastly within an industry sector. This demonstrates the potential for transferability of some of the principles and approaches to other higher education curricular settings

INTRODUCTION
Middlesex University's Institute for Work Based Learning is internationally renowned for its innovative approach to credentialing and recognising learning from the workplace. This can provide opportunities for individuals with little or no previous experience of formal higher-level learning to engage with higher education and thereby open opportunities for personal and professional development. The innovations introduced by the Institute for Work Based Learning at Middlesex have had a significant impact on enhancing opportunities for recognising and credentialing learning for an often overlooked and under-represented group in higher education, namely those in work (Leitch, 2006). In this sense, widening access to higher education for those in work is a key aspect of the conception of open learning that this chapter will describe. As well as opening up opportunities for work-based learners, the Middlesex framework also includes a systematic approach to credentialing work-based learning to lead to the award of a full range of University qualifications including Honours, Masters and Doctoral degrees. These credentialing systems include well-established procedures for accrediting prior learning as well as in-company training so that it can count directly towards the achievement of university qualifications.

The University's validated work-based learning curriculum framework can be used to construct University programmes across all academic levels, offering a structure within which individuals and cohorts of learners can pursue negotiated learning programmes that capture learning opportunities from work and which enhance work/ practice. This is underpinned by the establishment of work-based learning as a 'field of study' (Portwood 2000, Gibbs and Garnett, 2007) at the University within which higher education awards can be conferred. The conception of the work-based learning field of study is transdisciplinary and this chapter will explore how this resonates with the idea of open learning. This will include discussion of some of the philosophical and theoretical underpinnings of Middlesex University's validated work-based learning curriculum framework which reflect an open approach to credentialing learning. The underpinning concepts include the nature of transdisciplinarity and some of the potential the limitations of disciplinary-based approaches, the role of experiential learning and reflection, access to higher education and the contribution of communities of practice to work-based learning. The Middlesex work-based learning curriculum framework supports and promotes open learning in the sense that it is not limited to any particular academic discipline or subject but is rather designed to recognise higher-level learning that emerges through engagement with work and professional practice in a transdisciplinary context.

These aspects of open learning also resonate with the recent UK Higher Education Academy (HEA) report on the 'conditions of flexibility' that have "the potential to enhance student learning, widen opportunities for participation in higher education, and develop graduates who are well-equipped to contribute to a fast-changing world" (Barnett, 2014, p10). This report includes the requirement to 'provide pedagogical openness' as one of the conditions of flexibility in higher education. The work-based learning framework design, construction and operation is also coherent with the concept of 'flexible learning' as defined by the Commonwealth of Learning (2000). Specifically certain contributory factors to the learning environment include a "convergence of open and distance learning methods, media and classroom strategies; learner-centred philosophy" (Commonwealth of Learning 2000, p19). The Middlesex work-based learning curriculum framework has been designed to deploy open and distance learning methods that are delivered through online learning technologies providing a blended approach to learning. This can include online distance learning, recorded campus workshops and tutor support through a virtual learning environment and email, thereby opening opportunities for learning irrespective of a learner's work environment or geographical location.

The learner centred and flexible approach embedded in the work-based learning curriculum framework provides greater 'openness' in terms of widening participation in higher education for a diverse range of students (Bowes et al, 2013). Professional and work-based learners can enrol from a number of different sources as illustrated by the case studies later in this chapter. For all types of work-based learner, accessing a programme that promotes personal and professional development by focusing on their own work/practice enables them to gain a recognised higher education award and opens access to higher education as the 'subject' of study is situated as their own work-based learning (Boud and Solomon, 2001). An andragogical learner-centred approach is used, which motivates adult learners through credentialing their previous and current experience and providing learning opportunities that are relevant to the adult learners' circumstances (Knowles et al 2005). Recognition and credentialing prior learning is a key feature of the work-based learning framework through providing a scaffolding approach to the accreditation of prior and experiential learning (APEL) claims (Workman 2012).

The chapter also presents three case study examples that provide evidence of how the Middlesex work-based learning curriculum framework has enabled individuals, corporate practiioners and industry sector professionals to access opportunities by recognising and credentialing workplace learning within higher education programmes. By the end of the chapter the reader will be acquainted with some of the flexible ways in which the Middlesex framework has been used to provide opportunities for open learning in a range of

professional practice contexts. This will enable the reader to appreciate and understand the potential for transferability of some of the principles and approaches described and how these might be applied to other higher education curricular settings.

A TRANSDISCIPLINARY CURRICULUM FRAMEWORK

The work-based learning field of study

Work-based learning is not a traditional academic subject discipline. This does not mean that, as a transdisciplinary field of study, work-based learning is in opposition to subject disciplines, indeed they are often very relevant to it. It does mean however, that that there may be important things that we can know, do and be that might not be best described from within a disciplinary perspective. It might, following Foucault (1972, 1975), be important to ask how disciplinary knowledge is constructed and what the 'technologies of truth' are that underpin claims to knowledge. Similarly, it might be important to ask how disciplinary knowledge claims are authorised and controlled as well as how such constructions are implicated in the formation of academic subject experts, and so on. Such questions can of course be equally applied to any area of discourse in consideration of the dynamic interplay between knowledge, power and subjectivity (see for example, Heikkinen et al 1999), including work-based learning. The transdisciplinary approach deployed at Middlesex to open opportunities for credentialing work-based learning does not assume or require that academic disciplines are logically distinct 'forms of knowledge' (Hirst, 2010) but rather recognises that they are culturally, socially and historically contingent constructions. As Turner comments:

> Disciplines are artificial constructs; they are not naturally occurring intellectual divisions that might refer to divisions of the mind. They are socially constructed perspectives constituting a particular slice of reality and as such they can always be transformed, relocated or destroyed. (Turner 2006, p194-185).

This section will explore how the construction of work-based learning as a transdisciplinary 'field of study' can operate to make explicit how the work-based learner/ practitioner subject and the associated work-based knowledge are reciprocally constituted in the context of communication and negotiation with others who may be implicated in an identified area of work/practice. In other words, this section will describe how the transdisciplinary approach is explicit in identifying how work-based knowledge and professional identities are constructed as an integral part of the critical examination of instances of work-based learning.

Barnett (1994) identifies some of the limitations of 'academic competence' as half of a binary opposition with what he terms 'operational competence'. Barnett offers a third way to avoid the ideological position that he argues both academic and operational competence offer, called 'life-world becoming'. For example, Barnett positions academic competence as concerned with propositional knowledge as related to and defined by, the norms of an identified intellectual field. This is contrasted with operational competence, which is described as limited by its focus on outcomes, skill performance and 'knowing how' as pragmatically defined in relation to organisational norms (see Barnett 1994 p160). Barnett seeks to resolve the limitations of both academic and operational competence so that, for example, the epistemological limitations of either focussing on 'knowing that' or 'knowing how' (Ryle, 2000) is addressed when higher education focuses on 'reflective knowing'. Similarly, the limitations of 'experiential learning' and 'propositional learning' 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)

Reflection is an important learning process for many fields of study (Schön 1987), however, for work-based learning, reflection has a specific and more definitive function. As a learner's

own work/practice is the 'subject' of study within the field of professional and work-based learning, reflection is the key learning process in specialising and localising a learner's own work/practice from the general field. Reflection, in this context, is the means through which an individual learner identifies (subjectifies) themselves as a 'work-based learner' in relation to their own work/practice. This entails a developing alignment between personal aims and goals, knowledge, values, skills, capabilities and practices with those of the work/practice they are engaged with. In other words: '*Self-development in this area requires you to understand your professional self in relation to your personal self*' (Costley et al: 2010,p 4).

It may also be that this may not be solely a matter of understanding but also a matter of lived experience as a work-based learner, becoming a work-based learner subject, what Bourdieu (1973, 1986) called 'habitus', a form of embodied cultural capital. In other words, the embodiment of the knowledge, values, skills, capabilities and attitudes that both emerge from the reflective processes engaged with by the work-based learner and the cultural artefacts, products and practices that are identifiable within the specific, localised area of work/practice that is the focus of reflection. This learning process includes the development and enhancement of a range of analytical and evaluative cognitive skills with which to reflect on a learner's own work/practice. At the same time, reflection on a learner's own work/practice, for the purposes of work, generates specialised and localised knowledge that is applied to work/practice. Through the process of self-reflection and self-development individuals identify themselves as worker/practitioner/learner subjects in a "reciprocal genesis of subject and object" (Foucault: 1991, p69-70).

Professional and work-based learning can include and draw on a broad range of areas of knowledge including traditional academic subject discipline-based knowledge. Additionally, where sources of knowledge are aligned with an individual's professional and work-based learning they can be codified and institutionalised. It is the operation of the systems, procedures and mechanisms of the work-based learning curriculum framework that enables such knowledge to gain formal academic credentials and thus be codified. Whatever the source or kind of knowledge that is deployed, it is the application of such knowledge to an individual's own professional and work-based learning context that determines its relevance.

There is a clear relationship between the transdisciplinary work-based learning field of study and some conceptions of what has been called 'Mode 2' knowledge. For example, Mode 2 knowledge is described as being contextually applied and problem-focused, recognising a diversity of knowledge production sites (such as the workplace). Mode 2 knowledge is also described as being transdisciplinary in nature, and involving a reflexive approach to 'actors' and 'subjects' where the status and value of knowledge is negotiated with 'producers', 'collaborators,' 'disseminators', 'users' etc (see for example Nowotny et al, 2003). This has specific relevance to the kind of cognitive and practical skills that describe the work-based learning field of study and correlates strongly with the conception of the transdisciplinary work-based learning field of study

Firstly, work-based learning positions a learner's own work/practice as the subject of study and as such is concerned with the development and application of knowledge, understanding and skills that emerge from the context of this work/practice. As such, the workplace is explicitly recognised as a site of knowledge production. The emphasis on work-based practice and work-based projects is also designed to bring critical and creative thinking to real world problems through work/practice-based inquiry. Whereas traditional subject disciplines might draw on an established body of knowledge to define the nature of practice within that discipline, work-based learning requires the learner to reflect on specific work/practice so that it can be 'specialised' and 'localised' as the subject of study, thereby becoming the process by which workers and/or practitioners locate and identify their own specialised working practices within the broader transdisciplinary field. It is the development and embodiment of the knowledge, understanding, skills, capabilities, attributes and attitudes that emerge in the engagement with an individual's own work/practice which

become key features when credentialing the transdisciplinary work-based learning field of study.

Secondly, the self-reflective, internally focused discourse of constructing a specific worker/practitioner/learner subject identity requires the situating context of engagement with other practitioners. Wenger (2006) argues that 'communities of practice' require three characteristics: a shared domain of interest, members of a community who engage in shared activities, and the identification and development of shared practices that enable practitioners to recognise themselves as such. Similarly, situating work/practice in relation to communities of practitioners can be seen as a means by which it can be argued that communities of practice, in the context of the transdisciplinary work-based learning field of study, require some form of discursive engagement between practitioners who recognise a shared interest in specialised and localised areas of work/practice, thus acknowledging the value of that learning by those who produce, use and disseminate the knowledge.

Thirdly, while work-based learning has been described as necessarily transdisciplinary (as argued by Boud et al, 2001, for example), distinguishing between that which is 'transdisciplinary', 'interdisciplinary' or 'multidisciplinary' is necessary as these terms are sometimes used as if they are synonymous. Nicolescu (2008) has helpfully summarised the differences between these terms from a research perspective:

> Multidisciplinarity concerns studying a research topic not in only one discipline, but in several simultaneously…Interdisciplinarity has a different goal from multidisciplinarity. It concerns the transfer of methods from one discipline to another…Like multidisciplinarity, interdisciplinarity overflows the disciplines but its goal still remains within the framework of disciplinary research…transdisciplinarity concerns that which is at once between the disciplines, across the different disciplines, and beyond all disciplines. Its goal is the understanding of the present world, of which one of the imperatives is the unity of knowledge…Transdisciplinarity entails both a new vision and a lived experience. It is a way of self-transformation oriented towards knowledge of the self, the unity of knowledge, and the creation of a new art of living in the society. (Nicolescu: 2008, p2-3)

Whilst the ability to operate in multidisciplinary or interdisciplinary contexts might well be relevant to work-based learning, the ability to think and act in a transdisciplinary way between, across and beyond disciplinary approaches resonates strongly with work-based learning as a means of generating work/practice innovation and enhancement.

In seeking to define what is distinctive about the transdisciplinary work-based learning field of study, three key characteristics emerge from the considerations above. Work-based learning:

- Specialises and localises a learner's own professional and work-based learning as the subject of study through the development of reflective practice.
- Situates individual professional and work-based learning within wider practice contexts through negotiated engagements with communities of practitioners, employers, co-workers, collaborators, stakeholders, clients, academic tutors and others implicated in a specific area of work/practice
- Develops transdisciplinary approaches to professional and work-based learning that support and promote innovation and enhancement of work/practice

Put more straightforwardly, an individual conceiving of themselves as a work-based learner might think of these characteristics as: thinking about and trying to understand the work I do; engaging with others that are interested in or effected by the work I do; and developing different and better ways of working.

University work-based learning academic level descriptors

Work-based learning has been recognised as a field of study by at Middlesex University since 1993 (Portwood 2000). This distinguishes it from a mode of delivering higher education through work experience or placements within traditional subject discipline-based or vocational programmes. Garnett (2009) defines it as;

> 'University level critical thinking upon work (paid or unpaid) in order to facilitate the recognition, acquisition and application of individual and collective knowledge, skills and abilities, to achieve outcomes of significance to the learner, their work and the University'. (Garnett 2009, p4)

However, as a transdisciplinary field of study, work-based learning is not described as a subject or discipline in the traditional sense nor is it framed by UK Quality Assurance Agency for Higher Education (QAA 2013) 'Subject Benchmarking Statements' that describe other academic subject discipline-based programmes delivered by universities and other higher education providers. QAA Subject Benchmarking Statements "describe what gives a discipline its coherence and identity, and define what can be expected of a graduate in terms of the abilities and skills needed to develop understanding or competence in the subject" (QAA 2013). Although the transdisciplinary work-based learning field of study is not a subject discipline in this sense this does not mean that it is not possible to describe learning expectations in relation to knowledge, understanding, skills and abilities. In fact, a description of what does constitute the transdisciplinary work-based learning field of study is required if awards are to be made in it. Similarly, if achievements in work-based learning, leading to qualifications, are to be measured through assessment, then such assessments must be measured against something. Consequently, building on the three key characteristics above, Middlesex University has developed 'work-based learning level descriptors' to constitute the field of study in terms of academic level, complexity and learning expectations.

All higher education programmes in the UK that lead to higher education qualifications are expected to appropriately reflect the QAA Code of Practice and specifically the Framework for Higher Education Qualifications (QAA 2008). This document describes "the outcomes and attributes expected of learning that results in the award of higher education qualifications" (QAA 2008, p2) at each academic level. These outcomes and attributes are described as areas of knowledge, understanding, abilities and skills, each of which become increasingly complex and challenging the higher the level of the qualification. As such, qualifications awarded in the transdisciplinary work-based learning field of study also need to describe equivalent levels of learning expectations that reflects the Framework for Higher Education Qualifications. Middlesex University is also a founder member of SEEC (Southern England Education Consortium) and contributed to the development of its influential Credit Level Descriptors (SEEC 2010) and these have informed the development of the University's own work-based learning level descriptors.

These reference points particularly highlight the need to include the capability to take appropriate responsibility for leading change in a learner's own or others work practice as a key aspect of personal and enabling skills. These descriptors reflect the key characteristics of the transdisciplinary work-based learning field of study as described above and are specifically designed to be applicable to any areas of work/practice. The Middlesex work-based learning level descriptors categorise learning expectation in four areas: knowledge and understanding, cognitive skills, practical skills and personal and enabling skills. They provide a benchmark for measuring learning achievement in terms of the extent to which learners have demonstrated that they can:

A. Localise and specialise their own work/practice as a subject of study through reflection
B. Situate the identified work/practice context through negotiation and engagement with communities of practice and other stakeholders
C. Effectively engage in transdisciplinary experimentation through inquiry and project work designed to innovate and enhance work practices

D. Lead change in their own or in other's work/practice that provides the basis for new experience and further and ongoing reflection.

These areas reflect the way that learning expectations are described in both the QAA Framework for Higher Education Qualifications and Subject Benchmark Statements. Each category includes specific sub-categories as follows:

A. Knowledge and understanding
- Identification and application of work-based Knowledge
- Understanding and application of ethical principles to work/practice

B. Cognitive skills
- 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

C. Practical skills
- Work-based project design and development skills
- Professional networking and interpersonal skills
- Communication and Information management

D. Personal and enabling skills
- Self-directed professional development skills
- Responsibility and leadership in work/practice contexts

Each of these sub-categories are then extrapolated into descriptions of the specific expected learning achievements at each academic level from Level 4 (first level undergraduate) through levels 5 (second level undergraduate) and 6 (Honours level undergraduate) to level 7 (Masters level). These descriptors inform all learning outcomes of validated work-based learning framework modules which in turn, reflect the work-based learning curriculum model.

A model for a work-based learning curriculum framework

The curriculum philosophy underpinning the work-based learning curriculum framework, has been predicated on Kolb's (1984) experiential learning cycle (Garnett and Workman 2009), and the core curriculum components have constituted a learning process that reflect this cycle. There are a number of criticisms of Kolb's experiential learning theory. For example, Koob and Funk (2002) have questioned the logical consistency of Kolb's theory as well as the reliability and validity of his 'learning styles inventory' as a means of assessing learning styles. Seaman (2008) has questioned the extent to which the sequential nature of Kolb's experiential learning cycle is supported by evidence of how learning actually takes place. Seaman (2008) also identifies a tendency for Kolb to reduce learning to that which relates to individual experience, thereby significantly underplaying the social and environmental aspects of learning. In fact, Kolb and Kolb (2008) do include specific reference to Lave and Wenger's (1991) conception of communities of practice as one of a number of conditions for the "socially embedded nature of the learning space" (Kolb and Kolb 2008, p320). In some degree of recognition of the social constitution of learning Kolb and Kolb (2008) agree that:
"Knowledge resides not in the individual's head but in communities of practice such as a trade or profession." (Kolb and Kolb 2008, p320).

Other criticisms have included some fundamental aspects of the construction of the model. For example Seaman (2008) criticises how Kolb's model dichotomises the four main components of 'concrete experience', 'reflective observation', 'abstract conceptualisation' and 'active experimentation'. It is perhaps questionable that 'concrete experience' can take place devoid of a conceptual framework with which to construct such experience. Similarly, Bergsteiner et al (2010) observe that whereas 'thinking' is associated with the 'abstract conceptualising' mode, it is unlikely that 'reflective observation' and 'active experimentation' would be very productive without 'thinking'. Some of the oppositions constructed by Kolb's model are also problematic. Building on the criticisms of Bergsteiner et al (2010) it can be

seen that in opposing 'active experimentation' and 'reflective observation', conceptions of 'passive experimentation' and 'unreflective observation' are elided and the conceptions of 'reflective experimentation' or 'active observation' are excluded. Similarly, Bergsteiner et al (2010) point out that Kolb presumes that 'experience' must be concrete and that leads to the exclusion of the idea of 'abstract experience', in the sense that thinking about something is still an experience per se. Lastly, Bergsteiner et al (2010) argue that 'concrete conceptualisation' does not exist and that this leaves 'abstract conceptualisation' without a polar opposite. However, perhaps 'concrete conceptualisation' could be thought of as a form of experimentation in that it could describe action to bring abstract ideas into being?   In consideration of these criticisms of Kolb's experiential learning theory, the work-based learning curriculum model, whilst reflecting key aspects of Kolb's theory, also departs from it to a significant degree.

In recontextualising Kolb's experiential learning cycle it is acknowledged that:
- The experiential learning modes are socio-cultural constructions that are designed to provide a framework for learning that is productive in supporting and promoting reflection, conceptualisation and experimentation in the context of an identified area of work/practice.
- Work-based learning does not necessarily follow a prescribed cyclical sequence and that instances of actual learning can include dynamic interaction between any or all of the various experiential learning modes constructed.
- Work-based learning is a socially constituted activity that requires engagement with others implicated in identified areas of work/practice.
- Work-based learning implies that experience provides the opportunity for innovation, enhancement and productive change in work/practice.

The following table summarises the relationship between experiential learning modes (as recontextualised from Kolb,1984) and the work- based learning curriculum framework model.

Experiential learning mode	Work-based learning curriculum framework model
1. Reflection	Localising and specialising an individual's own professional and work-based learning as the subject of study through reflection on their own work/practice experience.
2. Conceptualisation	Conceptualising and describing an individual's own professional and work-based learning in relation to wider work/practice contexts through discursive negotiation and engagement with communities of practice, employers, colleagues, tutors and other work-based learners.
3. Experimentation	Developing an individual's own professional and work-based learning through active transdisciplinary experimentation, inquiry and project work designed to contribute to enhancement and innovation in their own and/or others' working practices.
4. Experience	Change in own and/or others' working practices creates new concrete work/practice experience as the basis for future reflection and work-based learning.

Table 1: Experiential learning modes related to the work-based learning curriculum framework model

This then translates to the work-based learning curriculum framework, which is comprised of the following types of modules:
- **Review of Learning** modules are designed to support and promote reflection on a learner's own work/practice and to operate as a vehicle for identifying (specialise and

localise) prior or current work-based learning, including the accreditation of experiential and certificated learning;

- **Professional Development** modules support engagement with higher-level work-based learning, promote engagement with communities of professional practice and the identification of continuing professional development needs. These modules can also include developing a programme agreement and negotiating the content, title of award, learning, teaching and assessment strategies of the work-based learning programme of study.
- **Practitioner Inquiry** modules are designed to enable learners to ask intelligent questions about how aspects of their or others work/practice could be enhanced. Through the consideration of the specific contexts of relevant aspects of work/practice these modules support the development of emergent methods of inquiry for proposed work-based learning projects or other activities.
- **Negotiated Work Based Learning Project** modules have three key functions:
  - Firstly, they are designed to support the development of work-based learning project activity that contribute to the enhancement of identified areas of work/practice.
  - Secondly, these modules are constructed in a wide variety of credit sizes across all academic levels to provide the structure for developing the size, level and focus of credentialing experiential learning claims.
  - Thirdly, they operate to codify the assessment of specialised aspects of professional and work-based learning in organisational or sector-based settings. In this sense they operate as the 'stem cells' of the University's work-based learning curriculum framework, where learning outcomes, learning, teaching and assessment activities can be negotiated to address specified organisational or sector needs.

The modules of the work-based learning curriculum framework are designed to support various aspects of work-based learning, all of which implies a productive educational change. There is a change in a learner's capability to know about and understand the context of their own work-based learning, to develop and apply skills and abilities to innovatively enhance their own and/or others work/practice. All of these module types are available at all academic levels of the work-based learning curriculum framework and their associated module learning outcomes reflect the relevant work-based learning level descriptor. This enables a spiral of increasing knowledge, understanding and skills, supported by curricular interventions that reinforce the associated work-based learning.

These validated modules operate as a 'kit of parts' that can be used to construct varying sizes of higher education programmes that can lead to all qualifications offered by the University, from University Certificate to full Masters award, thereby opening access to qualifications at all academic levels. The way that qualification titles are constructed also reflects the negotiated operation of the framework. Qualification titles have two components; one that signifies the transdisciplinary field of study and one that identifies the specialised area of work/practice. The field of study is signified by either 'Work Based Learning Studies' or 'Professional Practice' and three kinds of formulation are available. The negotiated and specialised area of work/practice is indicated by 'X' in the formulations below:

- **Professional Practice in X** – used where an established area of work/practice has been codified, such as through the existence of a related professional body. For example, 'BA (Hons) Professional Practice in Quantity Surveying'.
- **X Practice** – used where 'practice' stands as proxy for 'professional practice'. For example, 'PG Cert Retail Banking Practice'
- **Work Based Learning Studies (X)** – used where an areas of work/practice has not been significantly codified. For example, 'MA Work Based Learning Studies (Care Management)'.

Widening access to higher education by credentialing work-based learning
Access to UK higher education has been described as a valuable commodity and yet successive reports have highlighted how high-status selecting UK universities have failed to open access to underrepresented groups over the last decade and more (see for example,

(The Admissions to Higher Education Steering Group, *The Schwartz Report* 2004, Supporting Professionalism in Admissions 2008, The Panel on Fair Access to the Professions 2009, BIS 2009, Harris 2010, BIS 2011, Social Mobility and Child Poverty Commission 2013). Bravenboer (2012) has highlighted how UK government policy in promoting what he calls the 'admissional mode' of access to higher education, may have resulted in closing opportunities for participation in higher education. Bravenboer contrasts the 'admissional mode' where "participation in higher education is closed to those that have been admitted following an impartial selection process" with the 'recognitional mode' where "institutions do not operate as gatekeepers but seek to provide means to open the ways in which individuals can gain impartial recognition for learning at higher education level" (Bravenboer, 2012, p125-6). Professional and work-based learning higher education provision operates primarily in the recognitional mode, as its aim is explicitly to open up opportunities for those engaged in work to gain recognition for the learning that takes place in, through and for their work. Bravenboer (2011) has argued in considering collaboration between employers and the university, the admissional mode does not fit with higher education provision that arises as a consequence of a three-way negotiation between employer, practitioner and university. He comments:

> '…the traditional conception of 'admissions', where admissions decisions are the sole remit of the higher education institution, does not seem to fully or appropriately describe the nature of the collaboration. While higher education institutions have a clear responsibility to ensure that learners have the potential to benefit from the programmes they engage with, decisions concerning which staff are supported in doing so seem likely to be primarily determined by the employer. (Bravenboer, 2011, p41)'

The case studies that follow challenge the appropriateness of 'admissional mode' approaches, enabling professional and work-based learning to access significant opportunities for workers/practitioners to formally gain academic credit for learning that otherwise would remain tacit, unrecognised and closed. The constitution of professional and work-based learning as a transdisciplinary 'field of study' in which qualifications can be awarded is a key factor in opening up such opportunities. This is because the 'ownership' of this field is not exclusively dominated by universities in the same way that traditional academic subject discipline-based higher education may tend to be. The professional and work-based learning field only becomes a 'subject' of study through engagement with a series of learning processes, such as reflection, negotiated engagement and creative activity focussed on practice enhancement, that serve to situate, contextualise and specialise such learning. Universities may not be uniquely placed to determine the constitution of such specialised learning but through formal negotiation and agreement that involves employers (or other work sponsors), individual practitioners and the university, professional and work-based learning can be codified, formally recognised and credentialed leading to the award of a comprehensive range of qualifications.

CASE STUDIES
This section presents some illustrative case studies that are designed to demonstrate the significant flexibility and open approaches used in the application of the work-based learning curriculum framework. Each case study illustrates a different aspect of the framework and how it has operated to create opportunities for open learning and credentialing at the level of the individual, the organisation and lastly within an industry sector.

Case study 1: Recognising individual work-based learning
'Jo' tells of her experience of undertaking a Bachelor of Arts with Honours Work Based Learning Studies (Business Development) degree programme:

> Working in a busy Business Development Team with eight years work experience the concept of gaining academic credit from doing my job and reflecting on my past working experience sounded almost too good to be true.

I started my journey by completing my Review of Learning which enabled me to reflect on the skills and expertise I had previously gained from my professional working experience as well as analysing specific areas where I would continue to learn and grow in my future professional practice. Areas that I claimed credit for were: 'Managing Events', 'Leadership Skills', Managing Data', 'Purchasing and Budget Control' and 'Organising Events. I found this module both challenging and insightful as it has required me to reflect on my everyday practice scrutinising specific areas, yet enabling me to reflect in a productive and positive way.

The next modules I moved onto were 'Planning Professional Development' and Practitioner Inquiry', which I found extremely helpful. Practitioner Inquiry helped me to develop an awareness, knowledge and understanding of the importance of accurate research at work. It also helped me to understand what it meant to be an inside researcher and the effect of reflexivity, which can give rise to bias.

My project built on my previous experience and was entitled: 'An investigation to evaluate and improve planning effectively for successful internal events'. It was here that I was able to undertake further research by undertaking an action research approach. I undertook the following activities to implement the plan; reflection, identification, visualisation of an improvement, consultation and action. I concluded from my research that the existing planning tool did not meet the needs of planning an internal event and from undertaking semi-structured interviews with other people who planned events internally I came to the conclusion that a planning guide would be beneficial. The end product involved creating a manual that could be used when organising an internal event within my organisation. My draft planning guide was given to the people I had interviewed previously and all staff who evaluated the manual said that they would use it for future events.

On reflection, undertaking my degree has been a valuable experience which has enhanced my knowledge and expertise and has given me the confidence to undertake further investigations in future that have enabled me to increase my contributions to the workplace. My manual that I designed during my project is now used by my team for guidance when planning an event internally and is something I am very proud of. I would recommend this programme to anybody.

APEL claim	Review of Learning module	Planning Professional Development module	Professional Practitioner Inquiry module	Negotiated Work Based Learning Project module(s)
240 credits at Levels 4 and 5	15 credits at level 6	15 credits at Level 6	30 credits at Level 6	60 credits at Level 6

Table 2: BA (Hons) Work Based Learning Studies (Business Development) programme structure

Jo's experience shows how the work-based learning curriculum model enabled her to build on her previous experience and develop her skills and competence in the workplace in a way that benefitted not only herself, but also her direct team and others within the organisation. This was made possible by the situating of Jo's work/practice as the subject of her study through structured reflection. Similarly, the requirement to focus on innovative approaches to enhance identified areas of work/practice also opened opportunities for sharing this practice and promoted further engagement with ongoing learning as a key aspect of that practice.

Case study 2: The value of reflection in retail banking credentials
Following the global banking crises in 2008, Halifax Retail Bank (part of the Lloyds Banking Group) had a strategy to rebuild the confidence of its customers by raising the professional standards of its management teams. This investment took place in the context of Lloyds Banking Groups becoming 43.4% owned by the UK Government and the recording of £11bn losses for HBOS (Halifax and Bank of Scotland, also part of the Group). This context provided a background for major organisational change and restructuring across the Group and at Halifax.

The Bank required demonstrable return on investment measures to justify the workforce development activity for around 1,000 of its managers to the Group. These measures included: reduced staff turnover, lowering recruitment costs, better customer service rates, increased sales and 'converted referrals'. In addition, through professionalising the retail banking workforce, Halifax required improvement in the management of major changes in established business practices.

Building on a Halifax in-company training programme called Journey in Practice which was aimed at either Branch Managers or Local Area Directors, Middlesex worked with the Halifax Learning Development team to credential this learning so that it could attract academic credit. The Halifax Journey in Practice courses were accredited at two academic levels at level 6 (Honours degree level) and level 7 (Masters level). The process of developing this accredited learning activity resulted in a shared understanding of the aims of the collaboration based significantly on the fact that Middlesex was able to recognise: '…that expertise exists in organisational workplaces and that Universities are not the sole owners of knowledge, expertise and skills', (Halifax Network Director).

This credentialing formed the basis for further curriculum development to enable Managers to progress to an undergraduate or a postgraduate qualification in Retail Banking Practice. The University's facility to credential up to two thirds of accredited learning as part of a University qualification, provided the means by which in-company training formed the foundation for further learning development. The structure of the programmes are as follows:

Negotiated Work Based Learning Project module	
60 credits at level 6	
Journey in Practice 30 credits at level 6	Additional WBL Project activity 30 credits at level 6

Table 3: Advanced Diploma in Retail Banking Practice programme structure

Negotiated Work Based Learning Project module	
60 credits at level 7	
Journey in Practice 40 credits at level 7	Additional WBL Project activity 20 credits at level 7

Table 4: Postgraduate Certificate in Retail Banking Practice programme structure

Halifax evaluation of the business benefits
Halifax conducted their own evaluation of the business benefits of the workforce development activity drawing comparisons with branches where managers had not (as yet) undertaken the programmes. One outcome was the effect the programmes had in establishing a highly motivated and professional workforce. Another significant outcome was the unexpected benefit of reflection. The programmes not only provided business benefits

but also contributed to the establishment of a culture of reflection and learning within Halifax Retail Bank that has been recognised as enhancing work performance.

> A great success has been the realisation by many of the learners of the great value of reflection in improving performance. Halifax is a very fast paced organisation and typically colleagues struggle to build in time to reflect, often not seeing its value. This programme has opened many learners' eyes to the benefit of reflection in their work.

> The Reflective Learning Statements, which sit at the core of the learning process have transformed the thinking styles of the Halifax colleagues.
> (Halifax Retail Bank Learning Development Team)

The unexpected lifelong learning opportunities for individuals
The typical profile of the individuals who have undertaken the Retail Banking Practice programmes is that of someone who has not previously engaged with higher education but has developed significant knowledge, understanding skills and expertise in the context of 5 to 10 years of work. The individuals concerned had not generally considered that it would be possible for them to achieve higher education qualifications as they did not previously recognise the knowledge, skills and expertise they possessed as relevant to such an achievement.

This case study demonstrates that credentialing in-company training, together with the flexibility of the work-based learning curriculum framework in recognising higher-level work-based learning, opens up opportunities for learning that would otherwise have not been made available. The open learning delivery methods using workshops and online discussion and feedback enabled full time workers to achieve significant professional development. The concomitant achievement of the required business benefits in no way detracts from this, instead it makes it possible. The collaboration between Halifax Retail Bank and Middlesex University, mediated by the work-based learning curriculum framework, has contributed to a cultural shift in the recognition of reflection and shared learning as integrated aspects of how Halifax now think about professional practice in retail banking.

Case study 3: Opening opportunities for professional learning in the construction management sector
Middlesex University led a national project in the UK to develop a Higher Apprenticeship in Construction Management in response to specific requirements identified by the Construction Industry Training Board (CITB). One aim of the project was to design and develop a work-based Foundation degree (a work-based higher education qualification equivalent to the first two levels of a Bachelors degree) programme that would enable apprentices to develop the knowledge, understanding, skills and competencies required to undertake construction operations management job roles. A requirement of the programme was to provide a progression route to Higher Apprenticeships for those undertaking Advanced Apprenticeships (pre-degree level) in the sector, as none previously existed. The work-based Foundation degree and Higher Apprenticeship also had to meet the requirements of the Specification of Apprenticeship Standards for England (SASE) in order to be formally issued by CITB and approved by the National Apprenticeship Service. Entrants tend to be emergent professionals within the construction sector, such as construction managers. They may be relatively new to their chosen career pathway, with some underpinning craft skill and knowledge but lacking in higher level critical thinking skills and seeking a credentialing route for their professional practice towards a degree level award (Workman et al 2011).

The integration of professional body requirements within the work-based learning framework widens opportunities to access to professional membership whilst enabling students to gain an academic qualification at the same time. These developments have been brought about by the process of developing university higher apprenticeship programmes that reflect recent changes in UK apprenticeship legislation, that require the integration of professional body

recognition where available (Specification of Apprenticeship Standards for England, March 2013). These qualifications have also opened access to higher education for those who, as a consequence of the nature of their work, have had restricted access to appropriate higher level qualifications. The work-based learning curriculum framework has been tailored to meet sector specific requirements, thus providing a route to higher education that integrates the completion of higher-level study and recognition of professional competences (see Anderson et al 2012).

The Foundation degree Professional Practice in Construction Operations Management programme was constructed by tailoring a range of existing Negotiated Work Based Learning Project modules to reflect the areas of knowledge, understanding, skills and competencies identified (by industry sector bodies, employers and education providers) as being required to undertake the construction operation management job role. The core areas that Negotiated Work Based Learning modules were tailored to deliver are as follows:

Negotiated Work Based Learning Project modules	
Level 4	Level 5
Skills for Work Based Higher Education 15 credits	*Personal Learning and Thinking Skills 2* 15 credits
Construction Technologies 1 15 credits	*Law and Contracts* 15 credits
Science and Materials 15 credits	*Construction Technologies 2* 15 credits
Site Surveying 15 credits	*Environmental Technologies* 15 credits
Construction Management 15 credits	*Project Management* 30 credits
Personal Learning and Thinking Skills 1 15 credits	

Table 5: Negotiated Work Based Learning Project modules used to construct the Foundation degree Professional Practice in Construction Operations Management programme

Tailoring the Negotiated Work Based Learning Project modules
The work-based learning curriculum framework informs the construction of negotiated programmes, which are then tailored for specific sector or subject disciplines, within a validated structure. Negotiated Work Based Learning Project module learning outcomes all reflect the learning expectations identified within the relevant academic level descriptor. These learning outcomes are written from a transdisciplinary perspective but are also designed so that they can be 'negotiated' or tailored to reflect specific aspects of an identified area of work/practice. For example, the first learning outcome listed in all Negotiated Work Based Learning Project modules relates to knowledge and understanding. The learning outcome for the 15 credit module at level 4 is: 'Identify and apply knowledge and explain its relevance to your work/practice'. Following tailoring to reflect the sector specific area of work/practice for the 'Construction Technologies 1' module, this learning outcome became 'Identify and apply methods of site and ground investigation and explain its

relevance to your work/ practice'. It is important that the approach to learning that is described by each negotiated learning outcome is retained whilst specialising within a particular aspect of work/practice, in this case the identification and application of construction technologies. This example demonstrates a multi-layered approach to open learning: a widening access to higher education; the adaptation of modules to support curriculum and professional development; and the open approach to supporting teaching and learning through blended approaches which come into play when the programme is delivered.

All other module learning outcomes for Negotiated Work Based Learning Project modules can be appropriately tailored although this is not always necessary. Some of the transdisciplinary Negotiated Work Based Learning Project module learning outcomes can be related to sector specific requirements without tailoring. For example, the learning outcome that describes practical communication skills; 'Appropriately communicate your ideas, relevant information and outcomes of the project/ inquiry process', rarely requires tailoring. The Negotiated Work Based Learning Project modules are also designed to enable to learning, teaching and assessment strategies to be appropriately tailored to reflect the specific context of identified areas of work/practice. This means that the way that learning opportunities are constructed can reflect the actual working practices of a sector and the way evidence is provided to meet specified learning outcomes also reflects the kinds of learning and assessment activities that have currency and validity in practice.

Opening up access to professional body recognition
Having adapted the learning outcomes for the Negotiated Work Based Learning Project modules at both levels 4 and 5, the assessment requirements for each module were also tailored to ensure alignment with the sector requirements to provide the evidence of professional competency in relation to the construction operations manager job role. Accordingly assessment requirements were devised that would enable learners to demonstrate the expected competencies. These assessment requirements were also aligned with the Royal Institute of Chartered Surveyors (RICS) Project Manager technical competences to enable those who successfully complete the programme could gain direct access to Associate Membership of RICS. Usually individuals completing a RICS accredited Foundation degree would need an additional 4 years of work experience before submitting a membership application. However, the work-based nature of the programme, which enabled learners to gather evidence of professional competence as they undertook the programme, meant that the additional work experience requirement was waived. The opening up of access to RICS Associate Membership provided a unique benefit to learners as it enabled them to gain professional recognition far earlier than others completing sector specific but traditionally constructed qualifications.

Subsequently, a progression route from the Foundation degree to a Bachelors degree has been devised, also using the work-based learning curriculum framework. The Bachelors programmes are also designed to enable learners to gain Professional Body recognition but at Chartered Member level. Developing programmes that start from the workplace, building upon 'know how' knowledge, understanding, skills and competencies through work-based study, and integrating Professional Body requirements, providing direct access to Professional Body Membership is a new initiative in UK higher education.

This case study illustrates the ability to credential work-based learning through the use of a flexible and adaptable work-based learning curriculum and its Negotiated Work Based Learning Project modules and how it can be used in a variety of ways to construct programmes that are highly responsive to developments within industry and professional bodies.

FUTURE RESEARCH DIRECTIONS
The development of the work-based learning curriculum framework has provided opportunities for creating innovative and responsive programmes for individuals,

organisations and industry sectors. This chapter has only been able to offer a brief overview of the curriculum and its potential, and research options are as varied as the range of programmes currently offered. Thirty eight organisational or sector focussed programmes have been developed and approved within the last three years across a broad range of professional sectors. As this approach to curriculum development becomes increasingly embedded into the University, it offers a wealth of potential areas for further investigation into open learning, including widening participation, professional learning from work, models of work-based learning, approaches to credentialing learning, impact and return on investment studies, to name but a few.

Current work is taking place at Middlesex to further consider how conceptions of professional competence can be integrated within academic qualifications through work-based learning. This has particular resonance with much of the recent development higher apprenticeships in the UK where they can now include up to Masters level university qualifications, thus opening access to higher education for an increasing range of professions. Similarly, there is scope for further work to consider how qualified professionals operate in multidisciplinary work environments and how transdisciplinary approaches might enhance the effectiveness of collaborative learning in such contexts.

Further and ongoing development of the use of social media technologies to support interactive work-based learning through the establishment of communities of practice that are not bounded by the university, also present a rich area for further study, in line with the concept of 'open learning' approaches. Considerations such as the negotiated nature of knowledge creation when mediated through online technologies and the consequent change in the power relations between tutors, learners, employers, practicing professionals and so on are also relevant further study themes within the open learning area of discourse.

CONCLUSION

The approach taken to opening up work-based learning at Middlesex University provides a highly flexible means to formally credential the learning of those who are engaged in work that would otherwise not be recognised. The establishment of work-based learning as a transdisciplinary field of study is a key factor in the shift from universities operating as 'gate-keepers' to learning opportunities, as practiced in traditional disciplinary settings, to an approach that seeks to recognise learning in non-traditional contexts, such as work. This is clearly demonstrated in 'Jo's' case study, recognising her individual work-based learning where reflection on prior learning opened up the possibility for further learning development and led to enhancing practice. The creation of the work-based learning curriculum framework and its application across varied individual, organisational and sector related contexts, demonstrates that it is possible to credential and codify learning that is not primarily driven by the university's disciplinary and faculty-based cultural conventions. Furthermore, the flexible and open approaches to recognition of learning offered through the work-based learning curriculum framework can lead to a full range of qualifications at all academic levels. This means that the size and shape of programmes can be specifically designed to better reflect the needs of individuals, organisations or industry sectors. As a consequence, the barriers of the 'one size fits all' approach to higher education is removed opening opportunities for learning.

It has also been argued that the transdisciplinary approach positions the formation and development of the work-based learning practitioner at the centre of higher education level study through critical examination of and reflection on learning. This arguably represents an explicit shift from 'knowledge bound' disciplinary approaches that may tend to prioritise propositional knowledge, to transdisciplinary approaches that are concerned with learning in the context of the dynamic interplay of knowledge, power and subjectivity. The transdisciplinary approach opens up possibilities for knowledge to be considered as being negotiated between producers, collaborators, disseminators and users rather than being the preserve of universities. The Halifax Retail Bank case study provides a good example of how this approach has brought about significant cultural change within a large national commercial organisation to enable reflection and learning to become normal and expected

aspects of working practice. The integration of learning practices with working practices presents significant open access for people who had little or no aspiration or opportunity to engage with higher education.

One significant shift in the way that the work-based learning curriculum framework has been constituted at Middlesex is the explicit requirement that work-based learning (and 'work' per se) is recognised as a social activity. It is through the interaction with other workers/ practitioners/professionals/customers/employers implicated within an identified area of work/ practice that work-based learning can shed light on how an area of work/practice is operating. This includes how an identified area of work/practice serves to: subjectify those constituted as workers/practitioners (including work-based learners); determine what counts as the 'true' knowledge; and structure power relations between workers/practitioners and others involved in it. The explicit requirement to situate work-based learning in the context of professional and practice-based networks within the work-based learning academic level descriptors and all module learning outcomes, 'hard wires' this aspect of work-based learning within the curriculum framework. This also opens practical opportunities for collaborative learning through sharing of practice-based experience and expertise.

The emphasis on transdisciplinary approaches to inquiry, experimentation and project work focussed on enhancing practice, is a feature of the Middlesex understanding of professional practice. While professional bodies and associations may commonly have a benchmark of the level of competence required for professional status the added value of integrating professional competence with academic work-based learning is clearly demonstrated by the recognition of the Construction Operations Management degree by the Royal Chartered Institute of Surveyors case study. Many professions also require recognised professionals to keep a record of continuous professional development in order to maintain their status post qualification. However, the Middlesex work-based learning curriculum framework goes further in requiring that practicing professionals (and indeed any work-based learner) actively seeks ways to innovate and enhance their own and/or others practice. It also provides a mechanism whereby the learning from experience can be credentialed and incorporated into higher education awards. This positions work-based learning as a productive activity that can be of benefit to the individuals who engage with it, those with whom they work, their employers (or other work sponsors) and the wider field of practice related to their work. Through the demonstration of the wide-ranging benefits of work-based learning it is possible to encourage employers to invest in the higher education of their staff and significantly open opportunities for ongoing learning.

AUTHOR BIOGRAPHIES

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KEY TERMS AND DEFINITIONS

Accreditation: The formal mechanism for the recognition of learning that is achieved outside of validated programmes of study. This can includes the accreditation of external learning activity or courses and/or the accreditation of prior and experiential learning (APEL), and is also known as recognition of prior learning (RPL), prior learning accreditation (PLA), prior learning accreditation and recognition (PLAR), accreditation of prior learning (APL).

Experiential learning: Learning that is predicated on experience through supporting and promoting reflection, conceptualisation and experimentation in the context of an identified area of work/practice.

Community of practice: A shared domain of interest, shared activities within a context of engagement with other practitioners, identification and development of shared practices where the workplace is explicitly recognised as a site of knowledge production

Curriculum model: A conceptualisation of learning and development processes related to aspects of the design, content, resources, learning, teaching and assessment strategies of programmes of study.

Reflection: A conscious consideration of experience with the purpose of identifying and promoting learning and development. The means through which an individual learner identifies (subjectifies) themselves as a 'work-based learner' in relation to their own work/ practice.

Transdisciplinary: That which is at the same time between the disciplines, across the different disciplines, and beyond all disciplines. The recognition that academic subject disciplines are contingent cultural constructions and that valuable learning can take place beyond disciplinary perspectives.

Widening participation: A positive recognition of the added value that participants from under-represented groups can bring to the quality of the higher education learning experience. The opportunity for under-represented groups with the merit and potential to benefit to participate in higher education.

Work-based learning: Learning that takes place in, through and for work. For individuals, reflection on a learner's own learning from work/practice specialises and localises it as the subject of study within the wider transdisciplinary field.

Work-based learning curriculum framework: A transdisciplinary suit of validated modules that are specifically designed to support work-based learning reflection, conceptualisation and experimentation leading to work/practice enhancement. The framework can construct programmes that reflect these processes sequentially or can be used to reflect specific areas of work/practice from an organisational or sector perspective.