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Differentiating knowledge, differentiating (occupational) practice

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Differentiating knowledge, differentiating (occupational) practice

Abstract

This paper extends arguments for differentiating knowledge into conceptualisations of occupational practice. It is argued that specialised forms of knowledge and practice require recognition and differentiation in ways that many contemporary approaches to practice theory deny. Drawing on Hager's interpretation of MacIntyre it is suggested that occupational practices are differentiated from non-occupational practices by their 'purposiveness', and by how their internal and external goods relate. Furthermore, we can differentiate within the category of occupational practices by (i) the character and extent of specialised knowledge that underpins the practice, and by (ii) how socio-epistemic and institutional conditions shape how knowledge is recontextualised within the practice. This leads to an outline differentiation between forms of specialised and non-specialised occupational knowledge and practice.

Introduction

It has been persuasively argued that a focus on differentiating the structures and purposes of types of knowledge is important for understanding the nature of occupational expertise (Winch 2010, 2013; Young and Muller 2014). Winch (2010) demarcates between know-that propositional knowledge, various forms of know-how (including the procedural and inferential forms which are closely related to the acquisition and use of propositional knowledge) and knowledge by acquaintance. These forms are brought together with project management capabilities, transversal abilities and various forms of technical skill to constitute types of occupational expertise which are nevertheless occupationally-specific (Winch 2013). Young and Muller (2014), in their recent text on expertise and the professions, draw on Bernstein's work on vertical and horizontal discourses, and Winch's (2010) work, to delineate between specialised and non-specialised forms of knowledge. Their thesis has substantial implications for professional and vocational education, in (i) foregrounding the importance of conceptualising specialised disciplined forms of knowledge for occupational practice and (ii) exposing the vacuity of non-disciplinary competence-based 'generic modes' (Bernstein 2000, 53), which prioritise 'trainability' (53), and an 'empty openness to future requirements' (Young and Muller 2016, 166). This perspective challenges the assumptions behind much vocational and professional education in the Anglosphere, where elements of non-specialised genericism are pervasive in narrow competency-based forms (Wheelahan 2007; Young 2006; Allais 2012). If it is posited that demands for forms of specialised conceptual disciplined knowledge and expertise are central requirements for a large swathe of occupations as Clark and Winch (2004), Winch (2010), and Young and Muller (2014) suggest, then this calls into question influential approaches that emphasise practice-based situated, relational and contextual knowledge, approaches that hold significant influence in a wide range of occupationally-orientated education (Billett et al. 2014).

In this paper an argument is made for an extension of the differentiation of occupationally-related knowledge into considerations of occupational practice. Rather than foregrounding the contextual or situated nature of practice as a central plank for the understanding of occupational knowledge and activity, a position that underpins the work of prominent theorists such as Schatzki (2010) or Kemmis (2014), it is argued that the notion of differentiation can be extended to consider how forms of occupational practice can be differentiated by their underpinning knowledge, and by the socio-epistemic and institutional

conditions that shape how knowledge is recontextualised in practice (Bernstein 1999, 2000; Young and Muller 2014; Hager 2011; Hordern 2014a). This leads into an illustrative differentiation between specialised and non-specialised elements of occupationally-relevant knowledge and the occupational practices associated with these. While this argument concedes that knowledge forms in practice are often intertwined and sometimes almost inextricable from each other (Young and Muller 2014), it is suggested that greater awareness of differentiation in knowledge and practice can assist disciplinary and occupational communities in identifying what forms of knowledge and practice are most appropriate in education for an occupation. The foregrounding of knowledge specialisation in the conceptualisation of occupational practice encourages a reconsideration of educational processes in the formation of professional and vocational practitioners, particularly in cases where situated knowledge has been afforded a central role at the expense of systematic knowledge.

In a similar manner to Winch (2010) and Loo (2012), the term ‘occupation’ or ‘occupationally-orientated’ is used in this paper as the argument is intended to have relevance to a wide range of occupations often considered professional or vocational in nature, indeed all occupations in which practitioners rely to some extent on forms of specialised knowledge for their practice.

The rationale for differentiating forms of knowledge

According to Young and Muller (2013, 236-238) knowledge should be seen as ‘material’, ‘real’, ‘emergent’ and ‘fallible’, building on a realist epistemology and ontology (Moore 2007; Young 2003; Young and Muller 2007). This realism recognises that knowledge is marked with the social character of its production, but also that the social conditions in which knowledge is produced and recontextualised into curriculum forms are varied, with some forms of ‘sociality’ better equipped to exercise judgement on claims to truth (Moore 2007; Young 2008). The consequence of this argument is that certain forms of knowledge have particular power in offering the intellectual resources to conceive of alternatives to current scenarios, and to hypothesise and conjecture reasonably on potential futures. This is illustrated in Bernstein’s (1999) vertical and horizontal discourses, where vertical discourse is ‘coherent, explicit and systematically principled’ (159) and therefore ‘specialised’ (Young and Muller 2014), and horizontal discourse or everyday knowledge which is ‘local’, ‘context-

dependent', 'tacit' and 'specific' (Bernstein 1999, 159), and therefore unsystematic and non-specialised. Vertical discourses are then further demarcated between 'hierarchical' and 'horizontal' knowledge structures, with the physical sciences held as archetypes of the former and sociology and 'cultural studies' of the latter (162-3). Bernstein's differentiation is supported with the assertion that many thinkers (see list in 1999, 170) have employed similar forms of dichotomy to understand the social basis of human knowledge. Drawing on Bernstein (1999, 2000) and related work, it has been argued that without differentiation between knowledge purposes and qualities it is impossible to distinguish what should be prioritised in school, vocational and professional curricula (Young 2008; Wheelahan 2010; Young and Muller 2014).

The importance of differentiation between knowledge types is underlined if one considers the different origins and purposes of types of knowledge, and the relations between these types. Some propositional knowledge or 'know that' clearly has greater significance when considered together with related propositional knowledge (Winch 2010). Such propositions sit in relation to each other within broader conceptual architectures that form disciplinary knowledge structures- 'joined up' through a 'chain of inferential relations' (Young and Muller 2016, 170-171). Becoming adept in disciplinary thought is only possible with the acquisition of the requisite forms of 'know how' that relate to that discipline (Winch 2010; Muller 2014). As Winch (2010) explains, knowing the propositions must be concomitant with knowing how to make inferences between them; individual facts or ideas are rendered meaningless if we do not understand what can be inferred from them. Equally, knowing how to apply the relevant procedures to judge claims to knowledge is vital to ensure that the conceptual architecture remains intact and that new knowledge is absorbed to a discipline only when it further enhances existing understandings of the subject matter (Winch 2013). Forms of know that and know how that are constituent parts of these disciplinary architectures can be differentiated from those which are not part of such architectures. This is not to say that non-disciplinary / non-specialised propositional knowledge cannot be complex and related to other forms of non-disciplinary knowledge. Barnett (2006, 146) provides the example of the local, specific and yet complex knowledge held by taxi drivers relating to the towns and cities in which they work. A key difference, however, is that such architectures tend to assemble knowledge for particular, specific purposes that cannot easily illuminate other contexts – in contrast to disciplinary conceptual architectures that provide a form of

general understanding and insight that can be applied to support multiple contextual applications (Winch 2010; Muller 2009).

Some forms of disciplinary knowledge are ‘specialised to develop conceptually’ (Young and Muller 2014, 8) in order to construct bodies of conceptual thought that can shed light on a range of contexts. Other forms of knowledge can be said to be ‘specialised to a contextual purpose’ (ibid.), including those that relate to occupational practices where the pursuit of ‘more elegant or efficient’ (ibid., 9) solutions to technical problems becomes a key driver of knowledge production. Young and Muller (2014) explain how these two forms of knowledge are intertwined in an ‘irreversible twist’ (9), influencing each other’s progress. The specialised knowledge of conceptual generalities is often fuelled by the need to explain the science behind technical solutions, while the specialised knowledge of contextual purposes has frequently absorbed general conceptual understanding to short-cut a route to more promising solutions to problems (Young and Muller 2014). Occupations have experienced differing trajectories of knowledge production partly as a consequence of how the professional and disciplinary communities that relate to them are organised (Foray and Hargreaves 2003), but also because of contestations around the core purpose of the occupation. What we think of as specialised knowledge today has been strongly influenced by industrialisation and economic transitions, but although ‘the boundary between different knowledge forms may have been breached’ (Young and Muller 2016, 158), it is forms of conceptuality that fundamentally underpin specialisation and enable knowledge progress (Bernstein 2000; Young and Muller 2016). Providing access to the conceptual resources and ways of thinking inherent to specialised knowledge enables practitioners to think through the problems encountered in their occupational practice, to consider alternatives and to reject inappropriate solutions (Winch 2010; Wheelahan 2010; Young and Muller 2014).

However, differentiation between specialised and non-specialised knowledge forms in the realm of occupational knowledge is problematic for two main reasons. Firstly, the formation and continuing professional development of practitioners involves both time spent in educational institutions and in workplace practice. This complicates differentiation by exposing novice practitioners, whether they are apprentices or students in higher education, to a wide range of curricula, pedagogic and workplace representations of specialised and non-specialised knowledge which they must somehow make sense of as part of the process of becoming a competent practitioner. Secondly, and relatedly, the knowledge base that best

supports the development of practitioners must balance the requirements and imperatives of disciplinary knowledge husbanded in education institutions and knowledge produced in occupational practice contexts (Barnett 2006). This means that for most occupations a specialised knowledge base must be generated, iterated and made available to practitioners in ways that differ from processes within the ‘purer’ disciplinary structures of knowledge production, where the relationship between research knowledge and curriculum structure is relatively straightforward, at least in higher education. The curriculum of a Maths and History degree is traceable to how knowledge is organised and produced in the academy (Muller 2009), whereas the curriculum of an engineering or management degree must assemble its knowledge base from a range of sources, and take account of a wider range of ‘stakeholder’ demands (Hordern 2016), while also recognising how technological and practice-based developments are affecting the occupation. It is this more complex process of ‘reclassificatory recontextualisation’ (Barnett 2006) that can result in difficulties in developing curriculum coherence (Muller 2009) as a wide swathe of specialised and non-specialised knowledge forms compete for inclusion, drawing weight from multiple reference points. Errors of recontextualisation can emerge as the grounds for selecting appropriating and transforming forms of knowledge are more opaque than they are for purer disciplinary structures (Hordern 2014a; 2014b). This complexity and potential confusion, both in the exposure of future practitioners, and in curricula form, highlights the importance of differentiation.

Thus it seems important to consider the purpose of each element of occupational knowledge, and how these elements relate to forms of occupational practice. However, this raises the question of what is meant by occupational practices, whether we can differentiate between them, and how these practices may or may not be affected by their relation to forms of specialised and non-specialised occupational knowledge.

The rationale for differentiating forms of practice

Many prominent contemporary theories of practice seem disinterested in any knowledge-based principle that might be used to differentiate between practices. Talk of practice ‘architectures’, ‘doings’, ‘sayings’ and ‘relatings’ (Kemmis 2014; Schatzki 2010), posits practice theory as concerned with the study of constantly shifting activity that endlessly varies ‘historically and geographically’ (Schatzki 2010, 51). Practices are therefore seen as inviolably situated, temporally and spatially specific, and ‘composed in the site where they

happen' (Kemmis 2014, 33). Notwithstanding some debate around how practices are constrained or shaped by 'dimensions of human sociality' (Kemmis 2014,30; or indeed by materiality (Rouse 2001), practice theory generally emphasises the amorphous or polymorphous nature of practice – each act may be variably shaped by contextual factors, and certain activities may 'hang together' (Kemmis 2014, 31) by virtue of sharing some 'skills and understandings' (Schatzki 2001, 12). For Schatzki and many others (Schatzki et al. 2001) it is notions of 'shared embodied know how' (12), 'shared practical understandings' and 'tacit knowledges and presuppositions' (11) underpinning 'arrays of activity' (11) that constitute practices. Nicolini argues that 'a practice approach radically transforms our view of knowledge' and that knowledge is 'always a way of knowing shared with others' (2012, 5), implying that forms of knowledge are entirely dependent on the form of practice that constitutes them, and should be understood solely by reference to the social dynamics of the practice.

It can be argued that these theoretical considerations neglect (i) the differentiated nature of knowledge used within practice (Young and Muller 2014; Winch 2010), and (ii) how systematic knowledge may relate to practical forms of know-how and acquaintance knowledge, and transform the knowledge we think of as 'tacit' and 'situated' (Winch 2010, Winch et al. 2015). The essence of many contemporary approaches to practice is to deny a principle of differentiation, arguing instead for a seamless web of overlapping activities with permeable boundaries, or a 'total nexus of interconnected human practices' (Schatzki 2001, 11), in theorisations that are keen to resist the technical, bounded and the intellectual (i.e. Kemmis 2014).

Some forms of practice theory tend also not to deliberate on the purpose of practices, or rather on the fact that some practices are clearly more socially 'purposive' (Hager 2011) than others. Caught up in dense theoretical webs in the pursuit of a definition of practice, and in arguing over what qualifies as a practice and what does not, it is easy to lose sight of any means of delineating between the purposes of practices and whether different categories of practice might require distinctive forms of conceptualisation. The idea that forms of practice such as recreational dance or playing tiddlywinks can be conceptualised within the same analytic framework as social work or engineering work seems questionable. While dance for recreation clearly has a purpose and requires forms of skill for competent execution, its purpose is not occupational and its outcomes do not matter substantively beyond those

engaged in its practice, in the ways that engineering or social work practice do. If we differentiate in terms of practice purpose occupational practices assume a category that can be set apart from recreational or personal everyday activity. Occupational practices require particular forms of knowledge, accountability and community, and many are enacted to fulfil a societal purpose (Winch 2010; Young and Muller 2014; Abbott 1988; Friedson 2001). The factors or ‘dimensions of human sociality’ that shape occupational practices are organised through jurisdictional struggle between different occupations for control over work (Abbott 1988), by the interplay between professional, market or bureaucratic logics (Friedson 2001), and by the requirements for co-ordination with others and for commitment to standards of competence and expertise. And these factors play out differently within different occupations, suggesting that within the category of ‘occupational practices’ there can be further differentiation along the lines of varied requirements for forms of expertise, organisation, and inter-professional co-ordination.

While much of what has become mainstream practice theory draws on philosophical arguments that ‘highlight non-propositional knowledge’ (Schatzki 2001, 10), MacIntyre’s (1981/2007) influential conceptualisation of practice offers scope for theorising a differentiation between practices that takes account of the differentiated nature of knowledge and the conditions through which it is recontextualised in occupational communities. MacIntyre’s conception of practice is ‘normative’ rather than ‘regulist’ or ‘regularist’ (Rouse 2007, 47), by which Rouse means that the practice is ‘maintained by interactions among its constitutive performances that express their mutual accountability’ (2007, 48). Norms thus mutually generated within the practice become the means by which the exercise of that practice can be evaluated (Winch 2010, Rouse 2007), and practitioners held accountable for their membership of the practice community. As Rouse suggests, ‘holding to account is itself integral to the practice’ (2007, 48). Yet, the exercising of the ‘holding to account’ and the process of evaluation according to norms require forms of organisation, community and judgement which do not cohere easily with fluid, seamless and unbounded conceptualisations of practice knowledge and activity.

For judgements to be fair and equitable and to maintain ‘mutuality’ in occupational communities there must be a degree of explicitness and systematisation (Winch 2010) – a community built purely on situated embodied knowledge and judgement quickly falls apart as its criteria or rules for entry are held tacitly and cannot be understood except through a

lifetime of personal contact. Moreover, the promotion of situated contextual ‘know-how’ and embodied knowledge disregards the need not only for accountability to other community members but also to other occupational communities and to wider society, who expect a succinct expression of the role and expertise of the occupation and what can be expected from its practitioners (Abbott 1988; Friedson 2001). While situated and embodied knowledge undeniably have important roles within practical activity, to elevate these to the core underpinning of all practices ignores the role of the systemisation of knowledge over the last thousand years in all complex purposive practices (Muller 2009) – a process that is likely only to accelerate (Clark and Winch 2004; Young and Muller 2014). Furthermore, the foregrounding of the situated and embodied also ignores the extent to which these forms are reconfigured by engagement with systematic knowledge (Winch 2010; Winch et al. 2015).

Differentiation between types of occupational practice

Occupational practices can be differentiated from each other by *the character* and *the extent* of specialised knowledge underpinning that practice. And the character and extent of specialised knowledge in use within the practice is inextricable from the *socio-epistemic and institutional conditions* existent within the occupational community. These conditions shape how judgements are made in practice and influence the extent to which specialised knowledge is made accessible to practitioners. While practices can no doubt be differentiated by other means, it is asserted here that differentiation on the basis of the type of the knowledge underpinning practice should be foregrounded in order to understand specialisation and expertise in occupational practices, and to understand what forms of occupational education may be most appropriate for that occupation. It is the type of knowledge that underpins the occupational practice that affords the occupation its degree of specialisation and jurisdiction (Abbott 1988; Young and Muller 2014), and variably supports the maintenance of ‘internal goods’ and ‘standards of excellence’ (Macintyre 1981/2007).

The character of specialised knowledge underpinning an occupational practice

As noted earlier, Young and Muller (2014, 8) identify two forms of specialised knowledge, that which is specialised to ‘conceptual generality’ and that which is specialised to a ‘contextual purpose’. The general (conceptual development) form is found across many academic disciplines, while the more applied (contextual purpose) form is primarily located

in occupationally-orientated disciplines. However, the contextual purpose form of knowledge is also used systematically and within practice contexts to inform practitioner judgement and to help find solutions to new problems encountered in practice (Young and Muller 2014).

The relationship between the ‘general’ and the ‘contextual purpose’ forms of specialised knowledge is thus a means of differentiating between occupational practices. Certain occupational practices require high levels of specialised knowledge to meet the purposes of the occupation. For example, professions such as medicine and engineering rely on ‘general’ specialised knowledge from the physical sciences, both as the knowledge base for those entering the professions and as the source of concepts that can fuel new forms of knowledge specialised to a ‘contextual purpose’ (Young and Muller 2014, 8) relevant to problems encountered by professional practitioners. The dynamic interaction between the two forms of specialised knowledge fuels knowledge production for the occupation and shapes demands on practitioners. As Hanrahan (2014, 117) notes, with reference to the International Engineering Alliance graduate attributes, engineers require an ‘understanding of the natural sciences applicable to the discipline’, ‘conceptually based mathematics’, ‘engineering fundamentals’ and ‘engineering specialist knowledge’, with conceptual innovation primarily occurring in how ‘advances in the natural sciences ... feed into specialist applications’ (118). A prospective medical or engineering practitioner must possess sufficient facility with ‘general’ specialised knowledge in order to progress to increasing facility with the ‘contextual purpose’ specialised knowledge, and thus to be able to undertake expert action and make expert judgements in practice. Participation directly in such an occupational practice is therefore not sufficient in itself to acquire this specialised expertise, and even novice participation relies on a high level of familiarity with ‘general’ forms of specialised knowledge, as a route into acquiring familiarity with the particular ‘blend’ of knowledge pertinent to that occupational practice.

In some occupations the relationship between the two forms of specialised knowledge may be relatively distant, with innovation primarily within the ‘contextual purpose’ form. For example, for professionals working in technical aspects of surveying the knowledge fundamentals underpinning the practice remain important over time but there is ongoing rapid innovation in applications and working practices, including through inter-professional collaboration (Cook and Chatterjee 2015). Still other professional occupations, such as social work and teaching, have a more fluid and contested relationship between the ‘general’ and

‘contextual purpose’ forms of knowledge (Muller 2009), with criticisms of the irrelevance of some of the psychological and sociological theories that have been ‘applied’ to shape the knowledge base of these occupations (i.e. see debates about teacher education in the U.K. as outlined in Furlong 2013). Partly this is because the ‘general’ pure disciplinary knowledge forms from which they are drawing (i.e. sociology and psychology) possess an array of ‘specialised languages’ (Bernstein 1999) which cannot be easily ‘delocated’ and ‘relocated’ independently of the disciplinary debates from which they have emerged (Hordern 2014b; 2016). An important broader point, however, is that the relationship between the two forms of specialised knowledge is not static – the trajectory of occupational practices is historically contingent (Foray and Hargreaves 2003) thus suggesting the important role of broader institutional conditions in shaping the relationship.

Even in occupations where the latest advances in research do not have direct or immediate impacts on practice, familiarity with concepts derived from the relation between ‘general’ and ‘purposeful’ forms of specialised knowledge can be crucial for professional judgement – a construction engineer may draw on recontextualised mathematical and scientific knowledge to solve a novel problem which does not correspond easily to the cases he has knowledge of or has experienced (Hordern 2014a). Equally a teacher relies on a bedrock of research-based educational theory to make reasoned judgements in practice (Winch et al. 2015). Thus recontextualised specialised knowledge provides the substrate both for many diagnostic frameworks which practitioners employ explicitly or implicitly to make judgements in practice (Abbott 1988), and is also employed to manage anomalous cases which require judgement and action outside of established routine diagnosis and inference. The practice of making such judgements is a specialised activity, in that familiarity with the purpose and use of specialised forms of knowledge is necessary to make sense of the occupational context.

The extent of specialised knowledge used in the occupational practice

Occupational practices vary considerably in the extent to which specialised knowledge is used within the practice. Some routinised occupational practices may require very limited engagement with specialised knowledge. Production or warehouse operatives working to processes prescribed by their employers have little reason to consider specialised forms of knowledge in the workplace, although forms of specialised knowledge may underpin the processes which they enact. In other occupational practices, it is non-specialised situated and

contextual knowledge, in terms of forms of personal know-how, market knowledge and social networking that enables practitioners to maintain an advantage in a competitive marketplace. This can be seen in occupations such as recruitment consultancy (Muzio et al. 2011), and in some of Muller's (2009, 218) 'particular occupations' such as travel agents or those working in hospitality or sales, who rely primarily on forms of interpersonal competence or knowledge of current market information to succeed at work. Additionally, there are many semi or unskilled occupations which involve practices that have limited discretion and workplace action is shaped by production imperatives. Here specialised knowledge is held within the production process itself – it is not necessary for a production line worker to develop a specialised competence but rather to follow instructions efficiently. In contrast, some occupations work almost exclusively with specialised knowledge (i.e. academic researchers), while many 'traditional professions' such as those of medicine, law and architecture are defined primarily by the forms of specialised knowledge and associated specialised practices that accompany them (Muller 2009).

However, the extent to which specialised knowledge is available within practice is subject to the socio-epistemic and institutional conditions existent within the practice. This includes the processes by which forms of specialised knowledge are recognised and utilised within the practice, and the degree to which differing practice logics may foreground or downplay the role of specialised knowledge.

Socio-epistemic conditions in the occupational community

Bernstein's identifies the origin of the professional occupations through the historical sociology of knowledge, suggesting that forms of internal commitment to quality and credibility in professional work reflect disciplinary dynamics that secured scientific progress through a secular appropriation in the medieval university of the 'personal dedication' husbanded originally in the tensions between Christianity and Greek thought (Bernstein 2000, 81-86; Muller 2009). The 'origin of the professions' is thus found in a 'guarantee' that the 'inner' commitment provides for the 'outer' 'material world' (Bernstein 2000, 85). This disciplined commitment is part of assuming a professional identity (Bernstein 2000; Beck and Young 2005), and supports the achievement and appreciation of 'outstanding work and performance' (Higgins 2003 in Hager 2011). For Bernstein (2000, 52) the 'regions' that represent forms of occupational knowledge have recontextualised knowledge from 'pure'

disciplines, with the more classical professions such as Medicine or engineering selecting and transforming knowledge from the physical and biological sciences in order to meet the challenges of the profession. However, it is not just propositional forms of knowledge that are ‘delocated’ and ‘relocated’ from one socio-epistemic entity to the next (Bernstein 2000; Muller 2014). Propositional knowledge and the disciplinary practices that sustain the quality of that knowledge are inextricable (Winch 2010; Muller 2014). As Winch (2010) points out, forms of occupational and disciplinary knowledge contain various admixtures of propositional knowledge (know that), inferential and procedural knowledge (know how) and acquaintance knowledge, and those forms of know-how imply particular procedures for judging truth claims that must be shared and at least partially agreed at the level of the disciplinary or occupational practice.

Thus many occupational communities can be said to be recontextualising forms of practice, at least in terms of approaches to knowledge, that have their origins in disciplinary communities, carrying with them commitments to maintaining ‘integrity’ and ‘legitimacy’ (Bernstein 2000, 86). This is not necessarily true, however, for all occupations. Bernstein’s discussion of the ‘generic’ (2000, 52) indicates how certain non-disciplinary modes of organisation (often of a Taylorist form) can be sponsored to wrestle control of an occupational field from a community underpinned by disciplined modes. We can see this, for example, in how narrow competency based approaches have been extended into the qualifications of graduate-level occupations (Jones and Moore 1993), or in attempts to reduce the academic content within schoolteachers professional qualifications (Beach and Bagley 2013). Within occupational communities, or amongst occupational stakeholders, there may be contests between those who value recontextualised disciplinary knowledge and those who seek to indiscriminately venerate all forms of practice connected with the occupation as the source of occupational knowledge, irrespective of the knowledge that underpins that practice. On the other hand, occupational knowledge and activity may simply mirror or reflect aspects of industrial processes, as may be the case with factory operatives or warehouse workers, and thus there is little recourse to any disciplinary knowledge.

The discussion above, rooted in Bernstein’s work, foregrounds the connections between knowledge, practice and occupational commitment, and resonates with a normative, MacIntyrean view of practice. Occupational practices may achieve what Hager (2011) describes as ‘a balance’ of MacIntyrean internal and external goods, entailing the conditions

that are ‘vital for the ongoing flourishing of the practice’ (554). This ‘balance’ can also be thought of in terms of a particular relationship, a form of connection between the ‘internal’ and ‘external’, whereby all goods whether internal or external are inextricable from the ‘purposiveness’ of the practice. In some occupations the ‘external’ achievement of status or wealth may be overriding objectives for practice participants, with internal goods (such as commitments to excellence irrespective of material gain, or voluntary contributions and service to the community) either divorced from the achievement of the external goods or non-existent. Alternatively, internal goods of commitment to standards of excellence may be strong currents within an occupational practice, and exemplified in the external realisation of that practice (Hager 2011, 555). Thus the external realisation of medical and architectural practices (in terms of completed buildings or patients healed and cared for) is directly influenced by the particular substance of internal goods, and by implication can be undermined when those internal goods are undermined.

In occupations underpinned by specialised knowledge judgements and actions that may appear ‘situated’ or highly contextual to the observer are often products of a broader framework of reasoning that guides decision-making and action-taking (Abbott 1988; Shalem 2014; Winch et al. 2015). Initiation within this practice, and access to the forms of reasoning therein, starts to make these judgements explicable. If systematically organised disciplinary knowledge is valued, then practitioners who engage with this knowledge will develop an enhanced technical and situated capability within the practice (Winch 2010; Winch et al. 2015) – they understand the reasoning for the actions they perform and when to adapt and adjust within parameters to achieve best outcomes. The internal goods of the practice thus guide, and become manifested within, contextual action. Winch et al. (2015) discuss how this works for teaching by identifying how involvement in a research-rich culture of professional development enhances the technical and craft knowledge needed for professional judgement and action in teaching – practitioners employ *techne* and *phronesis* reflectively, drawing appropriately on the broader propositional knowledge base with awareness of the validity and appropriacy of that knowledge to the case in hand. Similarly, Shalem’s (2014) work illustrates how a teacher’s ‘ability to discriminate a moment worthy of attention’ (94) is built upon a conceptually-derived ‘ordering principle’ (*ibid.*) that enables teachers to understand the complexity of educational contexts through a specialised lens.

Institutional conditions

Occupational practice is also shaped by norms and routines which emerge from institutions and organisations, and these may be to a greater or lesser extent be entwined with internally derived and husbanded standards of excellence constitutive of the practice. MacIntyre (1981/2007) draws attention to the role of institutions in sustaining practices, and in potentially jeopardising the ‘ideals and creativity of the practice’ and undermining the ‘co-operative care’ of its ‘common goods’ (194). Hager (2011) notes that for the ‘actual flourishing of the practice’ institutions and practice need to ‘be closely integrated’ (553), suggesting that the ‘corrupting power’ that MacIntyre (1981/2007, 194) attributes to institutions is somewhat overblown. Organisational or institutional imperatives can, however, substantially conflict with those of practices, and where these are underpinned by different logics there are likely to be difficulties. The strength of a practice with substantive internal goods that are recognised in the external performance of the practice will require certain kinds of institutional or organisational forms to support the performance of that practice. We see distinctive forms of institutions (i.e. universities, barristers chambers, or hospitals) historically supporting the practices of particular professions in a manner that is ‘closely integrated’ and allows the external realisation of the internal goods of the practice. However, these institutions may be pushed as a consequence of government policies, market influence or technological development to make changes to their organisational routines and norms in ways that can be seen as compromising the practices that are enacted within them.

Thus organisational routines, rules and norms are an alternative axis around which workplace practice, or elements of workplace practice, may be structured. Knowledge of organisational routines may be highly specific to the organisation, or may reflect similar routines and processes in play in multiple organisations across a sector, all conforming to particular logics that reflect a professional, highly bureaucratic or flexible orientation. The logic that underpins the routine or rule, and the extent to which these are conformed with and enforced, may also reflect the prominence of network and inter-personal knowledge within the organisation. For some organisations, for example in forms of consultancy or in small business, it is often

participation within a particular network where forms of local knowledge are shared about market opportunities that is important (see Muzio et al. 2011 for a discussion of this in terms of recruitment consultancy), and this form of knowledge is likely to take a pre-eminent role in forms of practice which lack strong internal goods. In Bernstein's terms these forms of fluid unstructured network knowledge are instances of horizontal discourse which is 'local', and 'context-dependent' (Bernstein 1999) and therefore ephemeral. They have value only to those who are engaged within them, and are 'consumed by the context' (Bernstein 2001) within which they are enacted or performed. This should not be confused, however, with forms of personal or community knowledge that are held and iterated within a framework of disciplined practice that has internal goods. In such cases this knowledge is employed in the pursuit of the external realisation of the practice – the network or community itself is comprised of specialist practitioners who are sharing knowledge in the pursuit of the goods of their practice.

Differentiating between these forms of practice matters for novice and experienced practitioners alike when they are exposed to the complex admixtures of knowledgeability found in workplaces. A work placement or initial period of workplace learning can provide considerable insight into patterns and priorities in workplace practice, supporting the knowledge already acquired in educational institutions or introducing practitioners to how that knowledge is extended or reworked within practice contexts. However, how what Billett (2006) terms the 'workplace curriculum' is organised and ordered has considerable bearing on whether opportunities for new knowledge and insight are recognised and taken by practitioners. As Winch (2010) notes, forms of acquaintance with practice are vital for the development of occupational expertise, but access to the forms of practice that enable that expertise may be variable. Workplace learning sits within meso-level productive systems (Felstead et al. 2009) that influence what is considered valuable knowledge. Those in workplaces may be offered the discretion and control of their own work activities necessary to extend their knowledge and competence, but these may well be suppressed or marginalised by managerial process (Eraut and Hirsch 2007). Equally, some may have opportunities to experience and explore workplace practice in other organisations, and the profile of practice 'affordances' or opportunities to learn may vary or be similar across organisations within a given sector, with implications for the extent to which opportunities to learn outside the 'home' workplace are beneficial (Fuller and Unwin 2004; Billett 2006).

Delineating between forms of occupational knowledge and practice

Having established the rationale for differentiating forms of knowledge, and how this differentiation interconnects with the differentiation of practice, it is useful to provide a brief summary of forms of occupationally-relevant knowledge and associated occupational practices, differentiating between the ‘specialised’ and ‘non-specialised’. This is not intended to be an attempt to exhaustively list all forms of occupational knowledge and practice, rather to emphasise the nature of differentiation and specialisation. ‘Specialised’ forms exist within systematic architectures of knowledge, or are products of such architectures, in which the value and purpose of those elements of knowledge therein is constituted via inferential relations (Winch 2014; Young and Muller 2016). In contrast ‘non-specialised’ forms have no such systematisation, even though they may be organised locally for specific purposes related to particular contexts (i.e. the taxi driver ‘knowledge’ outlined by Barnett 2006). Inevitably in much occupationally-related education and practice the various forms or knowledge are inter-mingled within occupational curricula, pedagogy, judgement and action, and therefore distinguishing between them empirically is often problematic.

As Muller (2014) identifies building on Winch (2010), it is incorrect to overstate the role of explicit propositional knowledge in practice based on Bernstein’s (1999) work, and yet to overstate tacit forms without acknowledging first the role of systematic explicit knowledge is also highly problematic (Winch 2010). Systematic knowledge forms incorporate elements of ‘know-how’ which may be partially tacit, although it can be argued that that tacitness should be made explicit wherever reasonably possible in order to make knowledge accessible to potential practitioners seeking to join the occupational community. Similarly, non-specialised forms are not exclusively tacit by any means, as may include organisational procedures and policies, or local geographical knowledge that is explicit but yet specific to a context.

Specialised occupational knowledge forms and associated practices

These could be said to include:

- (i) Propositional knowledge or ‘know that’ that is nested within an architecture of concepts that are connected via inferential relations (Young and Muller 2016, 170) – this know that is part of a disciplined structure - an ‘applied discipline’ in the case of occupationally-relevant knowledge (Winch 2010).

- (ii) inferential know-how and the practice of this know-how – or ‘the ability to grasp and employ such inferences’ (Winch 2013, 132) that relate to the propositional knowledge above.
- (iii) procedural know-how and the practice of this know-how – or the ability to ‘distinguish between claims which can be counted as knowledge and those which count as true beliefs’ (Winch 2013, 132).
- (iv) Aspects of principled and procedural knowledge which is specialised to the purposes of that practice (Young and Muller 2014; Young and Muller 2016). In some occupations this may be absorbed within (i), fuelling the ongoing development of knowledge production of the occupation.
- (v) Specialised acquaintance knowledge (a subset of Winch’s (2010, 2013) acquaintance knowledge), which might include acquaintance with aspects of judgement and action that is informed by specialised know that (i) and know how (ii and iii). Specific practice contexts may afford access to this knowledge by acquaintance, and it may be reinforced through observation, conversation and reflection. It is a form of knowledge that requires engagement with specialised forms of practice.
- (vi) Diagnostic frameworks that enable practitioners to make judgements. These sit at the interface of systematic knowledge and practice but are bounded and structured by the conceptual underpinnings of the knowledge base (Abbott 1988; Shalem 2014). The greater the systematisation of the knowledge base the more structured and bounded the diagnostic framework becomes, and the more specialised the ‘lens’ with which the practitioner views, and engages within, the practice context.
- (vii) Knowing how to participate in the practice community. The employment of (i), (ii), (iii), (iv), (v) and (vi) is underpinned by forms of participation that are specialised to the occupation. This participation may include involvement in forms of appraisal and review; the identification and refinement of standards of excellence; appreciation of the external realisation of the occupational practice; disciplined articulation of problematics or practice; and commitment to sustaining the practice through supporting new practitioners – i.e. through mentoring. These are in essence ‘specialised elements of the occupational practice’ that enable the practice to take place.

These knowledgeable forms could be said to approximate to a professional or occupational version of Bernstein's (1999) 'vertical discourse', but importantly, as noted above, they need to be sustained by a balance or relationship between the internal goods and the external realisation of the practice (Hager 2011) and by an appropriately supportive institutional framework that holds individual organisational and market logics in check, and enables the identification of the problems of practice and the sourcing and recontextualising of appropriate disciplinary knowledge (Barnett 2006; Hordern 2014a).

Non-specialised occupational knowledge and practice

This amounts to various elements of what could be described, drawing on Winch (2010) as non-specialised occupational propositional knowledge, know-how and acquaintance knowledge, much of which is gained through practice.

- (i) propositional knowledge specific to an organisation or workplace (for example this may be organisational policies or procedures)
- (ii) Forms of practical know-how specific to organisation and workplaces, and the practice of using that know-how
- (iii) Certain forms of personal knowledge. These may be 'rules of thumb' or ways of enacting practical activity that could, potentially, become 'specialised' if articulated with, and evaluated against the existing body of specialised knowledge outlined above (Muller 2014; Young and Muller 2016), and providing the rules exist within the occupational community to evaluate such claims.
- (iv) Forms of procedural knowledge specific to governmental policies, regulations and perhaps to employer representative bodies, where this is not derived from specialised knowledge.
- (v) network knowledge gained from exchange of information between those involved in an occupational practice.
- (vi) knowledge relating to a particular locale or geographical area (i.e. Barnett's (2006) taxi driver knowledge).

The practices that relate to these non-specialised knowledge forms are characterised by their specificity, and are driven and affected by economic circumstances, technological change and market values. The limitations on their usefulness beyond local and time-limited contexts calls into question the extent to which they should be incorporated extensively in a programme of occupationally-orientated education and training.

Concluding remarks

How practices are realised in specific organisations and workplaces also matters, although the extent to which these practices are themselves differentiated depends on the extent to which the specialisation of the occupational practice permits variation in local organisational and workplace practices. The range within which expansiveness and restrictiveness (Fuller and Unwin 2004) can vary within a sector or occupation may relate to the character of specialisation in the sector or occupation (Felstead et al. 2009), while its parameters are also substantially shaped by the political economy of work. The environments within which medical practitioners learn must by their nature be sufficiently expansive to enable the development of expertise, whereas human resource practitioners, or even university researchers on fixed term contracts, may enjoy varying levels of expansiveness in different organisations which view their contributions differently. What is different here is that medicine is an occupation enjoying a distinct specialisation and requirements for specialised knowledge underpinned by professional and legal frameworks. Thus employing organisations of medical practitioners must provide the requisite expansive experience of practice. On the other hand, human resource practice has no such underpinning specialisation, and thus employing organisations have greater freedom to shape practice experiences.

The emphasis on differentiating practice in terms of underpinning specialised knowledge, purposiveness, and supporting institutions thus has implications for how occupational practices, and the education and training of practitioners, are conceived. What appears as situated and contextual is often bounded and framed within a specialised systematic structure. Aspects of a doctor or teacher's tacit knowledge may be highly specialised, providing the socio-epistemic infrastructure exists to sustain that specialisation (Hordern 2014a, 2014b). Accessing such expertise is however only possible through interrelating forms of specialised propositional knowledge, know-how and acquaintance with knowledge use in practice, through a process of what Winch (2013) terms 'epistemic ascent'. For such specialised occupations, immersion in practice alone is insufficient if expert capability is required. Differentiating those aspects of practical experience that support the development of specialised expertise and identifying how novice practitioners can be best guided so that they acquire that expertise, within an overall programme structure that ensures that relevant

systematic knowledge is related to those experiences, is thus key for assembling programmes of occupationally-related education.

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