Chapter 5
Competence, Capability and Graduate Attributes

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5.1 Introduction

This chapter offers a different perspective on the skills, attitudes and potential of learners as they engage with vocational and/or professional education. Whilst there has been an international movement during the last century towards a universal approach to basing vocational education on the idea of work-related *competence* (*or competencies and competency-based variations of the term*), the application and usage across the world have had a number of variations in definition and emphasis (Pottinger and Klemp 1975; Spencer and Spencer 1993; Mulder et al. 2006; Mulder 2007; Weigel et al. 2007; Sandberg and Pinnington 2009).

In the English-speaking world of the USA, UK, Canada, Australia and New Zealand, the model of what became known of as the competency-based education and training approach (CBET) rested heavily on a conceptualization and implementation of the theory within a somewhat tight *behaviourist* approach (Parnell 1978; Cairns 1992; Collins 1993; Harris et al. 1995). Mulder and his colleagues in their 2009 study refer to this as 'old practice' of competence-based education (Mulder et al. 2009).

As raised in previous chapters, the theory and definition of just what is meant by *competence* has been the subject of many papers, books and discussions, and this volume seeks to clarify and explicate the ideas and applications of the concept.

It could be argued that in much of the usage and underpinning justification for the adoption across education and training of the concepts and associated approaches

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under the *competence* banner, the essence was closely related to outcome-based ideas and views (Cooper 1981). The production of competent people, be they trade workers, semi-professionals or professionals, was the aim. This emphasis centred on competent individuals. Also amongst the justifications for the adoption of competency-based education and training was the perceived need for nations to be more internationally competitive and to enhance the skills base of the economy. This rationale figured prominently in the UK (Tuxworth 1989; Mansfield 1989) and Australian (Carmichael 1992; Peacock 1991) justifications for the adoption of the competency-based system.

For example, the initial government report on this strategy in Australia which is generally acknowledged as giving rise to the competency-based approach to vocational education and training in that country stated that:

> This report outlines a staged strategy for meeting Australia's training needs in 2001. It is not a short-term response to current levels of unemployment, but an essential part of a broad structural reform.
>
> This report addresses vocational education and training for Australian Standards Framework (ASF) levels 1, 2 and 3.
>
> Change is needed to improve our international competitiveness, to complement changes in work organization and industrial relations and to improve the coverage, quality and equity of vocational certificate training in Australia. (Carmichael Report 1992 p. vii)

The pervasive adoption (especially in vocational education and training) of the behaviourist influenced definition and application of competence in the UK, New Zealand, Australia and the USA led to a variety of critiques and reactions ranging from the positive, with acknowledgment of the changes and issues (Burke 1989; Mulcahy and James 1999), to critiques and discussions of philosophical differences (Sandberg 2000; Stevenson 1995; Méhaut and Winch 2012) and even disputes about a range of aspects (Norris 1991; Cairns 1992; Collins 1993). Even the strongest critics did realise and state that if the approach (CBT) was being questioned, it was incumbent upon the critic to offer some alternative:

> In any essay where there are questions raised about the efficacy of a strongly held or advocated approach there is an implicit 'demand characteristic' on the critic to offer some alternatives or at least some clarificatory complementary views. (Cairns 1992, p. 25)

In this 1992 presentation, which introduced the papers from an Australian National Teacher Education conference symposium on CBET, Cairns suggested that the emerging UK *Education for Capability* ideas might fit the bill for an alternative or complementary set of ideas and models to the competency-based education and training approach. Over the years since the early 1990s, in the UK and Australia in particular, what became known as the capability approach emerged and grew in influence and application as a more holistic idea which encompassed the competence ideas and moved the theory, research and application 'beyond competence'. This shift to a more holistic conceptualization of *competence*, in Australia, also was evident through a set of additional government committee reports (Mayer Report 1 (1992a) and Mayer Report 2 (1992b) that moved the competence definition and ideas into descriptions of what were termed *key competencies* which broadened the concept to some extent from the rigidity of the early behaviouristic

underpinnings. This trend has also been part of the more recent definitions and developments within the European approach where *key competencies* have developed in relation to the European Qualifications Framework (EQF) (OECD 2005; Cedefop 2009) and more holistic models of competence have been proposed (Rauner et al. 2013). This aspect will be taken up in more detail in the following sections.

In Europe, the development of a competence approach in the last twenty years, as outlined elsewhere in this volume, took a different approach in nations such as France, Germany and the Netherlands with less behaviouristic theoretical roots than was evident much earlier in the USA, Australia, New Zealand and the UK. There was clear awareness of these variations and somewhat of a 'softening' emerged (or more generously, a pragmatic broadening of the meaning of competence, in the most recent European interpretation).

In the Introduction to a special issue of the *Journal of European Industrial Training* on competence across Europe, in 2009, Winterton concluded, as a result of an extensive review of the various European definitions and operational practices surrounding competence-based models, that:

> The review having demonstrated the growing influence of multi-dimensional frameworks of competence, we were confident in proposing a unified, holistic typology based on a broader view of competence. The holistic competence model, combining knowledge, skills and attitudes, is gaining ground over narrower approaches and several authorities are developing more integrated approaches along these lines. Where interpretive approaches have also been influential, competence is inevitably viewed as being multi-faceted, holistic and integrated. Such an approach offers a unifying framework for defining the competences necessary for particular occupations and thus provides a starting point for establishing a typology of competences for the ECVET. (p. 690)

As mentioned briefly above, the Australian critics of the competency-based approach adopted there began to offer in the late 1990s and beyond a complementary, rather than direct, alternative to competence, in the form of the capability concept that had been developing in the UK via the Royal Society for the encouragement of the Arts, Manufactures and Commerce (the RSA), *Education for Capability* project.

5.2 Capability

In the UK, in the late 1970s, the RSA, as it has over many initiatives since the eighteenth century, launched a 'project' under the broad banner of *Education for Capability* (see Cairns and Stephenson 2009 for a detailed account of this development and the rationale). The essence of this approach (which had three sections, School Education, Further Education (TVET) and Higher Education) was that the RSA *Capability Manifesto* should be the guiding light for a shift in the paradigm of education where the two terms, *education* and *training*, were used differently and implied a meeting of what the RSA saw as a need for change in the UK.

The term *capability* is a unique word in the English language with, originally, few, if any, direct translations across other languages (Cairns 1997), though in the last few years, some have emerged as the term has circulated worldwide. It has a special association with the famous English gardener, Lancelot Brown, who became known as Capability Brown, because, it is suggested, he frequently described potential grounds of stately English homes he was asked to assess for improvements and design as 'having capability'. Interestingly, Brown's designs became the hallmark for natural-looking hills and clumps of trees arranged in a definite and open style as opposed to the more familiar Continental style of formal and geometric arrangements. We would argue that this approach symbolises the more natural and holistic nature of capability as we use it in this chapter.

The word capability also was used by the English poet, John Keats, to describe a style of poetry. In doing so he coined the phrase *negative capability*, which he defined, in a letter to his brother, as 'when a man is capable of being in uncertainties, mysteries, doubts, without any irritable reaching after fact and reason' (Keats 1817). Whilst the addition of the term 'negative' in this conception appears somewhat strange initially, it needs to be seen in the context of a dominant 'positivist' ethos of the time. Keats was suggesting that poets with originality, flair and creativity (one assumes like him) operated with such negative capability. The essence of 'man' (sic) being *capable* and being in *uncertainties* is the key element of this exposition. Today's definitions and usage of the singular *capability* also resonates extremely strongly with this aspect (Cairns and Stephenson 2009).

The definition of capability has a number of variations (though one could suggest, not as many as competence). The most frequently used and cited include the singular *capability*, which has been utilised across a wide range of educational, business and other areas as a theorised and well-defined term suggesting potential (Stephenson and Yorke 1998; Cairns and Stephenson 2009).

In this version of the capability concept, the term has been defined as:

> Capability is an all round human quality observable in what Sir Toby Weaver describes as 'purposive and sensible action' (Weaver 1994). Capability is an *integration* of knowledge, skills, personal qualities and understanding *used appropriately and effectively*-not just in familiar and highly focused specialist contexts but in response to *new and changing* circumstances. Capability can be observed when we see people with justified confidence in their ability to:
>
> - Take effective and appropriate action;
> - Explain what they are about;
> - Live and work effectively with others; and
> - Continue to learn from their experiences as individuals and in association with others, in a diverse and changing society. (Stephenson and Yorke 1998, p. 2)

In the recent comprehensive account of the past 25–30 years of *capability* theory, research and application (Cairns and Stephenson 2009), the development and theorization of the concept is detailed and the following definition is specified:

> Capability is a holistic concept which encompasses both current competence and future development through the application of potential.
>
> The concept is applicable across both individuals and organisations.

Capability involves:

the capacity to operate in both familiar and unfamiliar situations
the utilisation of creativity and imagination/innovation
being mindful about change and open to opportunities or uncertainties
being able to engage with the social values relevant to actions
engaging with learning as a self-directed process
operating to formulate and solve problems

Capability as a concept is therefore holistic and involves a range of elements and processes and as such needs careful consideration and understanding if it is to be applied to Capable people, organisations and processes implemented in Education, Business and Training. (Cairns and Stephenson 2009. p. 16–17)

5.3 Sen and Nussbaum's *Capabilities*

The plural variation of this term, *capabilities*, has arisen within the welfare, social justice and equity literature and has been popularised by Sen and Nussbaum (Sen 1985, 2009; Nussbaum 2011). This approach, as most recently explicated by Martha Nussbaum in her 2011 book, *Creating Capabilities*, in which she sets out the 'approach' (as described and detailed by her) as:

The Capabilities Approach can be provisionally defined as an approach to comparative quality-of-life assessment and to theorizing about basic social justice. It holds that the key question to ask, when comparing societies and assessing them for their basic decency or justice is, 'What is each person able to do and to be?'.(p. 18)

Amartya Sen offers a slightly different variation on what he calls the *capability* (singular*) approach*:

In contrast with the utility-based lines of thinking, individual advantage is judged in the capability approach by a person's capability to do things he or she has reason to value. A person's advantage in terms of opportunities is judged to be lower than that of another if she has less capability-less real opportunity- to achieve those things she has reason to value. (Sen 2009, p. 231)

Nussbaum, in her 2011 work goes on to suggest that 'Sen's primary concern has been to identify capability as the most pertinent space of comparison for purposes of quality-of-life assessment, thus changing the direction of the development debate' (2011, p. 19). She adds (p. 19 ff), that 'In consequence, Sen does not employ a threshold or a specific list of capabilities, although it is clear that he thinks some capabilities (for example, health and education) have a particular centrality'.

For Nussbaum, in contrast to Sen, there is a set of ten *central capabilities.* These are listed in her works as:

1. Life
2. Bodily health
3. Bodily integrity
4. Senses, imagination and thought

5. Emotions
6. Practical reason
7. Affiliation. (A) Being able to live with others and (B) having the social bases of self-respect and nonhumiliation
8. Other species
9. Play
10. Control over one's environment: (A) political, (B) material (2011, p. 33–34)

The level of generality and dispositional quality amongst these central capabilities is apparent and the breadth of these as an idealist social justice conceptualization is evident. That some of the listed *central capabilities* are such expressions as 'other species' and 'play' does little to offer those examining this 'approach' as well theorised and defined aspects. The theory basis and application of the Sen and Nussbaum conceptualization is broader than the Education for Capability concept drawn upon in this chapter. The latter has been further developed through the 1980s till the present, and its application across many fields of education, training and organisational development has been extensive as will be exemplified below.

That Sen and Nussbaum have collaborated, yet taken slightly differing approaches and definitions of the approach can be seen from a scrutiny of their writing. As Nussbaum has written:

> These are the essential elements of the approach. It has (at least) two versions, in part because it has been used for two different purposes. (2011, p. 19)

Whilst the Sen and Nussbaum ideas around the various capabilities they have enunciated and discussed have made an impact across economics, social justice and international understanding relating to welfare, life and educational opportunities and equity, the difference between this approach and the RSA initiative under the singular *capability* banner has led to quite different applications and development (see Seddon and Cairns 2002 and Cairns and Stephenson 2009, for comparative discussion).

The genesis and development of the *capability* concept as espoused in the tradition of the RSA *Higher Education for Capability* approach, as mentioned above, has been well documented in the 2009 book, Capable Workplace Learning (Cairns and Stephenson), which sums up over 25 years of theory, research and application of this concept across a wide range of educational and organisational entities as well as across individuals.

The following sixteen examples of the application and research base for the advancement of this *capability* approach offer a selection of the breadth of work in this genre:

1. An examination of organisations via case studies across a number of Australian industries to explore whether the theorised capable organisation idea was manifest and to know what were the characteristics of such entities (Hase et al. 1998).
2. A study in the UK as to what aspects of organisational and corporate capability were evident and contributing to organizational effectiveness based on developments from the competency-based NVQs (Williams et al. 1998).

3. A case built to establish the merits and characteristics of the capable professional (O'Reilly et al. 1999).
4. The linking of capability and wisdom as key elements in the approach to strategic learning (Cunningham 1994).
5. Building a model of how capability in technical and further education offers a sophisticated approach to professional development and practice in VET for the 'knowledge era' as well as the development of 'life-based learning' as part of a capability development model for business (Staron et al. 2006a, b).
6. A research PhD examining the peace-keeping needs and experiences of the Australian army operating in the name of the UN in African nations which developed into a capability model based on the Stephenson work in Higher Education for Capability (Schmidtchen 1997).
7. Developing the capable teacher in a capable school (Cairns 1998a, b, 2001).
8. Drawing on the capability model to develop ideas and agenda for vocational education and training and workplace learning (Malloch and Cairns 1999; Malloch et al. 1998; Hughes and Cairns 2013).
9. Applying the capability model to aspects of international management and intercultural awareness (Townsend and Cairns 2001, 2002, 2003).
10. Capable workplace learning (Cairns and Stephenson 2009).
11. Capability in leadership (Seddon and Cairns 2002).
12. Ethnocapability (Townsend and Cairns 2001).
13. Capability in higher education (Stephenson and Weil 1992; Stephenson and Yorke 1998; The University for Industry-Learn Direct Approach, (Stephenson and Saxton 2005).
14. Capability in the health industry which draws on the capability model as espoused in this chapter to argue a case for moving beyond competence in the UK National Health Service (Fraser and Greenhalgh 2001).
15. An examination, as part of a major national project of 'approaches to reviewing staff capability towards flexible learning and the use of technologies to achieve business objectives in VET' in Australia which drew on the definitions of capability and the capable organisation discussed in this chapter as its informing ideas (Renshaw-Hitchen and Associates 2000).
16. A study of advanced nursing practices (especially in midwifery) indicated that 'This study suggests that both competence and capability need to be considered in understanding the complex role of the nurse practitioner' (Gardner et al. 2008).

The ideas and applications across so many fields of the underpinning concepts and theories associated with the RSA derived and developed view of *capability*, as applied with regard to education and training in particular, have not gone without some critical reaction. Writing in 1984, when the approach was emerging in the UK, Thompson offered a vigorous critique of the RSA *capability manifesto* and argued that there were a number of shortcomings and aspects of what he termed 'the capability movement'. Thompson's critique, which had been first presented at a conference organised by the higher education group, suggested that '(t)he proponents of

Education for Capability had presented a case which seemed to me to be a mixture of tautology and 'progressive' educational thought' (p. 203). He did offer a number of specific criticisms about the style, philosophy and language of the *manifesto* and the implications for education and training differences and the ideas surrounding 'skills' in the economy but did concede near the end of his paper that '(t)he thrust of the proponents of 'Education for Capability' is in many respects admirable and their good intentions are unquestioned'. However, he still faults the concepts and ideas as unable to 'bear the load placed upon them' (p. 212).

The refinement and elaboration, as well as the many applications of the *capability* idea and theory, along with additional research, have shown the robust nature and rigorousness of this concept as espoused by its many advocates. That *capability*, as set out in this chapter, has had a major positive influence on education, TVET and business, and industry shows that the concept, as one workshop participant many years ago in Australia suggested in the local idiom, 'has legs'.

5.4 The Transition from Competence to Capability and Links to Graduate Attributes

Recent further developments across Australia, Europe and other countries have seen a shift beyond the former somewhat simplistic notion of competence as a behaviouristic approach that defined competence, competencies and competency (virtually using all three of these terms interchangeably) as observable behaviours where there were clear demonstrations of the defined behaviours to a specified industry agreed standard. The shift, over the past decades in countries such as Australia and New Zealand has moved the ideas and conceptualization of competence to a broadening of the definition and the addition of qualifiers to the term. What has emerged are described as *key competencies* (in Australia see the two Mayer reports in 1992 for the genesis of this shift), and this approach has similar resonances in Europe and the Americas.

Interestingly, the OECD also moved the debate about the defining of competence and competencies into the arena of *key competencies* (Rychen and Salganik 2000) as did Cedefop in its shift towards 'Learning Outcomes' (Cedefop 2009) where the differing models and approaches to defining and applying 'competence' across the '32 European countries' with regard to education and training were discussed in some detail (p. 12). Cedefop, in that report, went on to recommend that the term *learning outcomes* offered a broad yet clear meaning as distinct from competence or the many variations upon that term:

> The problem is that the term *competence* (as well as competences and competencies) lacks a clear, standard meaning both in the English language and across European language traditions. Once we introduce the term competence, definitions become fuzzy at best, and there is no way to place a single discipline or definition on it. It is now widely accepted that, for example the terms competence, *compétence*, and *Kompetenz* each have rather different connotations in their respective language and cultural traditions. (p. 19)

Whilst the debate is something of a semantic issue to some, the evident gradual shift towards more holistic or encompassing terms, as argued in the capability debate in the UK, Australia and New Zealand, has gained some traction across many differing domains in education and training.

The German work in vocational education and training discussed above by Felix Rauner and his colleagues in the Institut Technik und Bildung (ITB) in Bremen University is one example where the competence ideas have developed into a set of different elemental competencies arranged more or less hierarchically as four stages of development. Rauner in his research group and model (COMET) has argued for a broader conceptualization of *professional competence*, which covers knowledge, skills, attitudes and values linked to the development of a professional identity as a 'complete' professional activity model of action and development. Emphasis on holistic problem-solving and operational capability in this approach is presented as a four-stage model.

The four stages are:

1. Nominal scientific and technological competence
2. Functional competence
3. Processual competence
4. Holistic shaping competence (Rauner et al. 2013, p. 164)

For Rauner, the *holistic shaping competence* is described in the following manner:

> (A)t this level of competence, occupational tasks are considered in their full complexity with due regard to the diverse operational and social conditions in which they are performed and to divergent requirements in terms of the work process and its outcome. (p. 164)

The idea that a more holistic conceptualization associated with the term *competence* should be seriously considered, particularly with regard to the development of professional identity and roles, has gained ground with a number of other writers, committees and reports (Beckett 2008; Cheetham and Chivers 1996; Bolderston 2007).

Educators in particular have been critical of the way the competency-based education and training narrow conceptualization has left out considerable elements of the world of learning and achievement by students (Cairns 1992).

In Australia, the national peak organisation of University Deans of Education, the Australian Council of Deans of Education (ACDE), in a submission to the Australian Government Independent Productivity Commission argued that study at a higher-education level equips students with capability that is not necessarily obtained through competency-based qualifications:

> … learners whose understanding of a job role is developed in a competency-based program will not necessarily achieve a grasp of the principles and ways of thinking that underpin competent performance … higher education facilitates development of a holistic understanding of the discipline or industry area and a critical appreciation of how and when to apply theoretical knowledge in particular contexts. (sub. DR107, p. 10) (Australian Productivity Commission Report 2011, p. 275)

As part of his ongoing publications of the terminology and broadening philosophy of competence in the Dutch context, Mulder and his colleagues offered a suggestion that a 'new competence' should replace the old behaviouristic version (Mulder et al. 2009). This paper clearly suggests that in the higher education sector, a broader definition and understanding of competence are needed. This study across a number of senior academics in universities in the Netherlands suggested that:

> But if competence is perceived as capability, the universities and academies have since their inception contributed to the development of competence of their students, for it has always been the purpose of these institutions to educate students to be able to fulfil a role in society. In the course of centuries university education however has become over specialised and fragmented. Specialised knowledge became most important. (p. 761)

The emergence of further disquiet with the 'old competence' idea (to use Mulder's term), within discussions of the needs of the professions and higher education contexts, resonates with the case built over many years in the Higher Education for Capability work led by Stephenson in the UK and developed from that in Australia and New Zealand in particular (Stephenson and Weil 1992; Cairns 1992: McKay and Heinrich 1997).

The idea that there was more to both education and training than merely meeting a set of competency standards has been neatly emphasised by Wheelehan (2009):

> CBT's simplistic and atomistic notion of skill is what allows current state and Commonwealth government policy in Australia to insist that apprenticeships can be shortened. However, learning how to become a member of a trade, occupation or profession is not simply a matter of meeting all the specified learning outcomes, particularly when these are tied to specific tasks or roles. The holistic development of the person in the context of their profession is excluded, and this involves for identity as part of that profession. This cannot be easily codified as observable outcomes tied to specific skills. (Wheelahan 2009, p. 237)

In the Introduction to their book, *Capable Workplace Learning*, Cairns and Stephenson (2009) noted that the significant Australian government commissioned National Review of Higher Education made a telling point with regard to competence and capability:

> Quite recently, whilst we were preparing this book, the Australian government's commissioned *Review of Australian Higher Education* was released in 2008 (Bradley, Chair). It is interesting and possibly significant for the case made in this book that the report notes, in clarifying its definition of the function of Higher Education, the following point (footnote 3, page 6):
>
> In the discussion Paper, a core function of contemporary higher education was identified as 'Developing high level knowledge and skills'. There is general agreement that there is a third component of educated performance which involves a broader element variously described as understandings, capability or attributes. This element permits the individual to think flexibly or intelligently in situations which may not previously have been experienced. Often value positions, including a commitment to lifelong learning or to responsible citizenship, or the insights derived from practical experience are seen to be components of this. (Cairns and Stephenson 2009, p. x)

Stephenson, in 2001 and earlier (Stephenson and Yorke 1998), had also developed an approach to higher education work, especially focused on students managing

their own learning through what he described as a *Capability Envelope* which he labelled as a 'holistic approach' (Stephenson 2001).

These points lead us to consider the more recent development of the ways learning outcomes of the various levels of educational systems and institutions are being described and codified.

5.5 Graduate Attributes or Learning Outcomes

The matter of attempting to document and codify the types of outcomes any learner should achieve, demonstrate or be able to exhibit in some way has been a longtime goal of most education and training systems worldwide. The genesis of much of the aforementioned competency-based education and training approaches was related to attempting to better enable and clarify what an education and/or training national system was intending to produce from its activity in society. The so-called outcomes education emerged in a variety of forms ranging from the previously mentioned narrow behaviouristic patterns to more broad-based ideas about such aspects as 'employability' for school and education systems at all levels. This approach to specification differed from the older traditions of 'aims' or 'goals' of educational systems.

5.5.1 An Evolutionary Movement Towards Learning Outcomes

We have argued in this chapter that there has been a gradual development and refinement of concepts, on the one hand, and a broadening of the notions surrounding learning outcomes as a consequence of educational experience, on the other hand, in the past twenty years, where sets of specific 'skills', certain listed 'knowledge' and expressions of possible and valued 'attitudes' (the KSA of education and training) were spelled out in a range of ways in curriculum documents, government reports and various reviews of schools, training programmes and in higher education, all focused on the outcomes for the students who passed through the systems.

This influence is evident in many national curricula for schools (e.g. the Ministry of Education, Singapore, where there is an advocacy of 'twenty-first-century competencies' which are described as 'life-ready competencies like creativity, innovation, cross-cultural understanding and resilience' (MOE 2014) and in the expression of expected outcomes across many colleges and universities. A brief perusal of college and university websites internationally shows that most have specified learning outcomes (USA) or graduate attributes (UK, Australia, New Zealand).

A popular expression of what have become known as '21st Century Skills' has been presented by the two US authors, Trilling and Fadel in their 2009 book, which has the subtitle 'Learning for Life in Our Times'. Trilling and Fadel (2009)'s

approach is to suggest a set of twenty-first-century 'learning outcomes' under three groupings: learning and innovation skills, digital literacy skills and career and life skills. Allied with these groupings in their final appendix presentation are '7 Cs' (seven terms each commencing with the letter C) which cover aspects such as critical thinking and problem-solving, collaboration, teamwork and leadership, creativity and innovation, cross-cultural understanding and so on. (It is interesting to refer to the interview with one of the founders of the UK *Education for Capability* approach at the RSA, Sir Toby Weaver, reported in Cairns and Stephenson (2009, p. 8.) where he used six words, all beginning with C and considered adding a seventh to encapsulate the idea of *capability.*)

As Hager and Holland (2006), in their comprehensive book on this aspect, define the scene in their Introduction:

> In an international context there has been increasing educational attention paid to what are variously called 'generic skills', 'core skills' or 'basic skills', or, more recently, 'employability skills'. Sometimes they are referred to as 'competencies' rather than as 'skills'. The term 'generic skills' and its cognates are widely used to refer to a range of qualities and capacities that are increasingly viewed as important in all walks of life, though the main focus is usually on their role in work and in education viewed as a preparation for work. Typical 'generic skills' cluster around key human activities such as communication, working with others, gathering and ordering information, and problem solving.
>
> This contemporary focus on generic skills has spread across education systems, including the university sector, where they are often called 'graduate attributes' or 'graduate qualities'. For the purposes of this book, we will use 'generic attributes' as the meta-level, more encompassing term to refer to these 'skills' or 'competencies'. When we are referring specifically to the higher education sector, as will be the case for much of this book, the preferred term will be 'graduate attributes'. (Hager and Holland 2006, p. 2)

5.5.2 Graduate Attributes as Outcomes

It has become, in recent times, increasingly common for tertiary education institutions in some Western nations to introduce 'graduate attributes' in which graduates are expected to be able to demonstrate by the time students have successfully completed their course of study. The graduate attributes typically specify knowledge, skills and attitudes to be achieved. Within this trend, there appears to be an agenda to build a bridge between study and the world of work with the individual achievement of attributes useful to potential employers.

The terminology mentioned here, of *graduate attributes*, is common to the tertiary sectors in the UK, Australia and New Zealand, whereas the term *learning outcomes* figures in most US universities. Essentially, graduate attributes, also identified frequently in some nations as key, core or generic skills or attributes, have been introduced into the tertiary education sector over the past two decades (Barrie 2006; Bowman 2010). With mass higher education, and development of a knowledge society, there has been a demand for higher qualifications and along with subject specific qualifications, demonstration of achievement of transferable or generic

skills (Aamodt and Hovdaugen 2008). Down (2006) identified the impetus from industry and the professions for work-ready new employees with assessed and reported outcomes. No longer could it be assumed that such skills would develop from taking part in a course of study.

She lists common graduate capabilities specified in tertiary education institutions:

- Knowledgeability
- Employability
- Creative thinking
- Critical analysis skills
- Information literacy
- Environmental sustainability literacy
- Leadership and global and domestic citizenship (Down 2006, p. 201)

The use of the plural term 'capabilities' also became a part of the confused territory of graduate attributes, albeit that this list is more comprehensive and embracing than other examples. For vocational education and training, generic skills include 'communication, problem solving, planning and organising, innovation, working with others, employability and self-management' (Down 2006, p. 201) The development of such lists of skills or graduate attributes to be achieved is identified as a first step to an outcomes form of assessment in the tertiary education sector, nevertheless isolated from understandings of the relationship between learning and work.

5.5.3 Outcomes in Qualification Frameworks

National qualification frameworks have been developed over the past three decades providing, by level of qualification, lists of the skills, knowledge and learning outcomes to be demonstrated. In the Australian Qualifications Framework, for example, the focus on generic competencies and outcomes to be achieved in education and training emphasises the acquisition of knowledge, skills and the application of these.

> Generic learning outcomes are incorporated into qualifications in the development process and their application is specific to the education or training sector.
>
> Generic learning outcomes are the transferrable, non discipline specific skills a graduate may achieve through learning that have application in study, work and life contexts. The four broad categories of generic learning outcomes recognised in the AQF are:
>
> - fundamental skills, such as literacy and numeracy appropriate to the level and qualification type
> - people skills, such as working with others and communication skills
> - thinking skills, such as learning to learn, decision making and problem solving
> - personal skills, such as self direction and acting with integrity.' (AQF 2013, p. 11)

5.5.4 Graduate Attributes in Higher Education

In the higher education sector, similarly, concern for the attributes or key or core skills that graduates take from their studies to the workplace led to the development of graduate attributes across a number of universities in Australia. Examples of such specifications come in different degrees of complexity and coverage.

Monash University, Australia's largest and one of the prestigious groups of eight major research universities in Australia, has the following set listed on its website (WWW.Monash.edu):

> The Monash Graduate Attributes are consistent with the University's strategic aspirations, as set out in *Monash Directions 2025* and the Academic Plan, and reflect the vision of Sir John Monash that individuals should develop themselves not only for their own benefit, but for the benefit of the community [1923]. They underpin Monash's coursework courses.
>
> Monash University prepares its graduates to be:
>
> 1. responsible and effective global citizens who:
>
> (a) engage in an internationalised world
> (b) exhibit cross-cultural competence
> (c) demonstrate ethical values
>
> 2. critical and creative scholars who:
>
> (a) produce innovative solutions to problems
> (b) apply research skills to a range of challenges
> (c) communicate perceptively and effectively

The University of Sydney, in Australia, the nation's oldest university and also one of the 'group of 8' major research institutes, offers an even shorter version:

> Graduate Attributes are generic attributes that encompass not only technical knowledge but additional qualities that will equip students to be strong contributing members of professional and social communities in their future careers. The overarching graduate attributes identified by the University relate to a graduate's attitude or stance towards knowledge, towards the world, and towards themselves. The development of these attributes is explicitly focussed on in teaching and assessment in students' formal courses of study at the University. This second level of attributes is described as five clusters of more specific attributes;
>
> 1. Research & inquiry
> 2. Information Literacy
> 3. Personal and Intellectual Autonomy
> 4. Communication, and
> 5. Ethical Social and Professional Understandings
>
> http://www.itl.usyd.edu.au/graduateAttributes/unipolicy.pdf

The move to specify and codify in documents, websites and so on across schools, universities and colleges, such expected outcomes for student learning is almost universal in this twenty-first century and represents an approach that is generally taken for granted as a necessary element of any education of training institution.

The key issue for this chapter is the nature and underlying theory and research that informs the format, terminology and content of any such specification. Our discussion has highlighted the case that whilst the starting point in many countries was a narrow focus of definition and application of competency-based ideas for education and training, there has been a well-documented iterative shift towards a more broad-based concern for a more holistic approach.

5.5.5 Clarifying Graduate Attributes as Educational Outcomes

Hager, writing the major initial theoretical and definitional chapter in his work with Holland in 2006 on graduate attributes, offered a critique of the 5 'conceptual errors', 'common misunderstandings' or 'mistakes' that have been prevalent across the world about just what and how graduate attributes are conceived of and expected to be acquired and applied by graduates of schooling, university degrees and training programmes. The five conceptual errors are listed as:

I. That they are viewed as *discrete or atomic entities*, thus they can be acquired and transferred singly.
II. That the learning of each of them is thought to be a relatively quick, once-off event. They are *acquired complete and finished* (this follows on from I).
III. That they are thought of as being acquired by *individual* learners. So the learning is located within individuals. (This view is often linked with I, but is actually not at all entailed by it).
IV. It is thought that we can *readily recognise them* when we see them. (It is easy to conclude from I and II that if typical generic attributes are discrete entities and can be acquired readily, then it must be straightforward to identify when someone exhibits them).
V. It is thought that they are *readily and unequivocally describable in language*. Hence it is straightforward to develop descriptive understandings of typical generic attributes and to convey these understandings to others in written form. (V may seem to follow from IV, but this is not the case, as will be shown below). (Hager and Holland 2006, p. 18).

Hager's point is that a more holistic and different perspective is needed in considering the what and how of graduate attributes. He offers a further set of five 'principles for gaining a more accurate understanding of the nature of graduate attributes'. These are listed as:

I. Viewing learning as a process.
II. Paying due regard to the holism of generic attributes.
III. Taking proper account of the influence of social/group factors.
IV. Recognising the contextuality of generic attributes.
V. Recognising the relevance of generic attributes for lifelong learning.

Elsewhere in his chapter, Hager discusses, in some detail, many of the attributes frequently specified and offers a number of suggestions as key ideas. Throughout the exposition is the reiteration of the need for a more holistic view. We suggest that

the aims and elements of what we have described and elaborated on in this chapter are not dissimilar to this near to last point by Hager:

> It is also crucial that generic attributes should be thought of more broadly than in terms of just university and work. These attributes represent a basis for lifelong learning in all kinds of life situations. Rather than being viewed as discrete attributes that people learn to transfer, generic attributes should be seen as learnt capacities to handle an increasing variety of diverse situations. Thus transfer becomes more a growth in confidence and adaptability as learners experience ever more success in their deployment of generic skills in a range of situations. To put it another way, perhaps it is not so much generic attributes that transfer, as growing understanding of how to deal with different contexts. (p. 43)

The brief overview of the development of competence and capability provided in this chapter and their relationship to higher and vocational education and training demonstrates the confusion and uncertainty as to the terms employed in the attributes identified for graduate achievement, nor is there national or international agreement on such lists with their featuring in mission statements, curriculum and quality audits and strategies in relation to graduate attributes (Barrie 2006; Barrie et al. 2009). Competence and capability are utilised frequently in such lists of attributes interchangeably, which we suggest is not helpful for the understanding and differentiation of the terms. We have presented a clear and supported case for the concept of *capability* to stand as a unique term.

As discussed in this paper, in Anglophone tertiary education, the trend in graduate attributes has been to utilise an approach informed by competence. As noted by Holmes, an assessment of competence is assessment of what *has been* achieved; capability is more future oriented (1995a). From the examples above, efforts are being made to approach graduate attributes with consideration of learning, especially in relation to the what, how and where. Teaching styles, modes of delivery and assessment are also focused upon. Enabling a contribution by students and teachers as stakeholders to the development and implementation of graduate attributes is also supported. These developments contribute to the consideration of different models; for example, Green et al. (2009) raise the possibility of a holistic embedded model with a whole-university approach to planning and implementation of graduate attributes. The idea of moving towards a *capability* approach that encapsulates many of the models and features and which has been well documented in the UK through the *Higher Education for Capability* projects is apparent.

The development in recent years of concern with such world-wide issues such as sustainability has also contributed or given rise to arguments for different types of graduate attributes/capabilities and raised questions about how these concepts might be clarified (Barth et al. 2013).

With such a range of challenges, there is no doubt that this debate will endure and move through additional iterations and conceptualisations over the twenty-first century.

5.6 Conclusions

The development of graduate attributes, competencies, capabilities and learning outcomes has evolved throughout the twentieth and early twenty-first centuries with discussion and debate in attempts to clarify the terminology, purpose, development and implementation of education in formal institutions. With increased massification of higher education, and the almost universal emphasis through the quality agenda on the accountability of universities, the focus has been on measuring the outcomes of teaching accompanied by an increasingly vocational emphasis as to achieving employment outcomes for graduates. There is, however, also the expectation that graduates will develop personally and will be capable to operate with intelligence beyond their learning in formal courses (Kember and Leung 2005). This agenda expands upon the existing requirements for competence and seeks capability held by professional bodies for new entrants in such fields as law, accounting, engineering, teaching and nursing.

Increased numbers of students, and demands for higher qualifications which facilitate the gaining of both subject-specific and transferable or generic skills ostensibly required by employers, are very much a part of an agenda of accountability of TVET institutions, universities and their staff.

The development of graduate attributes in many cases is a top-down exercise concerned with assessment of outcomes regarded as desirable for potential and possible employment. Such an approach also makes assumptions as to the transferability of the learning in the college and university programmes to the world beyond. It is argued that an emphasis on competence to be demonstrated in graduate attributes or outcomes has been conceived narrowly particularly in Australia and in other Anglophone cultures. Generally, the graduate is assessed for both their qualification and for the world of employment. Canada, Australia, Brazil, Mexico and the USA do share some commonalities in relation to identified generic skills, occupational competencies and domain-specific knowledge and skills (Nusche 2008). Assessment of narrowly described attributes can be countered by consideration of more creative aspects so that the capability of the individual can be focused upon (Holmes 1995b).

We have argued, in this chapter, that the conceptualisation, theorised and researched idea of *capability* which we have presented in this work, offers a broad-based yet applicable idea/approach for the twenty-first-century learner and that it has been utilised across a wide range of situations and industries to effect a useful and practical set of results.

References

Aamodt, P. O., & Hovdaugen, E. (2008). *Assessing higher education learning outcomes as a result of institutional and individual characteristics*. France: NIFU STEP, OECD.

Australian Government Productivity Commission. (2011). *Vocational education and training workforce* (Research Report), Canberra.

Australian Qualifications Framework (AQF). (2013). www.aqf.edu.au. Accessed 8 Aug 2014.

Barrie, S. (2006). Understanding what we mean by the generic attributes of graduates. *Higher Education, 51*, 215–241.

Barrie, S., Hughes, C., & Smith, C. (2009). *The national graduate attributes project: Integration and assessment of graduate attributes in curriculum* (Australian Learning and Teaching Council). Canberra: Australian Learning and Teaching Council Ltd., an initiative of the Australian Government Department of Education, Employment and Workplace Relations.

Barth, M., Thomas, I., & Day, T. (2013). Education for sustainability, graduate capabilities, professional employment: How they all connect. *Australian Journal of Environmental Education, 29*, 33–51.

Beckett, D. (2008). Holistic competence: Putting judgements first. *Asia Pacific Education Review, 9*(1), 21–30.

Bolderston, A. (2007). Maintaining competence: A holistic view of continuous professional development. *Journal of Radiotherapy in Practice, 6*, 133–141.

Bowman, K. (2010). *Background paper for the AQF Council on generic skills*. Adelaide: South Australian Department of Further Education Employment Science and Technology on behalf of the Australian Qualifications Framework Council.

Burke, J. W. (Ed.). (1989). *Competency based education and training*. London: The Falmer Press.

Cairns, L. (1992). Competency-based education and training; Nostradamus's nostrum? *Journal of Teaching Practice, 12*(1), 1–31.

Cairns, L. (1997). *Defining capability for education and training* (Discussion paper number 1). Washington, DC: Capable Organisations Research Project.

Cairns, L. G. (1998a). Teachers, training and development, Chapter 3. In T. Townsend (Ed). *The primary school in changing times.* London: Routledge.

Cairns, L. G. (1998b, July 4–7). *The capable teacher: The challenge for the 21st century*. 28th annual conference, Australian Teacher Education Association, Teacher Education: Challenge and Creativity, Melbourne.

Cairns, L. (2001). *The capable teacher in a capable school: School effectiveness from a different perspective*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, Washington.

Cairns, L., & Stephenson, J. (2009). *Capable workplace learning*. Rotterdam: Sense Publishers.

Carmichael, L., (Chair). (1992). *The Australian vocational certificate training system: Report to AEC and MOVEET.* Canberra: Australian Government Publishing Service.

Cedefop (European Centre for the Development of Vocational Training). (2009). *The shift to learning outcomes; policies and practices in Europe* (Cedefop reference series, 72). Luxembourg: Cedefop.

Cheetham, G., & Chivers, G. (1996). Towards a holistic model of professional competence. *Journal of European Industrial Training, 20*(5), 20–30.

Collins, C. (Ed.). (1993). *Competencies: The competencies debate in Australian education and training*. Canberra: Australian College of Education.

Cooper, C. R. (1981). *The nature and measurement of competency in English*. Urbana: NCTE.

Cunningham, I. (1994). *The wisdom of strategic learning: The self managed learning solution*. London: McGraw-Hill Book Company.

Down, C. (2006). Lifelong learning, graduate capabilities and workplace learning. In P. Hager & S. Holland (Eds.), *Graduate attributes, learning and employability* (Lifelong learning book series, 6, pp. 187–205). Dordrecht: Springer.

Fraser, S. W., & Greenhalgh, T. (2001). Coping with complexity: Educating for capability. *British Medical Journal, 323*, 799–803.

Gardner, A., Hase, S., Gardner, G. E., Carryer, J., & Dunn, S. (2008). From competence to capability: A study of nurse practitioners in clinical practice. *Journal of Clinical Nursing, 17*(2), 250–258.

Green, W., Hammer, S., & Star, C. (2009). Facing up to the challenge: Why is it so hard to develop graduate attributes? *Higher Education Research and Development, 28*(1), 17–29.

Hager, P., & Holland, S. (2006). *Graduate attributes, learning and employability* (Lifelong learning book series, 6). Dordrecht: Springer.
Harris, R., Guthrie, H., Hobart, B., & Lundberg, D. (1995). *Competency-based education and training: Between a rock and a whirlpool*. South Melbourne: Macmillan Education Australia.
Hase, S., Cairns, L., & Malloch, M. (1998). *Capable organisations: The implications for vocational education and training*. Adelaide: ANTA & NCVER.
Holmes, L. (1995a). Competence and capability: From 'Confidence Trick' to the construction of the graduate identity, for the conference on Beyond Competence to Capability and the Learning Society. Higher Education for Capability, UMIST.
Holmes, L. (1995b). *The capability curriculum, conventions of assessment and the construction of graduate capability*. Presented at conference on Understanding the Social World. University of Huddersfield, http://w.w.w.re-skill.org.uk/grads/cc_ga_gi.htm. Accessed 8 Aug 2014.
Hughes, L., & Cairns, L. G. (2013). Competency-based training in Australia: What happened and where might we 'capably' go? Chapter 10. In L. Deitmer, U. Hauschildt, F. Rauner, & H. Zelloth (Eds.), *The architecture of innovative apprenticeship*. Dordretch: Springer.
Keats, J. (1817). Letter to his brothers, Sunday 21 Dec. 1817, Hampstead. Accessed 18 Aug 15 http://www.mrbauld.com/negcap.html
Kember, D., & Leung, D. Y. P. (2005). The influence of active learning experiences in the development of graduate capabilities. *Studies in High Education, 30*(2), 155–170.
McKay, K., & Heinrich, J. (Eds.). (1997). *Capability: Educating for life and work*. Wellington: Education and Training Support Agency.
Malloch, M., & Cairns, L. G. (1999, April). *The capable organisation and vocational education and training implications: Australian data and developments*. Paper presented at the American Educational Research Association annual meeting, Montreal.
Malloch. M., Hase, S., & Cairns, L. G. (1998, April 13–17). *Learning in the workplace: Implications of the capability learning model*. Paper presented at the American Educational Research Association annual meeting, San Diego.
Mansfield, B. (1989). Competencies and standards, Chapter 3. In J. W. Burke (Ed.), *Competency-based education and training*. London: The Falmer Press.
Mayer, E. (Chair). (1992a). *Employment-related competence for post-compulsory education and training: A discussion paper*. Melbourne: The Mayer Committee.
Mayer, E. (Chair). (1992b). *Key competencies: Report of the committee to advise the Australian Education Council and Ministers of Vocational Education, Employment and Training on employment-related key competencies for postcompulsory education and training*. Canberra: The Mayer Committee.
Méhaut, P., & Winch, C. (2012). The European qualification framework: Skills, competences or knowledge? *European Educational Research Journal, 11*(1), 369–380.
Ministry of Education, Singapore. (2014). *21st century competencies*. http://www.moe.gov.sg/education/21cc/. Accessed 12 Aug 2014.
Mulcahy, D., & James, P. (1999). *Evaluating the contribution of competency-based training* (Report to NCVER). Leabrook: ANTA.
Mulder, M. (2007). Competence – The essence and use of the concept in ICVT. *European Journal of Vocational Training, 40*, 5–22.
Mulder, M., Weigel, T., & Collins, K. (2006). The concept of competence in the development of vocational education and training in selected EU member states: A critical analysis. *Journal of Vocational Education and Training, 50*(1), 67–88.
Mulder, M., Gulikers, J., Biemans, H., & Wesselink, R. (2009). The new competence concept in higher education: Error or enrichment? *Journal of European Industrial Training, 33*(8/9), 755–770.
Norris, N. (1991). The trouble with competence. *Cambridge Journal of Education, 21*(3), 331–341.
Nusche, D. (2008). *Assessment of learning outcomes in higher education: A comparative review of selected practices* (Working Paper No. 15, EDU/-WKP 2). Paris: OECD Education.

Nussbaum, M. C. (2011). *Creating capabilities: The human development approach*. Cambridge, MA: Harvard University Press.
OECD Report on Key Competencies. (2005). *Executive summary*. http://www.oecd.org/pisa/35070367.pdf. Accessed 1 July 2014.
O'Reilly, D., Cunningham, L., & Lester, S. (Eds.). (1999). *Developing the capable practitioner*. London: Routledge.
Parnell, D. (1978). *The case for competency-based education*. Bloomington: The Phi Delta Kappa Educational Foundation.
Peacock, D. (1991). *The applicability of competency-based standards to the teaching profession – A synthesis of five papers*. Brisbane: National Project on the Quality of Teaching and Learning.
Pottinger, P., & Klemp, G. (1975). Final report to the Fund for the Improvement of Postsecondary Education, Institute for Competence Assessment. Boston: Mc Ber and Company.
Rauner, F., Heinemann, L., & Hauschildt, U. (2013). Measuring occupational competences: Concept, method and findings of the COMET project, Chapter 11. In L. Deitmer, U. Hausshildt, F. Rauner, & H. Zelloth (Eds.), *The architecture of innovative apprenticeship.* Dordrecht: Springer.
Renshaw-Hitchen & Associates. (2000). *Approaches to staff capability towards flexible learning and the use of technologies to achieve business objectives in VET* (Draft Discussion Paper), Marrickville, NSW.
Rychen, D. S., & Salganik, L. H. (2000). Definition and selection of key competencies, a contribution of the OECD Program Definition and Selection of Competencies: Theoretical and Conceptual Foundations, INES General Assembly. http://www.deseco.admin.ch/bfs/deseco/en/index/02.parsys.69356.downloadList.26477.DownloadFile.tmp/2000.desecocontrib.inesg.a.pdf. Accessed 11 July 2014.
Sandberg, J. (2000). Understanding human competence at work: An interpretive approach. *Academy of Management Journal, 43*(1), 9–25.
Sandberg, J., & Pinnington, A. H. (2009). Professional competence as ways of being: An existential ontological perspective. *Journal of Management Studies, 47*(7), 1138–1170.
Schmidtchen, D. J. (1997). *Preparing capable Australian defence force personnel for peace operations: Principles and foundations*. Unpublished Doctor of Philosophy thesis, Macquarie University, North Ryde.
Seddon, T., & Cairns, L. G. (2002). Chapter 21: Enhancing knowledge in organisations: Developing capacity and capability through learning and leadership. In K. Leithwood & P. Hallinger (Eds.), *Second international handbook of educational leadership and administration, Part Two* (pp. 735–774). Dordrecht: Klewer.
Sen, A. (1985). *Commodities and capabilities*. Oxford: Oxford University Press.
Sen, A. (2009). *The idea of justice*. London: Penguin.
Spencer, L., & Spencer, S. (1993). *Competence at work: Models for superior performance*. New York: Wiley.
Staron, M., Jasinski, M., & Weatherley, R. (2006a). *Life based learning: A strength based approach for capability development in vocational and technical education*. Darlinghurst: TAFE NSW International Centre for VET Teaching and Learning.
Staron, M., Jasinski, M., & Weatherley, R. (2006b). *A business approach to capability development*. Darlinghurst: TAFE NSW International Centre for VET Teaching and Learning.
Stephenson, J. (1992). Capability and quality in higher education'. In J. Stephenson & S. Weil (Eds.), *Quality in learning: A capability approach in higher education*. London: Kogan Page.
Stephenson, J. (1998). The concept of capability and its importance in higher education. In J. Stephenson & M. Yorke (Eds.), *Capability and quality in higher education* (pp. 1–13). London: Kogan.
Stephenson, J. (Ed.). (2001). *Teaching and learning online: Pedagogies for new technologies*. London: Kogan Page.
Stephenson, J., & Saxton, J. (2005). Using the internet to gain personalized degrees from learning through work. *Industry and Higher Education, 19*(3), 355–373.

Stephenson, J., & Weil, S. (1992). *Quality in learning: A capability approach in higher education*. London: Kogan Page.

Stephenson, J., & Yorke, M. (Eds.). (1998). *Capability and quality in higher education*. London: Kogan Page.

Stevenson, J. (1995). *The metamorphosis of the construction of competence* (Inaugural professorial lecture). Brisbane: Griffith University.

Thompson, K. (1984). Education for capability: A critique. *British Journal of Educational Studies, 32*(3), 203–212.

Townsend, P., & Cairns, L. G. (2001). Ethnoconsumerism and ethnocapability: New paradigms in multicultural relationship management. *International Journal of Customer Relationship Management, 3*(4), 277–285.

Townsend, P., & Cairns, L. G. (2002). Developing multicultural relationship management skills for the tourism market. *International Journal of Customer Relationship Management, 4*(4), 301–314.

Townsend, P., & Cairns, L. G. (2003). Developing the global manager using a capability framework. *Management and Learning, 34*(3), 313–327.

Trilling, B., & Fadel, C. (2009). *21st century skills; learning for life in our times*. SanFrancisco: Jossey-Bass.

Tuxworth, E. (1989). Competence-based education and training: Background and origins. In J. W. Burke (Ed.), *Competency-based education and training*. London: The Falmer Press.

Weaver, T. (1994). Knowledge alone gets you nowhere. *Capability, 1*(1), 6–17.

Weigel, T., Mulder, M., & Collins, K. (2007). The concept of competence in the development of vocational education and training in selected EU member states. *Journal of Vocational Education and Training, 59*(1), 51–56.

Williams, R., Cunningham. L., & Stephenson, J. (1998). The use of NVQs as a means to develop corporate capability (Research Report). Coventry: RSA Examinations Board.

Wheelehan, L. (2009). The problem with CBT (and why constructivism makes things worse). *Journal of Education and Work, 22*(3), 227–242.

Winterton, J. (2009). Competence across Europe: Highest common factor or lowest common denominator? *Journal of European Industrial Training, 33*(8/9), 681–700.