Chapter 10
The Integrated View on Competence

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10.1 Introduction

This chapter begins with an outline of the main features of an integrated understanding of competence and how this understanding differs from some other common approaches to competence. This is followed by a detailed consideration of an *integrated* understanding of competence. Beginning with a discussion of the basic logic of the concept of competence, the underpinning principles of the integrated approach are elaborated, as well as its applications in a variety of occupations and for a diversity of purposes and its advantages and limitations. This discussion serves to further distinguish an integrated understanding from rival approaches to competence. Finally, it is argued that the integrated approach accords very well with recent theoretical developments in related topic areas, such as the nature of skills, practice theory and complexity theory.

10.2 How an Integrated Understanding of Competence Differs from Rival Understandings

Behaviourism is a theory of learning whose explanatory focus is overt behaviour and the conditions for shaping it, whilst avoiding any reference to putative 'inner' entities, such as mental states (see, e.g. the chapter of Barrick in this volume, as well as Kalantzis and Cope 2009; Phillips and Soltis 2009). A widely held, but simplistic, view is that *training* is a form of learning centred on development of motor skills with

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minimal cognitive demands (see, e.g. Winch 1998, 2010). Not surprisingly, these two familiar ideas have coalesced to shape how competence has been thought of in relation to the trades and other occupations with a significant manual component. Competency-based training (CBT), as commonly understood, views competence as a series of specific tasks or the behaviours involved in the completion of these tasks (see, e.g. Arguelles and Gonczi 2000). To many, this approach appears to reflect 'common sense'. Since competency-based assessment tests performance, and since performance is commonly thought to be the completion of a series of tasks, it seems obvious that competency standards should be a series of discrete task descriptions.

However, major limitations of this approach to competence soon become evident. It quickly becomes too atomistic. More and more minute work tasks can be specified, yet being 'ticked off' against each of a myriad of tasks does not always equate to workplace competence. Competent performance involves much more than the mere sum of numerous minute task behaviours. What this 'sum of the tasks' approach overlooks is that competent performance requires a further capacity to put all the parts together to produce an appropriate response to the given particular circumstances. Even for work that is relatively routine, this 'checklist' approach is defective as important broader aspects of competent performance, such as planning or reacting to contingencies, are overlooked.

Nor should 'tasks' be understood in an exclusively narrow sense. All occupations involve performance of various relatively specific tasks. But more importantly, virtually all of them involve performance of broader, more generic tasks such as planning, contingency management, organising, etc. At their broadest, tasks can include such notions as performing in accordance with an overall conception of what one's work is about or working ethically. So, the task view of competence typically omits 'higher-level' competencies from the competency standards. The result is their absence from training programmes and assessment strategies based on these narrow competency standards.

Yet this 'sum of the tasks' approach to competence has been widely influential in the implementation of CBT internationally. Seemingly, this flawed view of competence accords with widely held 'common sense' intuitions (for detailed discussion, see Hager 2004). It is also the approach to competence that has captured the almost exclusive attention of well-known critics, such as Hyland (e.g. 1994, 2014). The fact that richer understandings of competence are available is too often ignored.

A very different view of competence has been influential in management and business circles. Here competence is conceptualised as proficient and effective deployment of a series of generic attributes or skills, such as problem solving, pattern recognition, organising, planning, gathering and analysing data, communicating, etc. On this view, 'generic attributes' can also include appropriate knowledge and desirable attitudes and values. A well-known example of this approach is job competence analysis (Boyatzis 1982). According to this generic approach, training and assessment will consist of strategies to train and assess candidates in each of the relevant generic attributes.

Though this generic approach to competence looks more likely to encompass the less predictable aspects of nonroutine work roles, it turns out that assessing attributes in isolation from actual work practice is a poor predictor of future occupa-

tional performance (Hager and Smith 2004). Rather it seems that attributes such as problem solving, analysis, pattern recognition, etc. are highly context dependent, so much so that efforts to teach and assess them out of context are largely ineffective. So training and/or assessing novices in generic attributes such as problem-solving or communication skills raises the difficulty of how, if at all, practitioners will be able to transfer this learning to their future work contexts.

So, a major limitation of this approach is that it downplays contextual factors. Is (say) communicating really generic across contexts or does it require somewhat different skills in widely differing contexts? As well, a list of generic attributes or skills is actually a very thin representation of occupational competence. This becomes apparent when we realise that very diverse occupations feature very similar sets of generic attributes or skills. So this generic view of competence tends to omit those very features and activities that constitute an occupation's distinctive or unique character.

The limitations of these two approaches to competence led to a different approach, involving an integrated conception of competence, being employed by the Australian professions in establishing their competency standards in the 1990s. (An integrated conception of competence was also adopted elsewhere, e.g. see Mulder (2014) and Mulder et al. (2007).) According to the integrated approach, competence is understood in terms of knowledge, abilities, skills and attitudes displayed in the context of a carefully chosen set of realistic professional tasks which are of an appropriate level of generality (Gonczi et al. 1990; Hager 1994). Thus, the integrated understanding of competence gives prominent attention to both key occupational tasks and to the various attributes that practitioners need for competent performance of these key tasks. Typically, about 20–30 key (or major) occupational tasks are identified and the various practitioner attributes that they imply are elucidated. This information becomes the basis for constructing an initial set of competency standards.

A distinguishing feature of the integrated understanding of competence right from its initial formulation (Gonczi et al. 1990) was its commitment to a significant degree of holism in its description of professional practice. This arose from the substantial experience of professional practice, in its widest sense, gained by Gonczi and Hager as they tutored and supervised novice vocational education and training (VET) teachers in the theory and practice of teaching. Typically, these 'novice' teachers were mature, widely acknowledged experts in their particular occupation. Usually, the major reason for their appointment as VET teachers was the wide recognition by their peers of their high levels of skilled performance in their particular occupation. This meant that Gonczi and Hager had direct contact with highly skilled performance in many and diverse occupations, not just in classrooms but, more tellingly, in workshops, studios, laboratories and the like. The wide range of occupations that they had encountered encompassed the various sciences: the applied sciences, such as dental mechanics, opticians and pathology technicians; engineering of all kinds; vehicle repair and maintenance; carpentry, wood machining and cabinet making; and the arts, such as painting, sculpture and jewellery. Repeatedly they were struck by the high levels of skills exhibited by these novice teachers and their enthusiasm for and commitment to passing them on to others. But what left the

biggest impression was the evident *seamless know-how* that was the hallmark of their highly skilled performances. At every turn they seemed to encounter this seamless holism of professional practice in its broadest sense. Although Gonczi and Hager were well aware of the relevant literature on skilled performance and expertise, over time they concluded that received theories and concepts did not adequately account for the richness and diversity of the holistic skilled performances that they witnessed regularly (for a more detailed account of this, see Hager 2013). Thus, in 1990, when the concept of competence started to claim wide attention, they were interested in its possibilities for capturing something of the holistic, seamless expertise that they had experienced and that seemed to elude received theories.

The integrated view of competence puts major emphasis on the contextuality of workplace performance. On this view, competence can be summarised as *contextualised capability involving an integration of assorted practitioner attributes*. These attributes include such things as cognitive skills (knowledge, critical thinking, problem-solving strategies), interpersonal skills, affective attributes and technical/psychomotor skills. Using this approach, an occupation can be represented as a set of competency standards in which key occupational tasks are integrated with the attributes required for their performance. Another crucial aspect of the integrated view is its emphasis on the vital necessity of the competency standards being used *holistically*. This entails, amongst other things, that it is very likely that any segment of actual workplace practice will simultaneously involve more than just one of the key occupational tasks. An important corollary of this is that, for maximum validity, competency-based assessment activities need to focus on strategically selected slices of actual workplace practice, rather than on the key occupational tasks taken one by one in isolation. These issues will be treated more fully in a later section that considers in detail the integrated view of competence, including its limitations.

By focussing on the key tasks (or elements) that are central to the practice of the occupation, the integrated approach to competence avoids the problem of atomisation into a myriad of tasks. By seeking to elucidate the bundles of major practitioner attributes that are involved in the competent performance of key occupational tasks or elements, the integrated approach to competence avoids the problem of treating attributes generically in isolation from their contexts of use. It is noteworthy that the integrated approach to competence also overcomes the various difficulties posed by Ashworth and Saxton (1990) in their useful catalogue of the limitations of narrow competency standards (for discussion of this, see Hager and Gonczi 1991). The integrated approach to competence has now been employed successfully in Australia and elsewhere by a range of professions and other occupations for 25 years. Experience has shown that these integrated competency standards can capture the holistic richness of occupational practice in a way that neither of the other two approaches could. Amongst various uses, these holistic competency standards have served to facilitate the design of effective professional development and assessment frameworks. Detailed accounts of the employment of integrated competency standards in Australia include Ash et al. (1992), Gonczi (1994), Hager and Gonczi (1998), Hager (2000), Stone et al. (2011) and Gonczi (2013).

As this section has demonstrated, there are various ways of conceptualising competence. Each approach will have its own distinctive advantages and limitations. Particularly if competence is viewed too narrowly, possible benefits to be gained from adopting competency standards may be severely curtailed. Further significant benefits of adopting broader, richer understandings of competence will become apparent as this chapter proceeds. The next section will aim to clarify the nature of competence. It turns out that the logic of the concept of competence supports broader views of competency standards, rather than the narrower ones that are often seen as the obvious choice.

10.3 What Is Competence?

Since there are several very different ways of thinking about competence, how competence is conceived will make a big difference to the ways in which competency standards are used and assessed. However, a careful consideration of the *logic* of the concept of competence supports a relational understanding of competence, as exemplified in the integrated approach. As discussed elsewhere in this volume (Chap. 1), dictionary definitions of competence centre on competent people having the ability (or capability) that will enable the satisfactory completion of some task(s). When the abilities or capabilities required for competent performance of an occupation are elucidated, the descriptions typically employ terms such as 'knowledge', 'skills' and 'attitudes', i.e. personal attributes or characteristics of practitioners that enable and enhance competent performance.

Dictionary definitions (see Chap. 1) also emphasise that ability or capability is the major focus of the concept of competence. In turn this draws attention to the attributes that comprise these abilities or capabilities. It follows that attributes are a logically necessary part of any satisfactory understanding of competence. It would seem that any plausible set of occupational competency standards needs to feature some specification of the abilities or capabilities required for competent performance of the occupation.

But attributes are not, by themselves, sufficient, as dictionary definitions also stress, abilities or capabilities, which are directed at a particular task or tasks. Thus, competence is never an ability or capability in the abstract – it is always in relation to appropriate object(s). As we have seen, the concept of competence carries with it the notion of the abilities or capabilities being applied to the performance of some tasks. So, any satisfactory understanding of competence must include both attributes and tasks, as must any plausible set of occupational competency standards.

This conclusion can be summarised by stating that the concept of competence is inherently relational, i.e. it necessarily links two disparate kinds of things. Essentially competence is a relation between abilities or capabilities of practitioners and the accomplishment of appropriate task(s). So the logic of the concept of competence supports an integrated approach to competency standards. Approaches that focus exclusively on either tasks or attributes miss the essential relational character of

competence, thereby impoverishing the concept and its usefulness. Only when the essentially relational nature of the concept of competence is recognised will something approaching the holistic richness of occupations be captured in competency standards.

Another very important consequence of the logic of the concept is that competence itself is necessarily inferred from performance, rather than being directly observed. It is performance of tasks that is directly observable. However, the abilities or capabilities that underlie the performance are not directly observable. Rather we infer their presence or otherwise on the basis of performance evidence. The upshot is that assessment of competence relies inevitably on *inference* based on a sample of performance. Of course, this sample will need to conform to criteria that ensure validity and reliability. In this respect, assessment of competence is no different from other kinds of assessment.

10.4 Further Elaboration of the Integrated Understanding of Competence and Its Applications

Competency standards provide a representation of what is involved in the proficient practice of an occupation. They essentially do two things: firstly, they describe the main activities ('tasks') that comprise the practice of the occupation and, secondly, they set out the standards that characterise competent performance of these activities. It is this second component that typically encompasses practitioner attributes. Clearly, a degree of analysis is implied in setting out the main activities that comprise the practice of the occupation and in identifying the attributes involved. Some have labelled this move as 'atomistic' in a pejorative sense. However, developing an understanding of complex matters requires some analysis. Such analysis is only strictly atomistic if it is not counterbalanced by appropriate synthesis. For instance, the analysis of an occupation into a myriad of tasks, as with the task approach to competence, is overly atomistic precisely because actual practice is much richer than mere sums of isolated tasks. This approach fails because of its one-way atomism. It offers no account of how the atoms are 'put together' (synthesised) to produce a performance suited to the particular context. However, the integrated understanding of competence involves both analysis and synthesis working in tandem. This approach's limited degree of atomism is more than balanced by its characteristic holism.

10.4.1 The Holism of Integrated Competency Standards

Occupational competency standards produced by an integrated approach are *holistic* in a multiplicity of crucial senses:

The first holistic aspect of integrated competency standards derives from the fact that the 20–30 key tasks are not discrete and independent. They are 'molecular' rather than 'atomic'. This means that actual work practice, and, hence, the sound assessment of it, will normally encompass simultaneously several of the key tasks.

A second way that integrated competency standards are holistic is that the key tasks involve the practitioner employing 'situational understanding', i.e. the competency standards include the idea of the practitioner adapting practice to take account of the varying contexts in which they are operating. So the practitioner needs to employ a more general cognitive perspective to frame a skilled response appropriate to the particular contextual circumstances.

A third way in which integrated competency standards are holistic has already been mentioned. It is that competence is a construct that is not of itself directly observable. Rather, it is inferred from observations of performance on a suitable set of relatively complex and demanding tasks. The relative complexity of the tasks can be gauged from the fact that a typical occupation involves no more than 20–30 such key tasks. What this means for assessment is that rather than assessing the key tasks (elements) of the competency standards one by one in isolation, various slices of actual practice are used to provide data on which to judge competence. So assessment is holistic in that, instead of assessing a key task in a single assessment event, data drawn from various assessment events come together to testify to competence or otherwise in relation to that key task.

By being holistic in the above several senses, integrated or relational competency standards are the opposite of any significantly atomistic approach, whether the atoms be tasks or attributes. Thus, integrated competency standards avoid the misguided extremes of fragmenting the occupation to such a degree that its character is destroyed by the analysis or adhering to a rigid, monistic holism that rules out all analysis.

10.4.2 Holism and Professional Judgement

All of the above three aspects of holism highlight the central role of *professional judgement*. The first kind of holism stresses that actual work practice typically involves two or more of the key tasks simultaneously. Thus, competence involves more than the mere capacity to perform the key tasks separately one by one. This something more is a capacity for 'putting it all together' seamlessly in a performance that subsumes several key tasks at once. Accomplishing this well requires sound professional judgement on the part of the practitioner. Likewise, valid and reliable assessment of such performances requires assessors who are themselves competent to carry out the practice that they are assessing. This requirement that assessors be properly qualified and experienced, that is, that they possess professional judgement in the practice that they are assessing, seems obvious and uncontroversial on the integrated understanding of competence. However, it is noteworthy that adherents of some narrower views of competence, such as ones that reduce

occupations to checklists of discrete tasks, have often assumed that minimal assessor involvement with the practice of the occupation is sufficient for them to observe performances of tasks and to tick them off against a checklist. In effect, such arrangements deny the role of professional judgement either in the practice of the occupation or in the assessment of it.

The second kind of holism exhibited by integrated competency standards is that proficient performance requires the practitioner to employ 'situational understanding', i.e. the practitioner adapts their practice in the light of varying contextual factors. This means that guidelines to practice, such as protocols, rules and norms, need to be interpreted in accordance with the particularities of a given situation. This adapting and interpreting requires the practitioner to exercise well-developed professional judgement. Such judgement is developed and refined by ongoing experience of successful practice, as, e.g. the Dreyfus (2001) seven stage model of expertise development illustrates. (In this model, competence is the third stage.)

The third sense in which integrated competency standards are holistic is, of course, the crucial one that competence is a construct that is not directly observable. Rather, competence is always inferred on the basis of what *is* observable, i.e. performance. Thus, professional judgements underpin decisions about the types and quantity of performance evidence needed to justify judgements of competence, hence the need for properly qualified assessors as stressed above. Clearly then, there are very strong links between the holism of integrated competency standards and the exercise of informed professional judgement (for more on these matters, see Beckett and Hager 2000; Lum 2013).

10.4.3 The Diversity of Professional Judgement in Practice

Many and varied instances of applications of professional judgement can be found readily within the practices of a wide range of occupations, not just in the traditional professions. This rather ubiquitous fact suggests that competency standards that lack the holistic dimensions of the integrated approach are thereby deficient. Firstly, let us consider some instances of the professional judgement of practitioners needing to be contextualised. Ambulance officers often attend motor vehicle crashes, some of which are quite horrific. They are responsible for extracting injured passengers from the wrecked vehicles and for providing initial treatment of their injuries. Ambulance officers employ protocols and guidelines for removing injured passengers from wrecked vehicles so as to minimise the chance of further injury. But the bewildering multiplicity of ways and degrees in which vehicles can be wrecked and occupants trapped means that ambulance officers frequently need to interpret the protocols and guidelines in terms of the specific context. In fact, initial disagreement about the best way to proceed is not uncommon. No matter how well the guidelines and protocols are specified, in practice ambulance officers often need to employ professional judgement to decide the best course of action in the given circumstances (for more, see Hager and Halliday 2006: 175). Similar considerations

apply to the practice of child support case managers (adapted from Hager and Halliday 2006: 175–6, 228–9). The procedures to be followed for the various types of cases are highly standardised. However, a difficulty with these standardised procedures is that many cases have their own distinctive features that mean that they resist easy classification. There is a danger that too rigid a commitment to fitting all cases into the procedures and protocols will mitigate against the main business aim of achieving quality outcomes for clients. In effect, the quality assurance system can, in some instances, work against the achievement of quality outcomes. To counter this, managers are encouraged to exercise professional judgement so that cases are thought through in terms of the spirit of the legislation, rather than by strict adherence to procedures that are followed for their own sake. In short, child custody staff need to develop professional judgement about when and how to break the rules. The moral here is that though performance as outcomes can be specified minutely, if these performance descriptors are applied too rigidly as guides for action, they can encourage suboptimal practice.

Examples of practitioners needing to move away from over-reliance on formulaic protocols can be found in diverse other occupations. For instance, novice doctors are given a stepwise protocol for achieving diagnoses. As these doctors gain clinical experience they fairly quickly rely less and less on the protocol, whilst increasingly making reliable diagnoses (Shulman 2004: 253–6). Likewise, novice teachers use well-tried lesson plan guides to prepare their classroom teaching activities. Once they gain some classroom experience, their need for these guides quickly diminishes.

These examples illustrate Dreyfus' point that good practice requires practitioners to go beyond strict adherence to the rules of practice. Whilst performance as outcomes can be specified closely, performance descriptors that are taken too literally as guides for action can interfere with good practice, as the Dreyfus (2001) model of expertise development suggests (for more on this, see also Winch 2010: 81ff. and 2014).

Next we consider some examples that illustrate aspects of the holism that characterises practitioner deployment of 'situational understanding'. An important aspect of many occupations is the capacity to interact effectively with others. Although various norms and tips can be provided on how to do this well in specific contexts, individual differences in people's makeup seems to require that each practitioner needs to develop and cultivate their own personal style for interacting effectively with others. For instance, teachers need to develop their own personal style of classroom management (Wubbels et al. 2012). Novice teachers are tempted to mimic the classroom management approaches of their own inspirational teachers or mentors (see Hager and Halliday 2006: 230). This can be useful up to a point, but ultimately it appears that each teacher needs to develop their own particular style, one that suits their own personality. This involves contextualised professional judgement, much of which is tacit. Here a major part of the context is oneself – who you are and how you interact with others.

Again, this accords with Dreyfus' (2001) seven stage model of expertise development. He agrees that practitioners can develop towards expertise by learning style

and other tacit aspects of practice from influential masters. But he warns that following a master too rigidly can become stultifying. To attain mastery, practitioners need to develop their own unique style and ways of practice. Similar considerations apply to practitioners in the medical and health fields as they seek to develop a personal capacity for interacting effectively not only with patients and clients (e.g. see Hager and Halliday 2006: 230) but also colleagues, particularly senior colleagues (see Hager and Halliday 2006: 152–3).

The above are instances where practitioners' situational understanding of their work involves awareness of themselves and their own strengths and weaknesses. This understanding underpins the exercise of complex professional judgement, much of it tacit, on how best to proceed in particular situations. Another type of situated professional judgement involving self-awareness concerns the need for practitioners to prevent personal and emotional feelings from detracting from their work performance. For instance, a range of occupations involve practitioners reacting to and dealing with traumatic or gruesome situations. Apparently, it is easy for novice practitioners to allow their emotions to take over, thereby inhibiting them from responding to the situation in a sound professional way. But equally, it seems it is counterproductive to attempt to deaden all emotional responses. Rather, it appears that practitioners need to develop from experience a personal emotional know-how that allows them to keep their emotions in check (see Hager and Halliday 2006: 229). Interestingly, stage three of the Dreyfus expertise model, 'competence', includes the personal practitioner qualities of a sense of responsibility for and emotional involvement in one's practice (Dreyfus 2001: 36).

The above examples illustrate some of the complex ways in which, for the integrated understanding of competence, professional judgement lies at the heart of practice. We turn now to a consideration of some limitations of the integrated approach.

10.4.4 Limitations of the Integrated Understanding of Competence: Real and Imaginary

A very important limitation is that the integrated understanding of competence accepts that no matter how well they are developed, the competency standards never are, nor ever could be, a complete or comprehensive description of the practice of the occupation. This is so for several reasons. Firstly, as the above examples illustrate, competency standards cannot capture crucial tacit aspects of practice. Competency standards are able to describe procedures and outcomes fairly specifically. But the realities and complexities of actual practice, some of them tacit, underline the limitations of such descriptions. The capacities needed for practice include dimensions such as the involvement of the whole person including their emotions that are outside of the scope of accurate description in generic standards.

The same applies to the holism of professional judgement. As has long been known, expert practitioners know more than they can say.

A second reason why competency standards are necessarily incomplete is that they are always a work in progress. Professions and other occupations continually change and evolve, some more rapidly than others. This continuous change is driven by many factors, such as the growth of knowledge and understanding, technological developments, and changing social and environmental factors. This means that the integrated competency standards need regular updating. In any case, it was always delusory to think that occupational competency standards might cover every possible contingency that conceivably might arise in practice.

A supposed limitation of competency standards in general is that they promote impoverishment of curricula. It is easy to see how this impression has arisen. If a task-based set of competency standards is assumed to be a curriculum list of the items to be taught and assessed sequentially in a CBT course, then poor quality training will be the inevitable outcome. This naïve approach is what has happened in some CBT courses. Yet, as argued earlier, competence is more about 'putting together' the parts in contextually suitable ways, than it is about performing discrete tasks in isolation. So treating competency standards as a curriculum is erroneous. At best, competency standards offer valuable guidance for the development of a curriculum.

Since integrated competency standards detail practitioner knowledge, abilities, skills and attitudes displayed in the context of realistic professional tasks, they offer considerable scope for informing and assisting educational providers in terms of course content, teaching strategies and assessment procedures. However, it needs to be stressed emphatically that considerable interpretation and judgement is required to employ competency standards to inform development of a curriculum document. Some might see this as a limitation, but that is an erroneous perception. Curricula and competency standards operate on quite different logics. A curriculum (literally a 'course to be run') describes a *process* for attaining prescribed learning outcomes, whereas competency standards describe a set of outcomes, namely, good practice of an occupation. So even if a training course could achieve all of the outcomes represented by the competency standards, it is still a mistake to treat the standards as a curriculum. The standards merely describe outcomes, not the kinds of processes suitable for learners to attain the outcomes. But there is a further complication.

The holistic seamless know-how that underpins highly skilled or expert performance cannot be produced by formal education alone. It appears to require significant practice experience for its development. The preceding discussion of the self-awareness and personal style aspects of situated professional judgement provides excellent examples of crucial learning that can only result from real practice. Various professions have long been aware of this. Graduation from the undergraduate course is but an initial step towards full qualification to practice. Typically this entails a period of supervised or limited practice – internships, professional years, probationary periods, etc. – until the novice practitioner is deemed fully workplace competent. Though various tertiary course providers have sought to 'close the gap' by strengthening the practicum components of their formal courses, it seems to be

unrealistic to expect formal courses to produce graduates who are fully workplace competent. Rather, done well they produce graduates who are workplace 'ready', i.e. ready for a period of further learning from actual practice in order to fully meet the competency standards. As just noted, many professions are not prepared to leave to chance this period of further learning from actual practice. They provide guided and supervised practice that must be completed satisfactorily before the novice is deemed competent to practice independently. It is this kind of crucial learning from real practice, which is necessary for attaining expertise, that has helped to simulate recent interest in the concept of workplace learning. By now, it should be doubly clear why it is an error to confuse competency standards with a curriculum (see Hager and Gonczi 1996 for further discussion of these issues).

Another supposed limitation of competency standards is reflected in the claim that they dictate an excessive uniformity in the ways that practitioners work. Certainly there is more than one correct way to carry out many occupational tasks. But the argument here rests on the false assumption that 'standards' implies 'standardisation' of work processes. But the reality is that the standards describe what satisfactory outcomes look like and, in most cases, leave it open as to how the outcomes are to be achieved. Certainly, the professional competency standards that have been employed in Australia encompass professional discretion and diversity, e.g. they do not prescribe that all practitioners will necessarily act in the same way in a particular situation. So standards based on the integrated conception of competence allow for appropriate flexibility in work performance. They are consistent also with the reality that not all practitioners will have identical overall conceptions of their work. For instance, a physiotherapist in the employ of a community health centre will practise, very likely, somewhat differently from a fellow practitioner who operates their own private practice. Yet in both cases, they will perform their work according to the integrated competency standards for physiotherapy. Clearly if we assume a narrow task understanding of competence, it might appear that all competent performance is essentially identical. However, once we go deeper and add the integrated approach's inclusion of attributes that underpin performance and their contextualisation, there is the obvious possibility that different combinations of attributes can lead to the same satisfactory outcome or, in some cases, even different outcomes that are equally satisfactory.

A further supposed limitation of competency standards is that, because they prescribe minimum standards, they thereby discourage excellence. Everything, it is claimed, is reduced to the lowest common denominator. However, by the same logic, we could claim that traditional examinations discourage excellence since there is a minimum mark (commonly 50 %) for gaining a pass. However, when it comes to integrated competency standards, this view is based on a complete misunderstanding. For the 'discouraging excellence' charge to be valid, the competency standards would need to describe tasks that admit of no degrees of quality of performance, i.e. either a practitioner can do it or they cannot. But such 'on-off' tasks are either rare or relatively minor in many occupations. Typically, the standards describe tasks that can be performed more or less well, i.e. the level of performance can be normatively appraised. In assessment involving integrated competency standards,

this feature is enhanced since the recommended assessment is of holistic slices of actual practice. Typically these assessments address two or more of the key tasks simultaneously. So in sound competency-based assessment, a prescribed minimum satisfactory level of performance is entirely consistent with performances being judged against a full range of criteria from excellent through to fail (for a discussion of the kinds of standards, called 'described standards', that are appropriate for tasks that are open to many degrees of performance, see Gonczi et al. 1990). Of course the normal situation is that most candidates assessed against integrated competency standards will greatly exceed the specified minimum performance levels, just as most entrants to courses greatly exceed the entry requirements. So blanket claims that competency standards' discourage excellence are unfounded, at least in the case of integrated competency standards.

As this section has argued, the integrated view of competence can be summarised as *contextualised capability involving an integration of knowledge, skills and attitudes*. As against the atomism of many approaches to competence, the integrated view stresses the inescapable *holism* of professional performances. Thus, rather than focusing on ticking off a checklist of atomised tasks and skills, the integrated view asserts that competence is more about being able to seamlessly integrate knowledge, skills and attitudes into a, perhaps unique, professional performance that answers the needs of the particular situation. Underpinning this capacity to 'put it all together' so as to fashion an appropriate performance is the practitioner's *professional judgement*. It is because professional judgement is applied to contexts and situations that are often unique in some respects that such judgement cannot be fully codified into a set of rules. This is why it is essential that assessment of competence should be carried out only by assessors who are themselves competent to carry out the kinds of performances that they are assessing. In a nutshell, reliable and valid assessment of a practitioner's professional judgement itself depends on informed professional judgement. Another important distinguishing feature of the integrated view of competence is that a practitioner's competence is not itself directly observable; rather competence is inferred from performances that are themselves observable.

10.4.5 Practical and Procedural Aspects of the Development and Use of Integrated Competency Standards

Firstly, as noted earlier, professions and other occupations continually change and evolve, some more rapidly than others. This means that the integrated competency standards are always a work in progress. They require regular updating and refinement. Each successive version of the competency standards should be a product of group professional judgement. There needs to be ample opportunity for many and representative interested practitioners to contribute to the achievement of overall consensus.

Secondly, integrated competency standards are used for many and diverse purposes including the following:

- They provide members of the occupation with a guide to planning personal career paths. This can be important in those professions and other occupations that have a variety of levels and specialisms.
- They provide a basis for assessing and recognising the capacities of overseas qualified practitioners seeking to migrate to other countries to practice a registered occupation.
- They provide professional and other occupational authorities with a basis for determining refresher course content for those seeking to return after a significant absence from practice of the occupation. This issue is important for registered occupations.
- Potentially they provide the public with direct knowledge of what might be expected of a competent practitioner in a particular occupation. (In practice, however, most members of the public rely on the accreditation, regulation and licensing systems for professions and other key occupations to warrant that practitioners have the knowledge skills and dispositions to perform competently. However, the processes of accreditation of practitioners, whether at initial or higher levels, are increasingly based on competency frameworks, whether or not a registration model is also in use).
- They are employed by universities and other higher education providers, vocational education providers and professional and other occupational authorities as an important guide for designing initial professional and vocational preparation courses, higher-level courses (e.g. master's) and ongoing professional development programmes.

However, it should be emphasised that the competency standards' document by itself does not provide all the answers for each application. Rather it is a valuable starting point for designing a process that will serve to accomplish the required purpose. Typically this will include contextualising and elaborating parts of the competency standards as tools suitable for achieving the particular purpose. For instance, in the case of returners after a period away from practice, a key consideration will be: in which aspects of the standards do (say) 5 years absentees need updating? Likewise for (say) 10 years absentees, etc. On this basis, refresher course curricula, assessment arrangements, etc. can be designed. A different application of competency standards concerns the admission and registration of overseas-trained practitioners. The standards will serve to decide, firstly, the nature and content of preliminary screening of applicants, such as what evidence is to be supplied by candidates (case notes, qualifications, experience, etc.). Secondly, for those candidates accepted for migration, the competency standards will serve to decide what aspects of practice need to be tested and what levels of attainment are required prior to registration. Evidently then, each particular use requires some expansion of and contextualisation of some or all of the standards. This expansion and contextualisation results in different levels of detail and explanation according to the very different purposes. In all of this, group professional judgement is at the heart of decision-making.

Both of these practical and procedural aspects of using integrated competency standards reinforce the key point, made earlier, that *professional judgement* is a fundamental underpinning notion for such standards. Clearly, in virtually all instances, *group* professional judgement is more secure than the judgements of one or a few individual practitioners.

This above account of integrated competency standards fits well with prominent recent theoretical developments. The next section addresses this.

10.5 Relation of the Integrated Understanding of Competence to Recent Theoretical Developments in Related Topic Areas

Near the beginning of this chapter, it was noted that in the early 1990s, when colleagues and I first developed the integrated understanding of competence, we found the literature surrounding competence and professional practice to be disappointing. In particular, we concluded that received theories and concepts (such as skill formation, reflective practice, learning by doing, or the application of theory to practice) did not adequately account for the richness and diversity of the holistic skilled performances that we were witnessing as part of our work. Fortunately, in the intervening quarter of a century, theoretical understanding of these matters has advanced considerably. In this section various theoretical developments that are relevant for enriching our understanding of the integrated approach to competence are outlined and discussed.

10.5.1 The Nature of Skills

Skills have often been regarded as discrete, self-contained entities that can be acquired by practice and passed on to novices (see Hager and Halliday 2006: 124–5). This line of thinking encourages the idea that a skilled occupation can be reduced to a set of discrete skills. As noted earlier, this assumption underpins much CBT. However, a much more holistic approach is evident in more recent work on skills. A homely example will serve to demonstrate why a degree of holism is essential to any convincing account of skills. The familiar example concerns the skills required to competently drive a motor vehicle. A set of discrete skills (starting the engine, activating the left turn indicator, accelerating the vehicle, applying the brakes, etc.) can readily be identified. Imagine that a complete list of basic motor vehicle driving skills had been identified. The crucial question is this: if someone demonstrates the ability to perform each of these discrete skills, one by one, would we be justified in concluding that they were a skilled, or even a competent, motor vehicle driver? Clearly not. It seems to be obvious that skilful driving requires something more than being adept at each of these discrete skills. Someone whose

training had not advanced beyond performance of each of the discrete skills might well be a very unskilled motor vehicle driver. This is so because skilful driving requires a capacity to 'put it all together' appropriately for the given context. Skilful drivers enact a holistic performance that is adapted to the particular road and traffic conditions and many other variables that obtain at a given time. In short, skilful driving consists not so much in the ability to perform discrete skills but, crucially, in the capacity to put them all together in effective combinations that are appropriate to current conditions. This more holistic notion of skill encompasses the so-called discrete skills but incorporates as well abilities, such as judgement, perceptual discrimination and forward planning; affective characters, such as persistence and attention to detail; as well as various learned techniques and habits.

Dictionaries frequently distinguish between two senses of the term *skill* – the 'uncountable' and 'countable' senses. The former represents a wider, more holistic understanding of skill. It is the 'putting it all together' aspect of skilful driving. The dictionaries present this 'uncountable' sense of skill as the primary one. The latter sense covers specific discrete skills that can be listed and described. For instance, the *Oxford Advanced American Dictionary* defines skill in the uncountable sense as 'the ability to do something well', whilst skill in the countable sense refers to 'a particular ability or type of ability'. Examples of the uncountable sense include 'The job requires skill and an eye for detail' and 'what made him remarkable as a photographer was his skill in capturing the moment'. Examples of the countable sense include 'we need people with carpentry skills' and 'she shows good management skills'.

Likewise the above motor vehicle driving example also supports the claim that the uncountable sense of skill is the primary one, since skillful driving is an uncountable skill in the sense of 'the ability to do something well'. By contrast, the components of the complete list of basic motor vehicle driving skills are clear examples of skills in the countable sense. That the uncountable sense of skill is indeed the primary one is supported further by considering typical applications of the terms 'skilled' or 'highly skilled'. A professional orchestral cellist is clearly someone who is highly skilled as a cellist. Underpinning this capacity, there are numerous countable skills relating to the mechanics of cello playing, reading music, etc. But overlying this is the uncountable sense of skill and musicality by which a holistic performance is fashioned and delivered that takes into account and responds to multiple factors such as the particular preferences of the conductor, the playing of the cello section as a whole, the role of the cellos in the overall orchestral fabric of the particular work, the audience, the vagaries of the venue and so on. Similarly, the superior skills of professional sportspeople consist primarily of skill in the uncountable sense. For example, numerous discrete physical and mechanical skills can be attributed to a batsman who scores a test match century. But the real skill that the sporting public admires lies in the way these discrete skills are subsumed into an overall performance that is well suited to the prevailing circumstances and conditions. Taking just one example, a cover drive for four by the centurion is not just the mechanical reproduction of the stroke as prescribed in a coaching manual.

Rather, it is the stroke adapted to suit and allow for many factors including the prevailing pitch conditions, the wind (including its changes), the condition of the ball (e.g. whether reverse swing has started), etc. So the batsman's playing of a particular stroke is not just the performance of a set of one or more discrete, isolated physical skills. Rather significant perceptual awareness and know-how are deployed to shape the actual instances of executing this and a myriad of other skills involved in the overall highly skilled innings. These two examples also exemplify the point that whilst skilled performance often involves significant physical skills, it also usually involves much more. In this respect, they reflect the numerous dictionary entries that list the arts, crafts and sciences as typical sites of skilled performances.

These holistic considerations are reflected in more recent accounts of skill (e.g. Winch 2010; Beckett and Mulcahy 2006; Hager and Halliday 2006: 124–125). Winch's account is instructive. For Winch 'to act skilfully is not to perform a type of act, but to act in a certain (praiseworthy) way' (2010: 43). As Winch puts it:

> The concept of a *skill* seems to be the ability concept which opens up the vista of normative appraisal in terms of the *degree* to which an activity can be performed well or badly. (Winch 2010: 41)

Winch regards this feature, of being subject to normative appraisal, as the defining feature of skills. As well, Winch holds that skills are a subset of abilities, i.e. skills are those abilities for which normativity is the defining feature.

The *Cambridge Online Dictionary* defines skill as 'an ability to do an activity or job well, especially because you have practised it'. Since there typically are degrees for how well an activity or job is performed, this definition implies that skilled performances can be normatively evaluated. It is noteworthy that the uncountable sense of skill fits naturally with the notion of normative appraisal, whereas this is less so for the countable sense. This is evident from the fact that many countable skills, being discrete, specific and physical, are the kind of thing that one can either perform them or one cannot. Simply, there are no *degrees* of how well they can be performed. Overall, these various ideas strengthen the claim that the uncountable sense of skill is the primary one. This sits well with the claim of this chapter that the holistic integrated understanding of competence is greatly preferable to narrower approaches.

Whilst acknowledging that skills involve the use of method or technique, Winch adds that 'it is plausible to suggest that skill involves more than this' (Winch 2010: 43). According to Winch (2010: 43–44), this something more includes most or all of the following components:

- Physical capacities
- Technique
- Moral qualities (such as persistence and attention to detail)
- Habits (such as taking care of one's equipment)
- Refined perceptual discrimination
- Knowledge (which is often displayed enactively rather than verbally)
- Judgement

By incorporating most or all of these components, skills are shown to be *complex* entities. As

Winch puts it: 'to possess a skill is to possess something complex, with different integrated and interrelated aspects' (Winch 2010: 44). This complexity is evident for each of the three examples of holistic skills mentioned above (driving a motor vehicle, professional orchestral playing, test match cricketing). In each case, physical capacities need to be guided by and integrated with items such as persistence, attention to detail, habits, refined perceptual discrimination and judgement.

Significantly, Winch points out that this complexity is missed if accounts of skills focus just on the *tasks* to be performed. Confusing tasks with skills effectively overlooks key features of skills resulting in a thinner, austere version of what is actually a much richer concept. Winch calls this error 'conceptual deflation' (Winch 2010: 45). As argued above, over recent decades many attempts to implement competency-based training have foundered on just this error.

Actually, there is yet a further reason for the frequent occurrence of this widespread error. It is traceable to the fact that task descriptions are amenable to minute and detailed specification. The degree of specification can be easily adapted to fit the requirements of the particular situation. The opposite is true of the exact specification of the kinds of human attributes required for competent completion of the task. The identification and elaboration of human attributes is much more elusive and contested (see Hager 2004). The Winch list of skill components (two paragraphs above) points to the difficulties in specifying clearly and unequivocally the details of this side of skilled performance. Perhaps because of this asymmetry, versions of CBT tend to concentrate on what is seemingly more objective (task descriptions) and avoid what is more subjective and intangible (the human attributes that underpin skilled performance).

This recent work on skills obviously has many strong synergies with the integrated understanding of competence. Holism, contextuality and professional judgement, all central to the integrated approach, are each closely allied with skilful performance in the uncountable sense of the term. A competent practitioner will also be a skilful performer.

10.5.2 Practice Theory

The last 20 years have witnessed a distinct 'practice turn' in social sciences theorising. The practice turn appeals to human practices as the fundamental bearers of understanding, intelligibility and meanings. This means that the mental entity concepts that characterised earlier theorising (beliefs, desires, emotions and purposes) are replaced by concepts associated with human practices (embodied capacities, know-how, skills, tacit understanding and dispositions). This is not the place to provide a detailed account of the practice turn (see, e.g. Schatzki et al. 2001; Green 2009; Kemmis 2005, 2010; Hager et al. 2012). Instead a brief outline will be given of diverse approaches to practice theory. Then, some major features common

to many of these practice theories will be discussed for the light they shed on the integrated approach to competence.

The practice turn has been influential in diverse disciplines in the humanities and social sciences. Its impact is increasingly evident in recent writings on education and learning. One prominent aspect of the growing literature on practice is that most authors seem to take the meaning of the term 'practice' to be unproblematic. Yet 'practice' is used in very diverse ways in the literature. Kemmis (2010) offers a detailed analytical classification of these diverse uses. For present purposes, it will suffice to distinguish more inclusive from less inclusive accounts of practice. More inclusive accounts accept almost any human activity as a practice, whereas more exclusive accounts restrict the scope of practices to more substantial and complex organised activities such as professions and occupations. Clearly it is the more exclusive accounts of practice that are most relevant here. (Hager 2012a offers a detailed account of the less exclusive/more exclusive continuum and the different purposes served by the different usages of the term).

For more exclusive accounts, practices are:

> … complex holistic activities, ones that integrate… diverse items such as goods and virtues, activity, experience, context, judgement, with such integration often involving a significant temporal dimension. (Hager 2012a: 27)

Some major themes that characterise more exclusive accounts of practice theory (adapted from more extended discussions in Reich and Hager 2014 and Hager 2012b) are:

1. *Knowing in practice* – professional learning is closely entwined with knowing, practising and innovating. It falls in between habits and actions and occurs as practitioners practice.
2. *Sociomateriality* – practice and professional learning occur in *sociomaterial arrangements*, in interrelated sets of material entities: humans, artefacts, organisms and other objects.
3. *Embodiment* – practices are not limited to cognitive functions but are embodied, both in a practitioner's own body and between their own and other bodies and material things.
4. *Relationality* – practice and associated professional learning involve much more than the contents of individual heads. Its relational and collective characteristics invoke notions such as professional collaboration, teamwork, choreography and orchestration.
5. *Historical and social shaping of practices* – practices exist and evolve continuously in historical and social contexts, shaped by complex social forces, including power.
6. *The emergent nature of practices* – they change and evolve over time in ways that are not fully specifiable in advance.
7. *Normativity* – practices typically have a strong normative dimension, i.e. features that an activity must have in order count as an instance of that particular practice. However, normativity is a much richer than mere rule following or rigid adherence to standard procedures.

Most of these major themes from practice theory (knowing in practice, embodiment, relationality, historical and social shaping of practice and normativity) have their obvious counterparts in the integrated understanding of competence as detailed above. Of the others, sociomateriality serves to remind us of aspects of contextuality and relationality that may be sometimes overlooked. The theme of the emergent nature of practices adds weight to the notion that competency standards are always a work in progress. Also it provides a further argument for the claim made earlier that, necessarily, competency standards can never be comprehensive. Practice theory offers new ways of thinking about practice and learning and the relationships between them. The close correspondence between practice theory and key aspects of the integrated understanding of competence helps to explain the latter's ongoing durability for those occupations that have adopted it.

Although he would not be regarded usually as a mainstream practice theorist, David Guile's recent work (Guile 2014a, b) has strong resonances with several of the themes discussed above. His research focuses on 'the forms of relationship between knowing, learning and acting in and between the contexts of education and work' (Guile 2014a: 80). His key concept for analysing this relationship is *recontextualisation*. For Guile, three principles underpin recontextualisation as follows:

1. The *purpose* of an activity determines how those involved in the activity deploy resources (conceptual, material and social) to accomplish the activity. Guile maintains that the purpose of an activity serves to set up a mediating relationship between theoretical and practical knowledge. Purposes, of course, are key features of both competency standards and practices as discussed above. It is precisely the purpose of the occupation that gives shape to the competency standards and provides a rationale for the choice of 20–30 key tasks that distinguish the occupation.
2. All forms of human activity (theoretical and practical) occur in a *normative context* where conceptual and empirical claims are both judged. For Guile, the crux is that practitioners of the activity make conceptually structured professional (i.e. practical) judgements in context-specific circumstances. This, of course, resonates strongly with the integrated understanding of practitioner competence.
3. Theoretical and practical (i.e. professional) reasoning presupposes *inferring* what follows from different types of concepts or actions and responding accordingly in specific situations. This puts an emphasis on the relationality of thinking, acting and planning, with suitable judgement underpinning it all.

The main upshot of all of this is that for Guile, human judgement is the primary unit of knowledge. In effect, Guile is shifting the focus of epistemology from its traditional concentration on the contents of minds to a more pragmatist (in the philosophical sense) concern with humans' capacities to interact effectively with their environments. Once again, this resonates strongly with the principles and concepts that characterise the integrated understanding of competence.

10.5.3 Complexity Thinking

Employing complexity theory to elucidate work and learning is a project still in its infancy. Here the term 'complexity thinking' is preferred in recognition of the fact that there exists a variety of different complexity theories (Lancaster 2012 and 2013). Nonetheless, two basic and widely accepted themes across all complexity thinking are its crucial focus on the *relations* between entities and the idea that novel qualities, entities or patterns can *emerge* from the interrelationships between the entities in a complex system.

10.5.3.1 A Focus on the Relations Between Entities

Complexity thinking posits that the relations between entities (complex systems) are as ontologically significant as are the entities themselves. This does not entail that the entities themselves are irrelevant, but it does mean that structure is understood as emerging from processes of relations between entities. This contrasts with traditional substantialist thinking, according to which structure consists of an assemblage of entities. In short, a complex system is structured by its relations, rather than by its constituent entities as the building blocks. Complex systems are constituted by the emerging patterns of the relations that characterise their processes (Cilliers 1998 and 2000).

10.5.3.2 Emergence in Complex Systems

Emergence is a key concept that characterises complexity thinking. It is 'the arising of novel and coherent structures, patterns or properties during the process of self-organisation in complex systems' (Goldstein 1999) or 'the coming into existence of new forms or properties through on-going processes intrinsic to the system itself' (Lewis 2000). Emergent phenomena are neither explicable by, nor fully predictable from, the qualities or processes of the original entities or their interrelationships. Emergence entails the prior presence of relational processes – structure, properties, systems or entities appear as emergent from a relational base. These relational processes constitute the 'micro'-level of emergence and are characterised by irreducibly different relations from those that characterise the emergent 'macro-'level function. This creates an irreducible distinction between micro- and emergent level functioning. However, the two levels are related to one another. The range of possible characteristics of the emergent macro-level phenomena is necessarily constrained by the nature of the relations that characterise the micro-level functioning that gave rise to them. But equally, the emergent macro-level entities or properties may serve to alter the environment of the micro-level functioning, resulting in changes at that level.

As the definitions above demonstrate, emergence is inextricably linked with underlying or preceding processes, which are characterised by relations. There is a tendency in the current literature on complexity to assume that these relations are simple interactional ones, such as the spatial relations of flocking birds or those determining sand dune formation. However, as Lancaster (2012, 2013) argues, for social situations, where actions are the product of human choices and intentionality, transactional relations are crucial and more relevant. In transactional relations, the related entities themselves are altered by the relation, whereas mere interactional relations leave the related entities basically unaltered.

Other complexity thinking concepts that are important for understanding human social practices as complex systems are *attractors* and *autopoiesis*. In complexity thinking, the attractor concept describes a complex system's limits. It defines a set of states through which the complex system's functioning moves, and to which it returns after it has been perturbed. Should the complex system move beyond these limits, it in effect falls into a new 'attractor basin', thereby becoming a new or different complex system. Human practices can be thought of as complex systems with various subgroupings within the practice constituting complex systems within the larger complex system. The attractor concept offers insight into the persistence or otherwise of the overall aims or purposes of the particular social practice, as it is affected by the sometimes shifting aims or purposes of particular subgroupings within the practice.

Complex systems can function autopoietically. That is, they can be both open to information and other resources from their environment and also operationally closed, in that they can set their own boundaries and monitor their environment so as to adjust their internal arrangements in the service of their own purposes/needs. Once again, this concept is very suggestive for thinking about human social systems and practices as complex systems.

Underpinning these various complexity thinking themes is the premise that the world is infinitely complex and, hence, can never be fully known. Humans gain understanding of aspects of the world by *reducing* complexity, i.e. by choosing which aspects of the complex whole to attend to and which to ignore. So human theorising always involves some reduction of complexity.

There is, of course, much more to complexity thinking than these few introductory ideas. But even this is enough to indicate how complexity thinking might well offer new insights into the matters covered in this chapter. Earlier we saw that competence can be conceptualised in various ways. Much of the literature concerns debate about which one of these is the correct one. Complexity thinking suggests that different approaches to competence represent different choices about how far to reduce complexity. Clearly, the task approach to understanding competence reduces the complexity of occupational practice much more that does the integrated approach. Rather than asking which one is 'correct', perhaps we need to focus more on how well each approach serves its intended purpose? We earlier found that even integrated competency standards need to be adapted and contextualised for different

uses. The choices here reflect perhaps decisions about what level of complexity is needed for the particular purpose.

Further, an occupation or profession can be thought of readily as a complex system with its own broadly agreed attractor, one that in turn consists of many other complex systems within this complex system. We can think of (say) a profession in terms of systems at different levels. For instance, a national professional association can be viewed as the profession at a fairly macro level, whilst a member of the profession working with clients represents the micro-level of the profession. In between are other levels – state associations, special interest groups, peer learning groups, etc. All of these various levels are interrelated. Many of these will have their own distinctive attractors, which will be significantly related to the macro-level attractor that drives the profession as a whole. Achieving knowledge of this multiply complex system will require many different levels of understanding. For instance, the profession's integrated competency standards, ethical standards statement, practice protocols and other similar documents will be highly pertinent for understanding practice at the national level. However, it will require gathering of much more micro-level data to understand the similarities and differences between the practice of various members operating in diverse contexts. The latter each constitute a complex system within the larger complex system. As complexity thinking suggests, we also need to understand the various relations between these subsystems and the larger system, as well as the relations between the subsystems themselves. As this complex system and its subsystems evolve autopoietically, genuinely novel emergents are likely.

This necessarily short discussion of complexity thinking suggests that, as its influence expands, it promises to add considerably to our understanding of the issues covered in this chapter.

10.6 Conclusions

Competence approaches have been subjected to harsh judgements in much educational literature (e.g. Ashworth and Saxton 1990; Hyland 1994 and 2014). This chapter has argued that this reflects an impoverished understanding of the concept on the part of both naïve practitioners and critics. A richer understanding of competence has been outlined and defended in this chapter. It has been employed successfully over many years by many occupations. This success should come as no surprise since this richer understanding of competence has strong synchronicity with some of the best thinking in both its own and related fields.

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