Chapter 3
The Role of On-the-Job and Off-the-Job Provision in Vocational Education and Training

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There are few, if any, occupations today, the preparation for which will not involve two distinct modes of provision, what are often referred to colloquially as on-the-job and off-the-job training. With even the most menial occupations, learning on-the-job will invariably be supplemented by training that takes place at some remove from the point of work, if only something by way of an induction for new employees, perhaps something relating to company procedures, health and safety, and so on. However, for a good many occupations, and certainly those that are more demanding in terms of skills and expertise, off-the-job provision is likely to be a good deal more extensive and often such as to require the learner to spend prolonged periods away from the workplace in the classroom or the lecture theatre.

The question I want to consider here is what it is we should expect the learner to gain from each of these two modes of provision. The stock response to this question might be that one form of provision supplies the theory and the other provides the practice. Yet it is far from clear what is meant by 'theory' and 'practice' here. It is of little help to say that theory is that which is obtained off-the-job and practice is that which happens to be learnt on-the-job; even if we were happy to overlook the tautology, we might wish to concede that some elements of practice might be learnt in the classroom and some theoretical aspects learnt in the workplace. A more likely consensus is that there are two different kinds of knowledge, theory and practice, and whilst one tends to be more amenable to being learnt off-the-job, the other tends to be more readily learnt on-the-job.

The assumption that being capable in an occupation involves possessing two kinds of knowledge runs through many of the procedures now prevalent in vocational education and training (VET) including those related to assessment – we

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P. Gibbs (ed.), *Learning, Work and Practice: New Understandings*,
DOI 10.1007/978-94-007-4759-3_3,

might think, for example, of the distinction that is made between 'performance criteria' and 'underpinning knowledge' in the UK's system of vocational qualifications. Indeed, the distinction between theoretical and practical reasoning has a long and distinguished provenance that can be traced all the way back to the ancient Greeks. It is a distinction embedded in our very language, for people will often speak of 'the theory' and 'the practice' of things or distinguish between 'knowing how' and 'knowing that' when trying to articulate what it is that someone knows. Yet I want to suggest that this dichotomous conception of knowledge, a conception that has so long dominated thinking about vocational education and training, is fundamentally inimical to our having any a clear understanding of what a vocational preparation should consist of and the respective parts played in that preparation by on-the-job and off-the-job provision.

One fairly obvious difficulty that arises from conceiving of occupational knowledge in terms of theory and practice is that there are likely to be markedly different views as to the relative importance of each. Whilst some will be inclined to see theoretical knowledge as the very wellspring of intelligent action, and performance that is insufficiently supported by theory as little more than brute behaviour, others will be quick to insist that the first priority of a vocational preparation should be to promote the facility for action, the ability to do the job, and that to allow theory to be elevated to anything more than handmaiden to practice is to slide inexorably into curricular irrelevance. Both tendencies are to be found at work in current arrangements in the UK. The widespread shift towards so-called competence-based education and training over the last three decades has meant that for a good many occupations, particularly the trade or craft occupations, the emphasis is now firmly on practice and learning on-the-job. With some of these occupations, formal off-the-job training in the college has given way to what could best be described as outreach provision, with college staff visiting trainees in the workplace to deliver (quite literally) learning materials and guide trainees in organising 'portfolios of evidence' for competence-based assessment.

Of course this shift towards practice-based learning has not been without its critics, and commentators have not been slow in complaining about the behaviourist underpinnings of the competence approach and its apparent neglect of knowledge and understanding (Ashworth and Saxton 1990; Marshall 1991; Hodkinson 1992; Hyland 1994, Lum 1999). With some occupations, however, it is possible to see quite the opposite tendency. Nursing is a case in point: changed in the 1990s into a degree-level occupation, nurse education is now located as much in the university as it is in the hospital ward. The critical complaint here is that the resulting provision is 'just too academic' (Smyth 2011, p. 4). The chief executive of the Royal College of Nursing has claimed that new nurses are 'simply not up to the mark' and a leading NHS hospital trust has announced recently that it is to abandon university provision and revert to the in-house training that was the norm before nursing became a degree-level occupation, offering instead a 'degree-level apprenticeship' (*ibid.*). There is a telling ambivalence here towards the idea of a degree: on the one hand, an apparent aversion towards the idea of the theoretical and the academic and, on the other, a desire to retain some suggestion of a 'degree-level' preparation. And this

goes some way towards explaining how it is possible, in the case of teacher training, for the official ambition for teaching to become a masters-level occupation to coexist with arrangements that have reduced the role of the theoretical and the academic in favour of learning on-the-job. The express intention in introducing a new Masters in Teaching and Learning was to give teachers 'extra skills'(Ed Balls cited in Lipsett 2008) – the term 'skills' clearly being used to emphasise the *practical* as opposed to the theoretical, a sentiment echoed by the Deputy Director of the Institute of Education who is reported as saying of the MTL that it 'needs to be practical and focused on making people the best teachers and not filling their heads full of educational theory' (*ibid*.).

Never far away from considerations of this kind are matters relating to status and prestige. Perhaps only time will tell whether degrees stripped of theoretical content will have the cachet normally associated with academic qualifications, it being a moot point whether it is the association with a 'degree' or the association with 'theory' that enhances the status of an occupation. There are surely reasons to question the wisdom of allowing the vocational curriculum to be influenced by the emotive issue of status. Certainly the theoretical has long been regarded as having pre-eminence over the practical, again part of that same tradition that can be traced back to the ancient Greeks, with both Plato and Aristotle giving pride of place to theory. Yet this tradition also has it that the value of theory consists precisely in its *lack* of practical application. As Aristotle (1975) puts it, to know theory is to 'know things that are remarkable, admirable, difficult, and divine, but *useless*' (*Nicomachean Ethics*, §1141b6, my emphasis). Indeed, it is to this tradition that we can trace so many of the dualisms which have so long beleaguered education and which are, as John Dewey (1966) rightly recognised, 'deeply entangled … with the whole subject of vocational education' (p. 307).

Given the level of dissension currently revolving around the notions of theory and practice, one could be forgiven for thinking that we have lost all sense of what a vocational preparation should consist of and what we should properly expect off-the-job and on-the-job training to provide. For some, what is needed is some form of 'integration' (UKCC 1999, p. 6) of theory and practice, and some will speak of a 'theory-practice gap' (cf. Gallagher 2004) the suggestion being that the essential task is one of somehow closing or bridging this gap. Yet it seems to me that the main difficulty here is that it is far from clear what exactly is meant by 'theory' and 'practice', for these words can often be seen to be used to denote very different things. Sometimes they are used to indicate differences in what I have elsewhere called the *antecedent* conditions of learning (Lum 2007), that is, they are used to distinguish differences in types of provision such as when we want to differentiate learning from a text as opposed to learning from a practical exercise. Of course it is not unreasonable that we should sometimes wish to make this kind of distinction. Second, these same terms will often be used to denote differences in what we might call the *consequent* conditions of learning, that is, differences in the way a person's understanding manifests itself, such as when we say that someone knows the theory but not the practice of something, or vice versa. And again, it is entirely reasonable that we should sometimes want to make this kind of distinction for there is clearly a

difference between being able to recite facts about cycling and being able to ride a bicycle. Our referring to theory or practice in such circumstances allows us to convey more exactly the difference between knowing one thing and knowing another.

The first difficulty arises when these two uses are conflated, and it is assumed that to learn in a theoretical mode is necessarily to learn 'theory' or to learn in a practical mode is necessarily to learn 'practice'. The problem is that it would be entirely feasible for a person to come to hold some 'theoretical' proposition as a consequence of undertaking a practical exercise or to be able to carry out a practical task as a result of being provided with certain theoretical content, for example, facts, rules or instructions. In short, the fact of the antecedent conditions being deemed theoretical or practical may have little or no bearing on whether the consequent conditions turn out to be theoretical or practical. An added difficulty is that neither the antecedent nor the consequential conditions will always be amenable to being differentiated in this way. It might not be entirely clear whether the writing of an essay, for example, should properly be characterised as theoretical or practical – although those intent on applying the distinction might insist on breaking the activity down to constituent parts seemingly more amenable to such characterisation. But notice also how such a case may also render the distinction between antecedent and consequent conditions less clear, the activity being potentially, to put it in crude terms, both the input *and* the output of learning.

A different kind of confusion arises when the theory-practice distinction is used to distinguish *de facto* provision from the substantive knowledge requirements of an occupation. On this usage, 'theory' refers to the off-the-job provision (i.e. antecedent conditions which on the former view might be deemed either theoretical or practical) and 'practice' means acting in an occupational capacity, as in the phrase 'professional practice'. The phrase 'theory-practice gap' may thus be used to denote a perceived discrepancy between training provision and training need. And again, choice of terminology aside, it is not at all unreasonable that we should sometimes want to make this kind of distinction. Yet this is not the only meaning associated with the phrase 'theory-practice gap' for it will often be taken to imply a discrepancy of an epistemological kind, a presumed variance between two fundamentally different kinds of knowledge. And this brings us to the nub of the entire issue. For in and amongst these diverse and potentially plausible uses of the theory-practice distinction is usually to be found some more or less explicit epistemological assumption to the effect that these terms denote two fundamentally different kinds of knowledge. At its most naive, the assumption might be that a person who learns as a result of provision deemed to be theoretical and whose learning consequently manifests itself in a guise that is similarly deemed theoretical must accordingly possess 'theoretical knowledge'. And the exact same assumption of a continuum from antecedent condition through knowledgeable state to consequent condition will be made for learning deemed to be 'practical'. The difficulty is that whatever plausibility the distinction might have when applied to the antecedent and consequent conditions of knowing, it is a very different thing to claim that knowledgeable states can themselves be categorised in this way.

Now there are those who would take issue with the distinction being drawn here between knowledgeable states and their consequent conditions. Those with behaviourist inclinations would contest the distinction on ontological or logical grounds, questioning if not the existence of such states then certainly our facility to make meaningful statements about them. It is not my purpose here to mount a comprehensive assault upon behaviourism; suffice it to say that our being able to acknowledge the possibility of identical utterances or behaviours emanating from qualitatively different states of mind – whatever ontological status we wish to ascribe to those states – would seem indispensible to any meaningful educational endeavour. And since what a person will know as a result of any particular antecedent condition will vary from person to person, it seems reasonable to conclude that any knowledgeable state is radically underdetermined by its antecedent and consequent conditions.

The crucial mistake, then, is to assume that we can non-problematically employ the terms 'theory' and 'practice' to denote two fundamentally different kinds of knowing. And it is this mistake, I want to suggest, that ultimately prevents us from getting clear about what it is on-the-job and off-the-job provision should properly contribute to occupational capability. But before suggesting an alternative to this dichotomous way of thinking, it will be useful to get clearer about why the theory-practice dichotomy is so inimical to having a coherent understanding of occupational knowledge.

The Disappearing Knowledge Trick

Ask anyone to specify the knowledge requirements of an occupation and they will almost invariably set about producing two lists: the things a person would be required to do and the things they would be required to know, the one couched in terms of actions or performances and the other couched in terms of facts, propositions, rules and the like – in other words, they will instinctively gravitate to an account of the consequent conditions of knowledge couched in terms of theory and practice. It is likely, however, that they may come to recognise the need to include something that does not fit easily into either of these categories, a kind of understanding that does not seem to cash out satisfactorily in terms of either theory or practice. It is not insignificant that when employers attempt to explain the shortcomings of training provision, they often struggle to articulate what it is exactly that trainees lack and end up having recourse to such vague notions as being 'streetwise' or having the ability to deal with 'difficult situations' (NHS Confederation cited in UKCC 1999, pp. 40–41). It goes without saying that terms such as these and, indeed, terms such as 'understanding' are a source of immense frustration to those intent on couching the curriculum in terms of precise outcomes, and resort to such terms will often be regarded as a failure to be sufficiently precise in the use of language. But the crucial issue here is not one of communication but ontology, for there is fundamental distinction between, on the one hand, knowledgeable states and, on the other,

the performances and utterances which constitute the consequent conditions of those states. Whilst the latter hold the obvious attraction for curriculum designers of being more amenable to precise specification and measurement, the problem is that a curriculum couched in these terms will inevitably fall short of representing the substantive *knowledge* requirements of an occupation.

Our being alert to this distinction allows us to recognise the unwitting sleight of hand by which priority might often be afforded one form of provision over the other. Those who are inclined to give priority to 'theoretical' provision will highlight the shortcomings of a preparation centred on perfunctory 'can do's' and will stress the importance of knowledge over unthinking mechanical behaviour. Conversely, those who would prioritise 'practical' provision will make much of the fact that successful performance rarely requires the manipulation of theoretical propositions, rules, axioms, and the like. With Gilbert Ryle (1949), they will remind us that our acting to save a drowning man does not require us to first mull over the relevant moral principles – we simply act. Accordingly, on this view, there is little point in people learning 'bucketfuls of facts' (Wolf 1989, p. 41) or filling their heads with 'theory'.

What both sides have in common is that they each attempt to dismiss the other by characterising either theory or practice *not* as knowledge but as merely the consequent conditions of knowledge. Certainly 'practice' conceived as perfunctory behaviour falls far short of how we ordinarily conceive of occupational expertise. And if 'theory' means nothing more than the facility to manipulate propositions, rules or axioms, then this similarly would be at some remove from how we ordinarily think of occupational capability. Having portrayed either theory or practice in sufficiently impoverished terms by giving an account in terms of the consequent conditions of knowledge, the strategy is to then characterise its opposite as knowledge proper. On one side, theoretical knowledge will be characterised as the indispensable source of intelligent action, and on the other, practical knowledge will be represented as embodied, purposeful agency. Those who adopt this kind of strategy are patently unaware of the crucial ontological manoeuvre they execute in order to give priority to either theory or practice. However, the incoherence of this way of thinking can be illustrated by showing that by using the very same logic, it is possible to demonstrate that an occupation which by any other measure would obviously require considerable expertise would appear to have no knowledge requirements whatsoever. Consider the following not uncommon scenario:

> A factory production line is in full swing when suddenly the machines grind to a halt. Alarm bells ring and warning lights flash; a maintenance technician arrives and makes his way to one of a hundred electrical control panels each interconnected perhaps with several miles of cabling. He opens the control panel, takes a screwdriver from his pocket and makes a small adjustment to just one of several hundred components. Closing the control panel he presses some buttons and the production line bursts into life. The question is, how is it possible to account for what the technician knows? His performance did not require the conscious manipulation of propositions or facts – and neither did it require any particular physical dexterity. (Lum 2009, p. 56)

It seems indisputable that here is an example of a kind of expertise that is much sought after by employers and one that would require no small amount of training.

Yet if we had to characterise this expertise in terms of theory and practice, we *could* conclude that the knowledge requirements of this particular occupation were negligible. This is by no means a unique or special case. Indeed, it would seem difficult if not impossible to give a sufficient account of the knowledge requirements of the great majority of occupations if obliged to couch those requirements in terms of the theoretically and practically oriented consequent conditions of knowledge. The crucial point here is that by using this kind of analysis, the knowledge requirements of almost any occupation could be made to 'disappear'.

The problem with conceiving of knowledge in terms of 'theory' and 'practice', then, is that it leads us to give an account not of knowledge but of knowledge's consequent conditions. What we need, I want to suggest, is a way of breaking free of this dichotomous conception of knowledge. The problem is that in so doing, we come into conflict with a way of thinking that dates back more than two millennia. Modern day accounts of occupational expertise still hark back to these long established categories of thought – consider, for example, Joseph Dunne's (1993) scholarly but steadfastly Aristotelian account of professional knowledge. What is often overlooked in such accounts is the extent to which these ways of thinking about knowledge and the array of dichotomies they generate – theory/practice, education/training, liberal/vocational, white-collar/blue-collar – are inextricably bound up with distinctions of social class and 'the conservation of the aristocratic ideals of the past' (Dewey 1966, p. 319), distinctions and ideals that clearly persist to this day. And it is of no small significance that Plato and Aristotle, both in different ways part authors of this bifurcated conception of knowledge, were themselves members of an aristocracy.

Not all writers in antiquity, however, were as disinterested in vocational matters or as dismissive of occupational expertise. One such exception was Marcus Vitruvius Pollio, a Roman architect and civil engineer who flourished in the first century B.C. and whose *Ten Books on Architecture* was to become the most influential work on architecture in history. In the very first section of this classic text, under the title 'The Education of the Architect', Vitruvius outlines what he conceives as being the kind of knowledge necessary for the practice of architecture:

> The architect should be equipped with knowledge of many branches of study and varied kinds of learning, for it is by his judgement that all work done by the other arts is put to the test. This knowledge is the child of theory and practice. Practice is the continuous and regular exercise of employment where manual work is done with any necessary material according to the design of a drawing. Theory, on the other hand, is the ability to demonstrate and explain the productions of dexterity on the principles of proportion. (Vitruvius 1960, p. 5)

Now it should be stressed that Vitruvius is not here concerned to provide an in-depth epistemological account of occupational expertise. What he does offer us, however, is a view of occupational knowledge informed by first-hand experience of acting in a professional capacity. As might be expected, Vitruvius regards it as vital that the would-be architect should have the benefit of learning both from 'scholarship' (ibid.) and from 'regular exercise of employment where manual work is done' – and he thereby delineates the antecedent conditions of knowledge in terms of theory and practice. And he would similarly seem to delineate the consequent conditions of

knowledge, for the 'regular exercise of employment' and the 'ability to demonstrate and explain…' are what he would presumably expect of the trainee as a consequence of coming to have the requisite knowledge. But it is his description of knowledge as 'the child of theory and practice' that is most telling here, for it indicates that the knowledge that is required is in some sense *distinct* from theory and practice, something we might expect to *result* from theoretically and practically oriented modes of provision but that is itself neither theory or practice, nor simply an amalgam of the two.

In subsequent passages, Vitruvius goes on to outline the different areas in which the architect must be educated: certainly he will need to have expertise in draughtsmanship and geometry, but also 'a wide knowledge of history' (p. 6) and an understanding of such things as arithmetic, optics, music, medicine, law, astronomy and natural philosophy. What is required, we are told, is not necessarily the in-depth knowledge someone would need if they hoped to 'excel' (p. 11) in one of these areas but rather a 'liberal education (which) forms a single body made up of these members' (p. 10–11). This education should certainly not be thought of as 'useless', akin to what Bernard Williams once called the 'leather blotter from Harrods' conception of an education in the arts or humanities: 'something to give people when no *useful* gift can be found' (quoted in Warnock 1989, p. 34). Indeed, Vitruvius goes on to give entirely plausible and convincing reasons as to *why* a knowledge of these subjects is necessary for the would-be architect, giving instances of their practical relevance and demonstrating how a knowledge of each and every one these 'many branches of study' will provide the architect with the 'judgement' necessary to put the 'work done by the other arts … to the test'.

What emerges from the pages of Vitruvius is a conception of occupational knowledge seemingly untainted by snobberies of social class or the anxieties of an occupation vying for position and social status. The would-be architect, we are told, must be *educated*, yet there is nothing here to suggest any knowledge that is superior by dint of being irrelevant or detached from any practical purpose or know-how. Moreover, it is a conception that stands in contradistinction to behaviourist or instrumentalist tendencies, and it is similarly at odds with those arrangements which today place the emphasis on 'learning outcomes' and thus systematically confuse the consequent conditions of knowledge for knowledge proper. The question now is how we should properly conceive of occupational knowledge if not by resort to the notions of theory and practice, for only when we are clearer about this will we be in a position to appreciate what it is off-the-job and on-the-job modes of provision might each contribute to the development of vocational capability.

A Different Approach

In contrast to those conceptions of occupational capability which cast knowledge in terms of theory and practice, let us begin instead with the simple observation that in order to be capable in an occupation, one must be able to recognise certain things

and be able to see things a certain kind of way. For instance, the technician in our earlier example must be able to make sense of the factory's complex mass of wiring; he must be able to recognise some intelligible structure and purpose where the untrained eye might see only spaghetti-like confusion. What is at issue here is not merely the means to interpret things but, rather, the facility to actually *see* things *as* certain things. Wittgenstein's (1953) famous reference to 'seeing as' is entirely pertinent here. As Wittgenstein says, it simply would not make sense for someone, on seeing some cutlery, to say 'Now I am seeing this as a knife and fork'. As he says, 'One doesn't "*take*" what one knows as the cutlery at a meal *for* cutlery; any more that one ordinarily tries to move one's mouth as one eats' (p. 195). What I want to suggest is that in order to be capable in an occupation, one must in effect be able to 'see' and make sense of an entire 'world' of meanings, purposes and involvements, and this is something that clearly has to be *learnt*. There is no distinction in this respect between the academic and the applied arts, for that 'world' might be the world of art or science, mathematics or music or indeed the 'world' of an occupation such as architecture, engineering or teaching. Furthermore, our being able to see things in a particular way would seem to be something that is necessarily and irredeemably grounded in some wider purposes, goals and values. As Martin Heidegger (1962) recognised, one's understanding of even a single tool, a single operation or a single performance will be connected inextricably to some broader, more extensive understanding of what it is we are doing, why we are doing it and why this matters in the broader scheme of things. And, again, this is certainly not a matter of simply learning the facts of the thing in question or learning the requisite do's and don'ts of an activity; rather, it is a matter of coming to recognise and understand the importance and significance of things. So in contrast to the view that occupational capability consists in knowing certain facts or having particular manual dexterities, on the view presented here, our becoming vocationally capable would seem to be first and foremost

> … about our gaining certain fundamental understandings and abilities relating to how that particular world works, how to cope in it and find our way around it – rather than necessarily being able to exhibit the secondary and derivative behavioural or propositional manifestations of those understandings. In becoming capable we learn to adopt a particular stance, a certain interested and purposeful viewpoint which in turn structures our consciousness and our experience. We thus come to be equipped with a certain kind of 'readiness'; we are able to see things *as* certain things, we are able to interpret what we experience and extrapolate from it in a way which is appropriate to the world in which we wish to operate. (Lum 2009, p. 113)

Now it seems clear that this kind of understanding can usefully be informed by both theoretically and practically oriented pedagogical arrangements and, similarly, by both off-the-job and on-the-job modes of provision. However, this is not to say that these are interchangeable. One thing that will determine the relative emphasis that should be placed on each is the *kind* of world within which the learner is required to operate. The more concrete that world, the more important will be learning in the workplace; the more abstract or complex that world, the more important will be off-the-job provision. The value of on-the-job provision lies in its facility to provide the learner with direct experience of engaging with that world to thus know its

characteristic features and understand how it works. But there are limitations to what such provision can achieve, for it cannot readily convey meanings that transcend what is readily apparent, and neither will it, in itself, necessarily convey anything of the values and purposes that ultimately must come to be an intrinsic part of the practitioner's facility to act. An apprentice technician is unlikely to derive anything of the structure and purpose of the factory's electrical system from the tangled mass of wires which confronts him – no matter how long he spends scrutinising it. He will only be able to make sense of that world by having it presented differently, by first becoming familiar with schematic representations of the circuits and understanding how each part of a system works and is coordinated into a whole – and learning these kinds of things is something that for all sorts of reasons will often be best done at some remove from the workplace.

It is a gross oversimplification to associate on-the-job and off-the-job preparation, respectively, with practical and theoretical modes of provision. On the one hand, it is entirely feasible for learning in the workplace to extend beyond the mere exercise of practice, and it is here that the role of mentors can be especially important. By the same token, it is equally feasible for off-the-job provision to be purposefully practical in nature. Indeed, often the most important practical training will be carried out at some remove from the workplace, sometimes necessarily so. Simulation is a case in point, for simulation can provide the opportunity to engage in practice in circumstances which do not incur the inconvenience, expense or risk of carrying out those same activities in the workplace. Moreover, there can be sound pedagogical reasons for off-the-job provision to employ active modes of learning as opposed to more passive modes such as lectures (cf. Griffey and Claxton 1997). But it is significant that the requirement here is *not* that learning activities should correspond with the performances ultimately required of the practitioner; indeed, it is possible that the activities which best promote learning in a particular instance may have no relation whatsoever to such performances.

Such considerations clearly have a bearing on how we should evaluate the relevance and sufficiency of the vocational curriculum. Conceived in terms of theory and practice, that is, the consequent conditions of knowledge, there will inevitably be a tendency to underestimate the extent of what is required. On the model proposed here, effective performance in even the most basic of occupations can be recognised as requiring a level and kind of understanding that is likely to be overlooked on the theory/practice model. Even the task of stacking supermarket shelves, if it is to be done effectively, might be seen to require more by way of understanding than is immediately apparent, an understanding of such things as the needs and expectations of managers, fellow workers, customers; an understanding of where things are located and how things are organised; an understanding of how to deal with members of the public, of the factors that should properly influence the prioritising of tasks; and so on and so forth. It goes without saying, of course, that for a good many occupations, the level and complexity of the understanding required will be substantially greater. For whatever occupation, however, the danger in conceiving of vocational provision in terms of theory and practice is that we stand to overlook what it is the practitioner needs to *understand*.

Similarly, with the question of relevance in the vocational curriculum; in the traditional theory-practice scheme of things, the relevance of practical content will be assessed in terms of a correspondence between the consequent conditions of learning and the functional requirements of the occupation. The relevance of 'theoretical' content will be judged according to whether performance expressly requires a knowledge of the propositions identified with such content. In contrast, on the view presented here, relevance should more properly be conceived in terms of the contribution a curriculum makes to a person's understanding of the sphere of involvements implicated in a particular occupational role. That is not to say that this understanding should necessarily be limited to that role, for as Vitruvius understood, what the practitioner requires is an *education*, not express learning outcomes.

It would seem clear that any attempt to conceive of occupational capability in terms of theory and practice, thinking and doing, knowledge and skills, etc., is to risk radically underestimating what is required. Yet in truth, the fault lies not with these age-old categories but with the modern preoccupation with 'learning outcomes', 'competences/skills' and all similar such nomenclature associated with the bureaucratic compulsion to specify, measure and control. If anything should be blamed for shifting attention away from what a person needs to understand and for causing us to lose sight of what a vocational education should consist of, it is this.

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