Towards a framework for professional curriculum design
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Recent reviews of vocational qualifications in England have noted problems with their restricted nature. However, the underlying issue of how to conceptualise professional agency in curriculum design has not been properly addressed, either by the Richard or the Whitehead reviews. Drawing on comparative work in England and Europe it is argued that vocational and professional curriculum design requires a transparency tool in order to map out the various categories of professional agency and their relationships with each other that need to be taken account of in curriculum design. This tool is not prescriptive but illustrates critical choices that curriculum designers need to make. The categories of agency include: skill, transversal ability, project management and occupational capacity. The further categories of contingent and systematic knowledge are also described, as well as personal characteristics relevant to work (competences). The exercise reveals that certain important categories are not usually taken into account within the English context to the detriment of curriculum design. Some technical issues concerning vocational curriculum design and assessment, such as permeability, levelling, referencing and trust are then discussed.

Keywords: curriculum; qualification; transparency; knowledge

Introduction
Many of the problems affecting vocational curriculum design in England are familiar, particularly the obsession with the specification of task-related behaviours as ‘learning outcomes’ related to narrowly specified occupational standards and the associated impoverished and backward-looking conceptualisation of vocational agency. But, it is often difficult to see beyond this as we do not have ready means of comparison with alternatives and our own cultural and economic traditions are often difficult to break free from. Comparative literature on professional knowledge has tended not to focus on the categories used in other systems for conceptualising that knowledge. More generally, there is limited literature on different conceptualisations of

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practical knowledge, for example, the insights developed by Ryle (1979) remain largely undeveloped. The focus still tends to remain on skill, to the exclusion of consideration of other forms of know-how. Writers on skill from Adam Smith onwards have contributed to the development of a narrow form of vocational agency that has almost become second nature.

There is little doubt, however, that dissatisfaction with these narrowly specified and unambitious curricula is growing. This is reflected in the conclusions of the Richard Review (2012) on Apprenticeships and the Whitehead Review of Adult Education (Whitehead 2013), which actually talks about new design principles for vocational education. However, neither Richard nor Whitehead actually get to grips with the framework needed for thinking beyond narrow categories such as knowledge and skill and do not appear to pay any attention to the more expansive vocational curricula that are taken for granted in northern Europe. My suggestion is that we have much to learn from these countries and that we can rethink the way in which we design vocational qualifications through the use of a ‘transparency tool’ which does not initially disturb our practices but relates them to other, more expansive ones which we can at least be aware of in designing vocational curricula. The task then is to locate our vocational qualification culture within a larger linguistic and conceptual framework.

The theoretical approach adopted will be a conceptual comparative analysis, which makes use of the philosophical literature on practical knowledge and empirical literature on conceptualisations of know-how in different European languages and cultures. Although the philosophical method is primarily analytical, it seeks to give a broad account of how terms for know-how are used without putting them into a pre-existing straightjacket. Such an approach also allows us to approach the comparative data with an open mind and to remain ready to accept classifications on their own terms and not seeking to put them into pre-arranged categories without further justification, a problem that is to be found with the conceptual framework used in the European Qualification Framework (EQF) and other such frameworks (see Brockmann, Clarke, and Winch 2011, Chapter 10, for an example of this approach).

The results of this investigation were compared with a more refined conceptualisation of know-how and its relation to knowledge in an attempt to provide(3,4),(996,997) a sectoral instantiation of the EQF for construction (Garstka and Syben 2009) and analytical work on know-how in the German professional context (Hanf 2011) and on this basis to construct a more adequate conceptualisation for professional and vocational know-how. This work formed the basis for the construction of a transparency tool, or comprehensive tabular representation of possible professional know-how and its relationship to different kinds of professional knowledge. These studies enabled a framework for professional know-how to be constructed which is an
important principle for the organisation within this study. Technical problems with the implementation of a transparency tool are then discussed.

**Aim of a transparency tool for professional and vocational education**

Building on experience and expertise available in other countries, particularly that in some of our near European neighbours, a more comprehensive account of the elements of professional competence was developed. This allows us to undertake a conceptual mapping of the various dimensions of professional and vocational education to serve as a template for curriculum designers, but also as a means of comparison with professional and vocational education qualifications in the UK and beyond. It will attempt to map the different elements of any possible professional/vocational qualification and will perspicuously represent their similarities and differences. How the tool is used for curriculum design will depend on the *aims* of the qualification. The basic idea is not original; various national qualification frameworks and the EQF have all attempted to achieve this (see Coles and Oates 2003 for the underlying rationale). The problem is, though, that their classificatory systems are too crude to serve as more than a rough comparison which fails to pinpoint significant elements of many qualifications. Their conceptualisation in terms of learning outcomes also poses difficulties in interpretation (see Allais 2012). The transparency tool will therefore of necessity be more elaborate than these. It is an instrument for specialists, but will not be of much use if it is too technical and elaborate. It needs to steer a narrow path between accessibility and obscurity. But in order for it to gain entry into the professional community of educators, it needs a rationale for its use. The main aim of this study was to provide one.

The transparency tool will be a framework for comparison, transparency and classification. It is not intended either to codify or rationalise existing qualifications nor to alter the conceptual framework within which qualifications are currently constructed. It will not be a template for mutual recognition of qualifications, nor will it attempt to construct common qualifications or a qualification framework applicable internationally. Its purpose is descriptive and comparative and in itself has no policy implications. These are by no means modest aims, because getting an adequate overview of the field is quite challenging, particularly if one wishes to be comprehensive and reach beyond the UK context. It is different from the EQF, whose original radical outcomes-based approach was a deliberate attempt to reform qualification frameworks and even qualifications across Europe (Allais, Raffe, and Young 2009; Bjørnávold and Pevec Grm 2010; Brockmann, Clarke, and Winch 2011). The tool could be used for such purposes but the intention is far broader, to provide a framework for thinking about professional curricula.
What should be the characteristics of such a tool?
A key attribute is comprehensiveness. The tool must be capable of comprehending not only just the variety of qualifications, but also their conceptual framework and the relationships between the core concepts of the framework. If it is not sufficiently comprehensive, it risks distorting some qualifications. If it is too detailed, it will be unwieldy. It will need, therefore, to be flexible, comprehensive, easy to use. This depends on a clear overview of the different dimensions of professional work and an effective way of relating them (see Winch 2010). It needs to be designed so that it can readily be adapted to sectoral and occupational purposes.

So what should be the main elements of such a tool?
First, it should indicate the aim of any particular qualification, what kind of professional agency it aims to develop. It also needs to take into account vocational, individual and civic elements of education. For agency, it should be capable of distinguishing between degree of independence in the workplace and role in a managerial hierarchy. Ideally, if the former job is done well, the latter will follow readily, as when one indicates the scope for agency within the workplace one implicitly specifies the degree of self-management and responsibility that such agency implies. This will already distinguish it from an instrument like the EQF, which focuses on position in a managerial hierarchy, even though this element of its classificatory system is termed ‘autonomy and responsibility’. The second and related element is that it should give a comprehensive classification of the knowledge and know-how to be developed.

Practical ability
Any classification focusing on ‘skill’ alone is going to be hopeless. The challenge is to develop an adequate account of practical knowledge which comprehends independence in action and judgment, as well as character elements of know-how, including the moral dimension of action, and relates these different elements. In what follows the different dimensions of practical ability or know-how will be outlined.

Skill
The concept of a skill, even though it is overused, is central to any vocational qualification worthy of the name. Skills are abilities to perform tasks, or more accurately, types of task which depend in turn primarily, although not exclusively, on coordinative and manipulative abilities (Barrow 1987). The concept of a skill can also encompass intellectual abilities such as mental arithmetic. It is also reasonable to characterise knowledge of how to handle etiquette, conventions of politeness and various forms of formal and semiformal procedural routines as ‘social skills’. These characteristics, however, should be the limit of what we should describe as ‘skills’.
We need, though, to distinguish possession of a skill from mastery of a technique or procedure for carrying out a task. Skill almost invariably involves mastery of a procedure but should not be identified with it (as do, for example, Stanley and Williamson 2001; Bengson and Moffett 2011a, 2011b). It is often possible to see that someone has mastered a procedure but has not acquired the associated skill. If the procedure cannot be applied by the agent in appropriate operational circumstances, then it is incorrect to say that the agent has acquired the skill. If someone is able to lay a line of bricks in a college workshop, it does not follow that he has acquired the skill of a bricklayer, if, for example, he cannot do so on a construction site where exigencies of time, cost, weather, height, colleagues, etc. are critical to successful execution. Some of the attributes lacking in one who has mastered a technique but not the associated skill are elements of experience and character needed to perform relevant tasks in appropriate contexts. Thus, the attribution of skill should be associated with other personal characteristics and mastery of technique and skill should be distinguished.

This brings us to a closely related question. An act may require that an agent have the relevant skill. It does not follow that someone who has a skill performs that activity skilfully. They may just perform to a threshold level in relation to a particular task, without being sufficiently proficient for positive evaluation. I may be able to waltz, but not gracefully, drive but not confidently, construct a table but not an elegant one and so on. The vexatious element here is whether or not the distinction between skilful and non-skilful performances in this sense should be reflected within a qualification and hence within a way of describing qualifications (see Whitehead 2013, 34 for a positive answer. See Ryle 1949 for an account of what he calls ‘intelligence epithets’).

Transversal abilities

Within EU discussion of vocational knowledge, there is a distinction between job-related and transversal skills. This is misleading. Key transversal characteristics such as the ability to plan, communicate, coordinate, control and evaluate are not skills, although they are invariably associated with skills (see Ryle 1979, Chapter 2 for a more comprehensive treatment). To possess a planning skill, such as the ability to construct a project flowchart, is not to be able to plan, since one can draw a flowchart and be incapable of effective planning. The same considerations apply to the other key transversal abilities. To be able to plan, to coordinate, etc. means that one has the ability to pay appropriate attention and take seriously the task or project to be undertaken as well as exercising relevant skills (Winch 2013b). In other words, we are, as in the case of skill, drawing attention to elements of character in attributing these abilities. We are often inclined to attribute ability like planning to someone when they have actually
successfully carried out their plan (see Hasselberger 2014 for a development of this and related claims).

They are *transversal* in the sense that they transcend particular skills. So, for example, the ability to evaluate within a particular field such as manufacturing may require different skills in different circumstances. This does not, of itself, make them *transferable*. My ability to plan the construction of a building does not imply that I can plan a reading programme nor *vice versa*. This does not mean, though, that the ability to coordinate, for example, in a particular area will not enable someone to be better at it in another area, especially if that area is cognate with the original one. Neither does it mean that the character attributes developed by possession of a transversal ability will not enable someone to acquire similar abilities in quite different areas of activity (Winch 2013b).

By contrast, one expects a skill to have a degree of *transferability*. We would be disinclined to say someone possessed a skill if they could only perform a task once or if they could carry out the relevant activity in a very narrow range of circumstances (*vide* the earlier bricklaying example). We normally expect performance in a task type to be applicable across a range of circumstances. Some skills have broad applicability, such as literacy and numeracy. It therefore makes perfect sense to talk of degrees of *transferability* in skills, and it is no surprise to see that literacy and numeracy frequently take their place in the lists of transferable skills that a VET programme should develop.

**Project management ability**

VET programmes often develop a more extended form of agency. A complex goal may be required, such as the building of a staircase or even a house and the apprentice or student may be assessed on their ability to carry through such a project. For the bricklayer/mason in France, for instance, the ‘Aim of vocational education’ is:

To develop professionals qualified in bricklaying capable of building a structure or part of a structure two storeys high, including bricklaying and masonry, reinforced concrete structures, necessary fittings, cladding, piping and ventilation shafts.²

A great number of related skills are required, as well as a range of the transversal abilities. They all need to be coordinated and articulated into a sequence that takes the agent from initial planning to evaluation of the quality of the finished work (Weil 1958, 133–134; Winch 2013b). Project management ability is often, as in this example, a central aim of a VET programme. It is dependent on the possession of transversal abilities and necessitates their articulation in extended sequences of activities.
Occupational capacity

Ambitious though the aim of developing project management abilities may seem for a VET programme, at least one of our near European neighbours is more ambitious still. Germany, for example, organises economic activity and VET around the Beruf or occupation. The idea of an occupation in the German (and Swiss and Austrian) context is far more than an amalgamation of different tasks into a bundle called an ‘occupation’. A Beruf is a legally recognised sphere of economic activity with its own educational regulations. It has social significance as a marker of social identity and citizenship (Greinert 2007; Hanf 2011). It is predicated on the idea that agency is dependent on the application of systematic knowledge to practice, what Eraut (1994) describes as a key attribute of a profession in the British context. A Beruf is neither static nor isolated. Social, economic and technological change mean that Berufe undergo near constant change and someone working within one has to keep abreast of and respond to these changes, as well as to coordinate and work with those in neighbouring occupations and to understand the significance, scope and limits of the Beruf in a broader social and political context. This way of thinking of occupations has a long history in German VET. Kerschensteiner, for example, emphasised the importance of character development in German VET, through the development, not just of ‘bourgeois virtues’ necessary to the application of skill, but ‘civic virtues’ which allow the worker to be a responsible citizen (Kerschensteiner [1901] 1964; see also Méhaut 2011 on savoir être in the French context). The outcome of such a form of VET is ‘berufliche Handlungsfähigkeit’ or ‘occupational action capacity’ but with a considerable element of the ability to reflect built into it (Hanf 2011).

Knowledge

Practice of a Beruf requires the application of knowledge to practice. We need to look more closely at ‘knowledge’ in this context, as this is sometimes misunderstood on the British VET scene. It is important to distinguish between contingent and acquaintance knowledge on the one hand and systematic, theoretical and scientific knowledge on the other, as they have different roles to play in professional action (see Méhaut 2011 for the importance of the concept of savoir in the French VET context, Hanf 2011 for the contrasting concepts of Kenntnis and Wissen in the German context).

Contingent knowledge

This includes local knowledge of plant, machinery, ways of working, rules and procedures applicable to the workplace, the history of local practices and first hand acquaintance with the working environment, known as
Kenntnis in German (Hanf 2011). Such knowledge is fundamental to the ability to work in a particular environment. Since much of it is local, it is necessarily bound up with particular jobs and hence with job training rather than vocational education (see also Sturt [1923] 1976 for an example in the British context). On the other hand, some of it has a wide occupational application. Knowledge of certain sorts of machinery, for example, may be widely applicable across a range of jobs.

Systematic knowledge

Systematic knowledge is fundamental to the idea of a Beruf and to the French idea of compétence in a metier. Professional action can draw on the resources of the systematic knowledge that underpins the occupation (Eraut 1994). It could be called scientific in a very broad sense, although very often it will draw on a specific selection of the natural sciences (biochemistry in medicine, for example), sometimes it will be dependent on one of the human or social sciences and sometimes it will draw on systematic normative knowledge (as with the law). The idea of an agent possessing systematic knowledge related to the occupation is bound up with the idea of professional judgment. A worker is expected to be able, not only to justify or legitimate his actions through appeal to the systematic knowledge that underpins the occupation, but also to employ it in decision-making (Eraut op.cit.). The flow of knowledge is not necessarily one way only. Professional communities may come themselves to take part in knowledge creation (Nerland and Jensen 2012, 101–102).

What is appealed to is not just a set of propositions, but of principles and concepts, which the agent will need to be familiar with, in the sense that he can find his way around that body of knowledge through the understanding of conceptual and empirical relationships between the various elements. It is better to see subject acquaintance and expertise not so much in the ability to recall propositions within the field (although it usually should involve this), but rather that of finding one’s way around a subject and using it, especially in vocational contexts, for one’s purposes. At the most basic level, this will involve being able to make inferences within the subject matter. This will involve the application of general principles (such as Ohm’s law), conceptual relationships (current, volt, amp, etc.) and central propositions within the subject (Hirst 1965). Acquaintance with at least some of these central principles, propositions and concepts is a prerequisite of basic subject knowledge. Without it, one would not expect workers to be able to form judgements drawing on systematic knowledge.

Someone with a moderate acquaintance with the subject will be able to carry out activities that replicate those that have, at one time, contributed to the acquisition of new knowledge. Such activities could include the following: the replication of a key experiment or the repetition of a document
search. They can provide good acquaintance with what it means to master a subject, as well as developing key elements of subject know-how (Winch 2013a). They should be distinguished from the ability to carry out original research in the area, although some of the abilities thus developed will be prerequisites for doing so. They should also be distinguished from the ability to modify occupation-related theoretical knowledge, using the results of experience either to suggest changes to elements of the theory or to exploit the theory by developing an artefact relying on the deployment of relevant theoretical as well as practical knowledge.

**Competence and personal characteristics**

This is probably the most difficult area to deal with when making a conceptual map of qualifications and some may even dispute its necessity. But it is certainly a key element in some qualification frameworks, such as the German and Polish (Bjornavold and Pevec Grm 2010; Brockmann, Clarke, and Winch 2010).

Professional action often involves teams or hierarchies. They are often highly responsible for what they do. A qualification worthy of the name should be a social guarantee that the holder can actually do what the qualification says he or she can do. The exercise of responsibility, the ability to work with others and to manage oneself and to carry through extended work over a significant time period are important characteristics of many kinds of work. A qualification which failed to register such essential attributes would be limited in value. Furthermore, many vocational qualifications are educational qualifications in the broad sense. They are signifiers of a general educational level that includes character growth and personal cultivation. Such accomplishments need to be recognised within the qualification structure.

**Conceptualising competence**

In recognising competence and personal characteristics (to be called ‘competence’ for short), we should not overcomplicate our conceptual framework. So, the starting point will be the abilities and characteristics of individuals. There are then two important distinctions which, although they point to real conceptual differences, are not necessarily sharp distinctions. The boundaries between the concepts may be fluid.

The first is between competence exercised in the workplace and in other contexts. The second is between social and personal aspects of competence. We need the first because we wish to cater for qualifications that attend to the individual and civic aspects of a person’s abilities as well as those exercised in the workplace. The second is needed because there are some characteristics that are important when individuals are working on their own and some necessarily exercised when working with others.
Competence is an aspect of how someone goes about something, it is not a distinct form of action (Winch 2010, Chapter 4). Someone who acts skilfully is not doing two things, carrying out a task and acting skilfully. The skilfulness is the manner in which the task is done (Ryle 1949, Chapter 2, esp., 32–35, 45–51). Someone effectively coordinating a sequence of activity in the workplace is not carrying out coordinating activities and also, in a kind of parallel world, performing an effective set of actions. The effectiveness of the coordination is the manner in which it is done. We need to capture this through a non-contingent link between different aspects of the framework. When one capacity is registered, then a competence element is necessarily also registered. Two examples make this clearer.

The term ‘skilful’ is itself a placeholder for more detailed use of the appropriate evaluative vocabulary, such as ‘gracefully’ in relation to dancing, ‘accurately’ in relation to carpentry, ‘considerately’ in relation to nursing and ‘stylishly’ in relation to speech making. We assume that this activity cannot be carried out skilfully without the agent paying attention, taking care, attending to details and aiming for excellence. If we are to register the ability to carry out a task skilfully, as opposed to merely carrying it out, we have to recognise the personal characteristics that are a necessary element of the manner in which it is done. Take transversal abilities. Suppose the ability to communicate is key to a certain position in an occupation. The registration on the qualification of ability to communicate cannot merely be that the individual is able to exercise ‘communication skills’, rather that they are actually able to communicate. This means that they are taking sufficient pains over what they are doing to ensure that what they intend to communicate is, in fact, communicated. In other words, we expect them to take sufficient pains and to pay sufficient attention to what they are doing to be able to communicate (as opposed to ‘going through the motions’ of communication). This will, in many cases, also mean that they have the degree of empathy with others and personal awareness that are empirically necessary features of communication. If, therefore, we wish to register the ability to communicate we must, again, recognise the personal characteristics (this time partly social in dimension) which are a necessary part of the ability to communicate. This does not merely involve individuals within the same occupation, and cross-occupational co-operation is increasingly critical to successful professional practice (Guile 2012) (Table 1).

This way of classifying competence departs from the German and Polish models by, for example, treating competence as a unitary category with different aspects, rather than dealing with separate kinds of competence. Competence is an umbrella term for the relevant personal characteristics, but we should be careful of making hermetic distinctions between them.

We thus have, in addition to knowledge and know-how, a third category which reflects the common practice of continental countries which makes it
clear that we are talking about the attributes of individuals that contribute to their overall capacity for independent and responsible action, not an individual’s position in a managerial hierarchy.

**Some fundamental design issues**

What is proposed is not a transformational framework, nor even an attempt to tidy up the classification of existing qualifications. However, those who are designing specific qualifications or qualification frameworks need to take these design issues very seriously indeed. This does not mean, however, that difficult issues can simply be ignored. I will deal with the following:

Outputs and inputs
Standards and learning outcomes
Inferential and non-inferential approaches to assessment

**Outputs vs. inputs**

By its nature, the classification of qualifications is concerned with the results of learning and educational processes. Qualifications are a social guarantee that certain individual accomplishments have been acquired. They also tell interested parties what prospective holders of the qualification will have acquired if they possess the award. So, there is a perfectly innocuous sense in which all qualifications and qualification frameworks are ‘output oriented’. However, this does not entail that they reflect the design philosophy of a particular kind of qualification like the NVQ. If the classification is to be of any use descriptively, it needs to be able to encompass qualifications that can only or nearly always be awarded at the end of a teaching and learning process and the following of a curriculum.

There is, however, a question as to whether or not the detailed specification of a qualification can avoid reference to curricular and pedagogical processes. Qualification frameworks, if they are to be of any use, have to reflect the cumulative and hierarchical nature of the qualifications that they are classifying. Nearly, all qualifications exist within a system of assumed progression, meaning that attainment at one level presupposes attainment at a prior level. The greater the degree of presupposition, the higher in the hierarchy the qualification should be placed. Knowledge, know-how and competence are largely cumulative. One needs to have acquired certain
skills before one can plan a project, one needs to understand some mathematics before one can carry out statistical analysis and one needs to understand responsibility for one’s own well-being before one can be trusted to take responsibility for others.

The learning outcomes revolution in its extreme, behaviourally oriented, form tried to ignore this. Abilities were to be assessed without any presuppositions as to what other abilities may have been presupposed in the ability to be assessed. This would have been all very well if the qualification proposed was not related to others within a hierarchical classification, but this was not the case either with the NVQ or with the original conception of the EQF. Thus, to assess an ability at, say, level 3 is to do so without any reference to whether or not other abilities (which may be reflected in the qualification framework at level 1 or 2) have actually been acquired. There appears to be a contradiction between, on the one hand, claiming that an ability certified at a certain level does not mean that one has thereby certified certain lower level abilities and the claim that the ability is situated within a hierarchy, in which the higher ones presuppose the lower (Brockmann, Clarke, and Winch 2008).

An advocate of a learning outcomes approach might respond by saying that although the certification is for a level 3 qualification, in so certifying one can infer that the relevant level 1 and 2 abilities have been acquired. This move does not unfortunately address the requirement that qualifications need to satisfy, namely that they guarantee that an ability, area of knowledge or personal characteristic have been acquired. And if this requirement cannot be satisfied, the qualification at level 3 cannot be used to infer, in a sufficiently reliable way, the existence of the underlying abilities at levels 1 and 2.

Suppose that a level 3 qualification for a tour bus driver involves the ability to plan and modify routes, to drive in a fuel efficient manner, to provide informed commentary and to diagnose mechanical and electrical faults on the vehicle. Clearly, the ability to do these things ‘presupposes’ that the driver can drive the vehicle safely (a level 2 attribute), since we assume that, in carrying out the level 3 activities, the driver is already capable of driving safely. But, we need to be assured that s/he can, in fact, drive safely. For us to be satisfied about this, we require the driver to take the level 2 qualification before the level 3 one, just as we would in an ‘input-based’ system. The other solution, to cumulate all the lower level attributes in the higher level one would clearly be administratively extremely wasteful and would provide a perverse incentive not to aim for important and valuable lower level qualifications.

Thus, even in a pure learning outcomes-based approach, the hierarchical nature of the attributes guaranteed means that each vital element in the hierarchy needs to be certified, and this can only happen in a framework of progression – implicit inference of progression will not be sufficient to guarantee that the attribute has, in fact, been acquired.
The situation is even worse with respect to knowledge. As Coles (2007) has pointed out, a learning outcomes-based assessment of, say, Roman history would require that the candidate knew and was able to articulate all the relevant propositions about Roman history that the qualification required. One could learn the relevant propositions by heart, but this is not expertise in Roman history. Recalling propositions under questioning is clearly important, but knowing the relationships between them and feeling comfortable in finding one’s way around those relationships is what we expect from someone knowledgeable in such a subject (Winch 2013a). Typically, we assess such subjects by setting a standard for the qualification which states, in broad terms, what we would expect of a candidate achieving at the relevant level. We then design a test instrument that samples across the field of relevant knowledge. If the test instrument is well designed and accurately samples the field of knowledge, know-how and competence, we can make a safe inference that the relevant level of expertise has been attained.

At this point, the learning outcomes advocate might claim that such inferences are unsafe; there is no guarantee that successfully passing an exam indicates subject expertise, and we have claimed that a qualification’s purpose is to provide just such a guarantee. In reply, first, no inductive inference can logically guarantee that the conclusion is true, given the truth of the premises. The guarantee that we are looking for is similar to, although not as rigorous, as the guarantee that the train’s brakes will not fail or that a climbing rope will not break. We have not ceased to certify doctors and airline pilots because their qualifications fail to provide a deductively valid guarantee. Second, the defence of a learning outcomes approach to know-how itself relies on non-logical inference. If the level 3 tour coach driver does indeed drive safely on the day of his test, then we are not even entitled to deductively infer any more than that he was able to do so at this time. We may conclude then that any fully fledged form of learning outcomes approach cannot work and when it does work it falls back implicitly on the assessment of previously acquired knowledge and ability.

There is another more mundane issue about ‘inputs’. Assessment is always of something and thus presupposes the content prescribed necessary to receive a qualification. So, there is, at the very least, an implicit curriculum contained within the award. This is a general point. Once one sets out standards or learning outcomes, then one has prescribed content. This is not a problem for standards-based systems since they recognise the importance of content. It is, however, a problem for learning outcomes systems, since the knowledge and ability presupposed by the learning outcomes provide the curriculum, provided that one can specify these accurately. In practice, the vocational qualifications of many countries will be highly prescriptive in the sense that the knowledge, ability and characteristics to be expected of a holder of the qualification will be full of detail. This detail
will be constitutive of the curriculum, either formally in an ‘input’-based system or informally when one is assessing informal or non-formal learning.

Despite what many philosophers have argued (e.g. White 1982a, 1982b; Bengson and Moffett 2007), knowing how to do something actually involves being able to in appropriate circumstances. But, it does not follow that if one is able to carry out the relevant action in appropriate circumstances, one can thereby be said to know how to do it (Snowdon 2004). This will only be a safe inference if one has good inductive grounds for believing that the ability to F implies that the subject of the assessment knows how to F, and a one-off observation of the action might not be enough. One might wish to probe why such and such a choice was made, how the subject would act in different circumstances, how they would deal with complex and difficult situations, what knowledge they would require to make a judgment in certain situations and so on. Willy-nilly, one is forced back to the content (knowledge, performance in a range of relevant situations) that underlies the action in order to make a safe inference to the agent’s know-how.  

The above argument shows that any attempt to design a qualification framework around the idea of a purely outcomes-based approach is mistaken. This does not mean that there is no scope for the accreditation of prior informal or non-formal learning – see below.

**Technical issues**

The framework outlined here has a purely descriptive purpose as a means of comparing different qualifications. But, it could also be used to help design qualifications, by indicating what would and would not be covered at different levels. Eventually, it could be used as a way of developing a common qualification by setting out minimum standards. It could even be used *transformatively* by insisting that all qualifications of a certain type have to satisfy certain conditions (Allais, Raffé, and Young 2009). However, my main concern is with the first two purposes and, in order for the framework to fulfil these, it is necessary to address some technical issues.

**Levels**

Most qualification systems, if not the actual qualifications themselves, rest on the ideas of presupposition and progression. Qualifications at a basic level will certify some basic local knowledge and very elementary know-how. But qualifications that are intended to guarantee more complex forms of agency will presuppose the necessary conditions for that agency. In this sense they will be at a higher ‘level’ than the most basic qualifications. This process of presupposing the simpler in order to practise the more complex can be iterated into an elaborate hierarchy if need be. But difficult decisions
will need to be made about what each of these levels should represent and how many of them there need to be.

In professional and vocational fields, we need to distinguish the different kinds of agency we recognise. There will be those which involve little or no knowledge and the performance of actions according to strict guidelines. There will be kinds where the exercise of a skill presupposes the use of some systematic knowledge to make judgments *in situ*. There will be agency which involves a degree of independence in carrying through more complex activities involving planning or coordination, for example. Some occupations will require the ability to manage a project. In more complex cases, the agent will be expected to have a sufficient grasp of the underlying relevant systematic knowledge (theory) to evaluate its relevance, propose modifications and devise new procedures and artefacts for the better conduct of the occupation. Finally, the agent may be expected to work at the epistemic frontiers of the occupation and to develop its underpinning knowledge base (Nerland and Jensen 2012).

The issue of levelling is made more complex still in qualification frameworks seeking to establish equivalences between professional and non-professional qualifications. England has had an unfortunate history in this respect with the presumed equivalences between level 2 vocational and level 2 academic qualifications being widely disbelieved. This disbelief was given official sanction through the Wolf Report (Wolf 2011), although the formal equivalences remain in place within the NQF (National Qualification Framework). There are no easy ways to establish such equivalences; this is an area which is poorly understood at the moment, so it is best to proceed with caution.

I will, however, propose a minimum requirement for the level matching of academic and vocational/professional qualifications. A professional qualification at level X should have an academic component whose content is at no less than level X-1 except at the base level. Thus, for a level three vocational qualification, this academic content need not be sufficient in content for a full level two award (e.g. 5 A*-C GCSEs in the case of England), but the academic content of the professional qualification should be no less than 50% of a relevant level two academic award. Thus, an English level three vocational qualification should contain, at the very least, an academic component consisting of not less than 2.5 GCSE equivalent academic content and preferably more. This seems to be a minimum requirement both for vocational qualifications to have serious credibility in the labour market and to be of any significant exchange value in the educational market.

**Referencing**

This means that two or more different qualifications are assigned to the same or different level. The EQF, for example, depends on a levelling
exercise in order to translate qualifications from one country into equivalences in another and, indeed, to calibrate qualification frameworks against each other.

Referencing is contentious because much is at stake for awarders of qualifications. It is sometimes technically very difficult to carry out when two or more qualifications or qualification frameworks do not employ the same system of levels. It is particularly difficult when academic qualifications in one country are compared with non-academic ones in a second country, compounding the difficulties that already exist in establishing equivalences between academic and professional qualifications.

The adoption of a strict learning outcomes approach makes it easier to abuse the referencing process, particularly if a country or an awarding body wishes to game it. It is easy, for example, to reinterpret practical knowledge as ability to give an account of how something is done and shift items from the know-how to the know-that column. The know-that element can then be further degraded into a multiple choice test, thus making the possession of knowledge a simple behavioural matter. Referencing practices need to have integrity and be accountable. Otherwise, one ends up with equivalences which no one believes in and the exercise becomes futile in practical terms.

Referencing should be supervised by an independent body involving the interested parties in a partnership in which none has a determinant say in the results of the procedure. Ideally, there should be at least one independent participant in any referencing process, for example in the case of EQF, a representative from another country.

Scope
Scope refers to the range of activities a professional qualification validates. The scope, for example, of a bricklayer qualification refers to the range of activities which a bricklayer is expected to undertake before becoming eligible for the award. Evidently, some awards within the same general occupational field can have wider scope than others (see Brockmann, Clarke, and Winch 2010, for examples from bricklaying). The original design for EQF was intended to take scope issues into account, but this never materialised in the model eventually adopted. This is proving to be a major problem, as scope simply cannot be ignored when qualifications are referenced against each other and indeed, when they assigned to a given level.

Any transparency tool will, therefore, need to take scope issues into account and ensure that it includes higher level forms of practical knowledge where appropriate. Furthermore, a referencing exercise will need to cross-reference the practical knowledge requirements with knowledge and competence presuppositions in order to make sure that all elements in the qualification are taken into account. One cannot really address scope issues at the trans-occupational level (e.g. at branch and sectoral level and
beyond), but they will need to be filled in for any process of occupational comparison. Care will have to be taken to ensure that scope descriptors are understood in the same way by different participants, otherwise problems with levelling and referencing will arise once again. There are no short cuts when making meaningful comparisons between qualifications, but this is not a good reason for not doing so. Fortunately, there will be many cases where the groundwork has already been done (e.g. by NARIC in England) and so one should not have to reinvent the wheel every time.

Assessment
There is no reason to suppose that a broadly based qualification template such as the one proposed has any direct implications for assessment policy. However, it is important to set the template up so that it does not exclude any approaches to assessment. It might seem as if a ‘learning outcomes’ framework such as the EQF would exclude qualifications and frameworks not based on them. However, there is no mechanism within EQF which can ensure that certain methods of assessment are used to the exclusion of others.

Furthermore, although this study has insisted on a conceptual distinction between standards-based and learning outcomes-based approaches to assessment, in practice, the term ‘learning outcomes’ is ambiguous. These ambiguities have been exploited within European debates in order to minimise conflict and to build consensus. Although the price of such fudging is often a lack of clarity in policy terms, it might worth paying to maintain the conversation about comparing and recognising qualifications. Thus, ‘learning outcomes’ is sometimes used synonymously with ‘standards’; sometimes as a synonym for ‘programme aims’ and sometimes for specifying lesson objectives. Used in a flexible way, it need not dictate any particular preferences for one form of assessment. The use of the recommended form of qualification template has few implications for the kind of assessment attached to a qualification.

APL and APEL
APL (Assessment of Prior Learning) should be easily accommodated. Those who use such a framework will have to deal with levelling and progression, on the one hand, and scope on the other. But, this is just the kind of detailed work needed to make such a template useful – the job of the tool is not to obstruct but to make it as easy as possible. It may be difficult to adequately encompass APL in a purely outcomes-based conception because assumptions about time spent in studying are usually used in determining accreditation, when, for example, assigning credits to an episode of learning.
APEL (Assessment of Prior Experiential Learning) does not raise any particular issues either. The work of creating assessment instruments for APEL has to deal with exactly the same kinds of levelling and referencing issues that any other form of assessment would raise. However, there is a procedural question as to how the results of informal and non-formal learning can be assessed within a formal qualification system. Assessment gives a presumed curriculum and, within it, the relevant scope and level considerations. So, APEL needs to take these into account. Very often, for reasons already discussed, it will not be possible to rely on in situ performance. The chosen European tool for certifying APL and APEL across the EU, known as ECVET, deals with this issue within what is termed as a ‘learning outcomes’ framework. The use of the term ‘learning outcomes’ does, however, depart significantly from the purely behavioural one originally envisaged in the design of the EQF and ECVET by making credit award dependent on study time, length of a programme and importance of content (arguably a proxy for the first two).\(^5\)

Despite the continued use of the ‘learning outcomes’ terminology, input factors are vital in the allocation of credit. Given the discussion earlier concerning the difficulties of purely outcomes-based approaches to qualification design, it could scarcely be otherwise. But it is possible to design APEL assessment systems through comparison of the time and effort required in informal relative to formal settings. Such an exercise may be complex, but there is no barrier in principle towards doing so.

**Qualification frameworks**

A transparency tool would lose much of its utility if it could not be applied to qualification frameworks. However, most qualification frameworks, which are much less comprehensive than the tool here described, simply make use of a limited range of the resources within the tool. In this respect, it will enable comparison between different qualification frameworks as well as different qualifications.

**Mutual trust**

Mutual trust was the key concept that Coles and Oates (2003) thought would be necessary to operate the EQF. Subsequent developments have shown them to be correct. The transparency tool depends on trust, since levelling and referencing cannot take place satisfactorily without it. However, it is also intended as an instrument that can promote mutual trust, as it promises to show similarities and differences between qualifications, by proposing a ready procedure which can remove ambiguity from qualifications and clarify distinctions between them.
Table 2. Outline of a transparency framework for professional qualifications.

<table>
<thead>
<tr>
<th>Aims of qualification</th>
<th>Vocational</th>
<th>Civic</th>
<th>Liberal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Know-how</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systematic Technical theory</td>
<td>Non-systematic</td>
<td>Skill</td>
<td>Individual Workplace</td>
</tr>
<tr>
<td>Contingent facts (e.g. local conditions)</td>
<td>Transversal abilities</td>
<td>Workplace Other locations</td>
<td></td>
</tr>
<tr>
<td>Normative theory</td>
<td>Local procedures</td>
<td>Project management ability</td>
<td>Social Workplace Other locations</td>
</tr>
<tr>
<td>Social science theory</td>
<td>Materials</td>
<td>Occupational capacity</td>
<td>At least one of these will be involved in know-how above a threshold level of ability</td>
</tr>
</tbody>
</table>
**How the tool is to be used**

A transparency tool will be of little use if it cannot be applied to the design and comparison of qualifications and frameworks. For qualification design, the first three steps below only will be necessary. For comparison, it is suggested that steps 4 and 5 are also necessary.

**Procedure**

1. Classify epistemic categories to be used within each qualification within the TT template, leaving blank those that cannot be filled in.
2. Make sure that the scope element is adequately described for each qualification.
3. Ensure that agreement is reached on levelling for each qualification or qualification segment. (For the comparison of QFs, there will need to be a distinct referencing exercise, which depends on satisfactory levelling).
4. Enumerate similarities and differences between the qualifications.
5. Make a comparative judgment of equivalence or non-equivalence (if desired).

**Concluding remarks**

Such a tool looks relatively simple, almost like a slightly complicated version of the EQF. Simplicity is a significant virtue for a device to be used by those who are not experts in education. But, the key issue for a transparency tool is comprehensiveness. If the arguments of this study are correct, then Table 2 sets out a comprehensive framework or at least a substantial step towards one. It is recommended that all qualification designers should bear it in mind. At the very least, they will be confronted with decisions about which columns to leave blank (in the English case, in all probability, rather a lot of them). But, this will oblige qualification designers to make choices about what is essential and non-essential for vocational knowledge in their area.

**Notes**

1. Whitehead talks of a purpose for qualifications, but in a narrow sense, relating it to knowledge and skills required for particular occupations (33). There is an extensive literature on educational aims, see for example, White (1982).
2. This is an official description of the aims of the CAP Maçon, available, for example, on: http://www.cfbtp-lemans.com/product/certificat-aptitude-professionnelle-maconnerie/ Author’s translation.
3. My thanks to Stephanie Allais for pointing this out.

4. This is now recognised in some qualifications. For example, the C Skills level 2 Diploma in bricklaying. See http://www.accesstraininguk.co.uk/bricklaying-courses/professional-bricklaying-diploma consulted 17.12.12.


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