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# OPENING MINDS

AN EVALUATIVE  
LITERATURE REVIEW

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# Executive summary

This document reports on an independent literature review aimed at developing an evidence base related to the value of a competence-based curriculum in secondary schools both generally, and with specific reference to the RSA Opening Minds competences. The review sought to explore differing interpretations of ‘competence’ and to offer a working definition. Comprehensive searching of the literature was undertaken and included electronic databases, websites and citation tracking. Literature identified included empirical studies, peer and non-peer reviewed research papers, research syntheses, policy documents, unpublished literature and theoretical papers.

Opening Minds covers a wide range of outcomes and embraces many of the conceptual positions supported by the research reviewed in this report. However, there are insufficient empirical studies and none except the 2010 evaluation commissioned by the RSA that specifically address the OM programme. The little empirical work that exists in this area suggests that RSA should be encouraged: their competency framework is more balanced than most others reviewed in this report. For example the EU’s competencies are heavily weighted to ‘Learning’; Hoskins and Deakin-Crick’s to ‘Citizenship’ and ‘Managing Situations’; PISA’s to ‘Learning’ and ‘Managing Information’. Jaros and Deakin-Crick (2007, p. 436) support these characteristics of *Opening Minds* in suggesting:

The RSA Curriculum Project ‘Opening Minds’ (2003) is another example of an innovative approach to the curriculum for school-aged students that aims at integration, rather than a subject-based and thus fragmented approach to knowledge. It lends itself to a more holistic and learner-centred approach that encourages interdisciplinary enquiry, the stimulation of learning power, and the acquisition of transferable skills.

## Main recommendations

**Recommendation 1:** The Opening Minds curriculum resonates well with both the economic and wider learning characteristics that emerge from the review as important. As such the RSA should be promoting both the versatility of its curriculum and how it appears to meet the diverse aims or drivers underpinning competence based approaches.

**Recommendation 2:** If they are to lead to expertise and competence, CBE must be grounded in the local and individual context and this is what OM already does.

**Recommendation 3:** Since the evidence supports a view of competence as embracing a diverse range or types of knowledge, tailoring OM must also be realised by students being able to use standard knowledge in a localised context as well as embracing other existing knowledge types.

**Recommendation 4:** The evidence on learning power implies that the CBE should centre on learning as a skill rather than simply lead students to acquire knowledge. As such, teachers using the OM curriculum should ensure that OM is fully grounded in an understanding of a conception of learning skills and, in particular how such skills can be developed over time.

**Recommendation 5:** The RSA should consider its definition of competence and choose one that has salience with the main stakeholders concerned (i.e. teachers, learners and employers) whilst also reflecting the myriad and diverse outcomes that OM supports.

**Recommendation 6:** For schools involved in OM, ensure that those teaching OM are themselves competent to do so (i.e. are comfortable in their roles as coaches and experts and the balance required between these roles and the need for self-responsibility and self-reflection in their students) and are able to demonstrate the competences that are required of their pupils.

**Recommendation 7:**

Where competence development is the ultimate goal, educational programmes including the following eight aspects suggested by Wesselink *et al* (2009 p. 22) should be considered by those using OM.

- **Aspect 1:** The competencies that are the basis for the study programme are clearly defined;
- **Aspect 2:** Core professional problems are the organising unit for designing or redesigning the curriculum (learning and assessment);
- **Aspect 3:** Competence development of students is assessed before, during, and after the learning process;
- **Aspect 4:** Learning activities take place in various authentic situations;
- **Aspect 5:** Knowledge, skills, and attitudes are integrated in learning and assessment processes;
- **Aspect 6:** Self-responsibility and (self-) reflection of students are stimulated;
- **Aspect 7:** Teachers, both in school and in the workplace, balance their roles as coaches and experts;
- **Aspect 8:** A basis is established for a lifelong learning attitude among students.

**Recommendation 8:** Teachers using OM should make explicit the links between curricular subjects such that the interrelated nature of competencies can be addressed.

**Recommendation 9:** The emphasis placed in the OM curriculum on ‘Managing emotions’ should be maintained given the evidence on the importance of these competencies in and out of the workplace.

**Recommendation 10:** As the OM programme aims to develop a wide range of competences, assessment processes need to reflect this and ensure that the drive to gain a formal qualification does not inhibit wider learning and that the assessment process is not divorced from the pedagogical approach.

**Recommendation 11:** If formal accreditation is brought into the OM programme, different actors such as students and teachers can provide useful input for the format and operation of competency based assessments.

**Recommendation 12:** An appropriate system of assessment of OM competencies should embrace the principles of Assessment for Learning through a collaborative approach, in particular by sharing the criteria for learning with the learners incorporating self and peer-assessment and ensuring feedback informs future teaching and learning.

The RSA should consider re-evaluating the effectiveness of Opening Minds looking at the impact at school, teacher and pupil level with a view to strengthening existing arguments regarding its efficacy. Whilst acknowledging that accreditation of the OM programme is at school level, the overall accreditation process could draw on Hipkins *et al* (2010) in asking: how the competencies will be assessed and reported on, who will be involved in the assessment and what kind of professional development supports the effective use of the Opening Minds curriculum?

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# What the review set out to do

The aim of the review was to develop an evidence base related to the value of a competence-based curriculum in secondary schools both generally, and with specific reference to the RSA Opening Minds competences. We sought to explore differing interpretations of ‘competence’ and to offer a working definition. The review was organised around the following three key questions:

- What is the evidence to support a competence-based approach to education generally-including the impact on both outcomes and pedagogy?
- What is the evidence base for the competences defined by Opening Minds and how do these compare to other competences as utilised by other approaches?
- How could the outcomes and impacts of Opening Minds be measured and evaluated?

## Background

### Context

The current policy context with its focus on revising the curriculum, employability skills and the links between schooling and work, provides an important justification for undertaking this review. There are many policy initiatives which are particularly pertinent to the effective operation of the Opening Minds curricular model. Policies which specifically address schools include: curricular changes (eg to the National Curriculum and the introduction of the EBacc); assessment modifications (eg an increasing emphasis on end-of-course assessment and the reduction in opportunities to resit exams); institutional change (eg the proliferation of free schools, academies and University Technical Colleges); and changes to the monitoring of schools’ performance (eg the new guidelines for school performance tables). In addition, the Education and Skills Act (DCSF 2008) introduced legislation to ensure all young people in England remain in education or training until they are 18.

The review of the National Curriculum commissioned by the Coalition Government provides an important opportunity for debate about the future of the curriculum. The ‘expert panel’s’ report (DfE, 2011) recommended that the revisions to the curriculum should encourage high expectations for all and reduce the amount of prescription. In particular, they proposed that levels are abandoned and the purposes, progression and inter-connections between the knowledge that pupils are to be taught should be made more explicit. The panel’s report emphasised the importance of breadth suggesting it should be increased at Key Stage 4. To maintain breadth whilst also reducing prescription, the panel recommended reclassifying Design Technology, Citizenship and ICT to the basic curriculum which would reduce requirements on schools whilst preserving the statutory status of these subjects. This could open up

*The Education and Skills Act (DCSF 2008) introduced legislation to ensure all young people in England remain in education or training until they are 18*

opportunities for more cross-curricular activities that promote the type of competencies included in the Opening Minds curriculum.

In Scotland, the Curriculum for Excellence introduced in 2004 is encapsulated in the four capacities – to enable each child or young person to be a successful learner, a confident individual, a responsible citizen and an effective contributor. The curricular aims are to ensure that all children and young people in Scotland develop the knowledge, skills and attributes they will need if they are to flourish in life, learning and work, now and in the future. Examinations and specialisation occur in the fourth year of secondary school. The less prescriptive nature of the curriculum (for example in comparison to England) was welcomed as a means of recognising the professional judgement of teachers but contrastingly is regarded as too vague. Its strength is in the relevance of content that teachers have been able to select and in how the curricular areas are addressed. The vagueness is however, leading to questions about the viability of assessing it.

There are also relevant policy initiatives from employer and higher education representative bodies. For example, a recent CBI report noted that ‘there is a big issue of a failure [for pupils] to grasp why learning is important ... and for gaining a basic insight into the world of work’ (CBI 2011 p. 9). The CBI subsequently recommended the development of a new standard which would enable selected institutions to achieve ‘Employability School’ status, one that has an engagement with business and involves teamwork and problem-solving. This type of recommendation will have resonance for schools involved with the Opening Minds programme. In addition, the recent Higher Education White Paper (BIS 2011), reinforced government concerns regarding the development of employability skills in graduates. The president elect of AGCAS (the Association of Graduate Career Advisory Services) recently distinguished between ‘employability’ and ‘employment’ and commented that ‘to be employable, you need a range of skills and attitudes. Creative thinking is one of them’ (Redmond 2011 n.p.).

The lack of literature addressing the questions raised by the RSA is a further justification for this review. Bates (1998, p. 2) points out that, despite the plethora of publications relating to ‘competence’ in recent years, most of it was ‘particularly insulated from critical academic scrutiny’. She writes further that, ‘there remained a dearth of critique and scholarship on the competence movement’ (p. 3) and that this ‘stands in marked contrast to the strategic importance of competence to the current reconstruction of education and training’ (p. 3). This literature review is an attempt to bridge this gap.

### **How the review was conducted**

The focus and scope adopted for the review was broad and defined by the following criteria for the inclusion of studies:

- focus on publications after 1995 (to contextualise the launch of Opening Minds in 1999);
- engage with competence based curricula in secondary education;
- include both national and international perspectives i.e. coun-



- tries where competence based curricula are found;
- include outcomes and/or learners' perspectives on outcomes and impacts of different curricular models;
- identify key issues relating to the assessment, both formative and summative, of competence based qualifications.

Comprehensive searching of the literature was undertaken and included electronic databases, websites and citation tracking. Literature identified included empirical studies, peer and non-peer reviewed research papers, research syntheses, policy documents, unpublished literature and theoretical papers (to inform the conceptual framework for the synthesis of findings). Sources included:

- **Electronic databases:** AEI, BEI, ERIC, Google/Google Scholar, JSTOR, SCOPUS;
- **Citations:** in papers identified were screened for further references;
- **Websites:** of charitable foundations were searched for relevant reports.

Using bibliographic software, an EndNote database specific to this review has been compiled.

The descriptors, or keywords used for the literature review are detailed in Appendix 1 and included: capability, competence\* (to identify anything starting with this stem), core skills, employability skills, expertise, competence-based assessment, learning outcomes, key competences, key skills, learning power, transversal skills, proficiency and lifelong learning.

## Structure of the report

In the first section, the literature that provides evidence to support a competency-based approach in general is reviewed. In the second section, specific competency-based systems including Opening Minds are described and compared. In the third and final section, specific approaches to assessment are reviewed with a view to assisting the Royal Society of Arts in its consideration of how the outcomes and impact of Opening Minds might be measured. First, the development in perspectives that led to the current views of competency is set out in order to contextualise what follows.

## What does the literature tell us?

### What is competence?

Although there is an extensive literature on competence-based curricula, competence remains a contested concept. Understanding overall competence as the integration of knowledge, skills and attitudes which enable someone to perform competently rather than simply gaining skills is a more recent perspective. Biemans, *et al* (2009) point out that competence-based learning has a long history in the VET field, both in the Netherlands (where they are based), and in many other countries. Competency models were highly debated in the 1970s, 1980s and 1990s and

*Competence systems carry with them the promise of rendering learning processes and outcomes that are measurable and manageable*

were criticised for being disintegrative and reductionist. In more traditional approaches, 'competences were specified in detailed lists of fragmented and assessable behavioural elements related to job performance. However, competencies cannot be specified precisely in the same way as performance outcomes can; and mistakenly equating learning outcomes (performance) and competencies gives the latter a false objectivity' (p. 268). 'Moreover, these detailed lists of competences cannot provide guidelines for curriculum design because of the detailed level of description; they thus frustrate learning and development more than they support' (p. 268). Competence systems carry with them the promise of rendering learning processes and outcomes that are measurable and manageable but as this review will suggest, this promise has proved challenging to deliver.

### **Definition of Competence**

The way in which competence is conceptualised influences the choice of outcomes assessed in order to demonstrate its benefits. Hence, a narrow vocational definition will lead to the assessment through qualifications alone whereas a broader conceptualisation of competence which encompasses affective outcomes and interconnectivity implies a much wider set of benefits, though inevitably more difficult to measure. At the time Wolf's (1995) book was published, the competence movement was inextricably linked to developments in vocational education and training. Wolf noted that the concept of 'competence' had been defined in a number of ways, 'many of them quite unrelated to the idea of a competence-based assessment system' (p. 31). She referred to the essentially vocational definition of competence offered by the (now defunct) Manpower Services Commission (MSC): 'By competent we mean performing at the standards expected of an employee doing the same job' (p. 31). While recognising that this definition of competence is 'highly workable at one level', in practice, it seems to 'encourage narrow mechanistic definitions of what 'performance' involves' (p. 32). Furthermore, this definition raises Biemans *et al*'s criticisms above of equating performance with competence and implying false objectivity.

A broader definition of competence is provided by the OECD Programme for International Student Assessment (PISA) as 'the ability to successfully meet complex demands in varied contexts through the mobilisation of psychosocial resources, including knowledge and skills, motivation attitudes, emotions and other social and behavioural components' (Schleicher, 2007 p. 351). This definition encompasses the 'affective' dimensions of learning and as such is more aligned to the approach taken by the Opening Minds curriculum.

**The working definition of competence** offered by Biemans *et al* (2004 p. 530) is similar to that of OECD:

Competence is the capability of a person to reach specific achievements. Personal competencies comprise integrated performance-oriented capabilities, which consist of clusters of knowledge structures and also cognitive, interactive, affective and where necessary psychomotor capabilities and attitudes and values.

This definition goes beyond that offered by OECD in recognising the interconnectivity and integration of skills that emerge in this review as a key component of the evidence that supports a competency-based system. Furthermore, it resonates with RSA's Opening Minds competence framework which emphasises the integrating of teaching across subjects in modules that can explore common themes.

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# 1 Evidence to support a competency-based approach

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*Wolf (2001) argues, the search for uniformity and national standards is likely to move education away from a concern with competence and capability*

## Competence-based education

As noted with the definitions of competency, views of competency based education range from purely vocational to substantially affective or focused on learning to learn skills with many authors positioning themselves somewhere between by incorporating some of each approach. Overall, the literature supports focusing Competence-Based Education (CBE) on developing individual students' competences and not merely on enabling them to acquire qualifications or diplomas. Reducing 'competency' to assessment and the ability to successfully demonstrate skills creates an imbalance: for example, as Wolf (2001) argues, the search for uniformity and national standards is likely to move education away from a concern with competence and capability; CBE should instead be a means of enhancing student-led learning with individual students taking a central position by being able to optimally develop their own competences based upon their capabilities and preferences. Thus, it implies creating opportunities for students in meaningful learning environments but, simultaneously, accepting that the outcomes of these opportunities will be problematic to define and so likely to be regarded by critics as 'woolly'.

One approach based on capabilities and preferences is the 'comprehensive approach' in the Netherlands and France, which has a focus on individual competence, 'based on the integration of different forms of knowledge, skills and attitudes, as well as social and personal capabilities' (Brockmann *et al* 2008, p. 240). Instead of a detailed list of competencies, the comprehensive approach consists of 'integrated constructs of knowledge, skills and attitudes that lead to competence performance' (Biemans *et al* 2009 p. 268). More on integration and connectivity is reviewed in the section below on the conditions under which CBE is most effective.

## Competence-based education from a vocational perspective

The EU (2006) argues that key competences are essential in a knowledge society and guarantee more flexibility in the labour force, allowing it to adapt more quickly to constant changes in an increasingly interconnected world. It also suggests that competencies are a major factor in innovation, productivity and competitiveness, and they contribute to the motivation and satisfaction of workers and the quality of work. The recommendation concludes that key competences should be acquired by young people

at the end of their compulsory education and training, equipping them for adult life, particularly for working life, whilst forming a basis for further learning (see Table 1). Biemans *et al* (2009) examined the implementation of competence-based education in the Netherlands which, they suggested, was now a ‘major trend’. They argued that the goals of competence-based education included: i) preparing future professionals so that they are able to contribute to the advancement of a given economic sector; ii) contributing to the development of students’ (professional) identity; iii) preparing students, not only for working in professional practice, but also for participating in society as a whole. Hence they reiterate the preparation for working life mentioned by many others but go beyond this by identifying additionally, contribution to civic society. Whilst not empirically-based, that CBE is supported at a super national level and that it is being implemented in other EU member states, provides an indicator of the perceived compatibility of its aims with twenty first century economic and learning requirements.

In a similar vein, both Tchibozo (2011) and Wesselink *et al* (2009) take stock of the emergence of competence-based education in EU countries and explore how both economic circumstance and educational imperatives have led educational policy makers to shift their focus towards competence-based education. Tchibozo argues that not only did governments see the acquiring of basic competences as vital to increasing employment, but that educators too have identified benefit, in particular:

- a competence-based approach replaces behaviourism (teaching by objectives) with a constructivist vision of the learner developing their abilities in action situations – consequently, the learner begins to understand the world of which he/she is part, can act appropriately in such situations and so can develop as an emancipated individual;
- competence-based education cannot be considered exclusive of a construction by the learner in action situations. Setting this construction in context creates meaning and therefore interest and motivation for the learner.

Similarly, Hoskins and Deakin-Crick (2010, p. 123) suggest that prioritising certain competences and the identification and establishment of key competences are necessary for economic success, social cohesion and sustainable living for countries, regions and the world. As such ‘One of the challenges for education is to identify competences which are key to social and economic success in the 21st century’.

### **Competence-based education from a broader learning perspective**

Whilst economic and financial factors are key drivers, the emergence of CBE also had educational motivations. Halász and Michel (2011) note ‘an important factor of resistance amongst some intellectuals and teachers against such an evolution is what they see as the increasing importance of economic considerations in the context of economic and financial globalisation’ (p. 290). They suggest that whilst ‘the growing importance of competitiveness in the global economy and the increasing

role of human capital and education in the knowledge society are important factors in the emergence and development of the new education paradigm' (ibid), there are other influences on expectations in education such as:

- 'Coping with the rapid pace of change and obsolescence of knowledge and skills, which imply lifelong learning for all and preparing mindsets from an early age to accept change and the continuous questioning of what was previously taken for granted as normal constraints of everyday life;
- Preparing students to question the consequences of change, rather than considering it as an end in itself, and in particular to analyse science findings and technology innovations in terms of their ethical and practical implications for the future. The French author Rabelais' warning in the 16th century has never been more apposite: 'knowledge without conscience is but the ruin of the soul'. Environment, sustainable development, bioethics and other crucial issues for the future of humanity require cross-subject approaches and active learning in teams.
- Preparing students to live in the digital era, using in a relevant way the rapidly changing ICT, while being aware of the new ethical challenges brought about by social networks, but also adapting teaching/learning practices to young people's digital culture.

Making learners aware of the dangers of growing inequalities (and new forms of social exclusion) for social cohesion, peace and democracy among countries and within some countries, as well as of the resurgence of xenophobia, racism and intolerance (2011, p. 290).

**Recommendation 1:** The Opening Minds curriculum seems to resonate well with both the economic and wider learning characteristics that Halász and Michel and others are suggesting are important. As such the RSA should be promoting both the versatility of its curriculum and how it appears to meet the diverse aims or drivers underpinning competence based approaches. At the same time, however, none of the studies listed above are empirically based and, as such, the RSA should consider re-evaluating the effectiveness of Opening Minds with a view to strengthening existing arguments regarding its efficacy. Below we now consider the individual elements that contribute to making CBE effective and the conditions required for its success.

### **The importance and role of context**

Flyvberg (2006) argues that a major misunderstanding in relation to the social sciences is that generalisable, theoretical (context-independent) knowledge is of higher value than concrete, practical (context-dependent) knowledge. Flyvberg goes on to suggest that it is context dependent knowledge that research on learning shows to be necessary to allow people to develop from rule-based beginners to 'virtuoso' experts. He cites phenomenological studies into human learning showing that learners pass through several stages as they move from novice to expert, each

of which correspond to recognisable ways of acting and performing in relation to a given skill. What differentiates between these levels is that the novice will tend to rely on rules-based analysis for their choices and action. Functional expertise corresponds to Flyvberg's (2001) notion of the 'proficient performer'; here situational intuition interacts with analytical decision making to provide an understanding of what should be done and how this 'what' corresponds to a given specific situation. Flyvberg's concludes that if people were exclusively trained in context-independent knowledge and rules, they would forever remain at beginner level in the learning process.

Hodkinson and Issitt (1995) believe that 'competence is not, and cannot be, a fixed concept, and argued that without a context, competences are too generic and have little meaning for the student' (cited in Biemans *et al* 2009 p. 268). Competence is 'about framing an overall performance that is appropriate to a particular context. It is not about following simplistic recipes' (Hager 1998 p. 533). In reviewing a number of evaluation studies based on the views of teachers/ trainers and employers from the 1980s and 1990s, Bates (1998, p. 27) recounts that a major concern in the evaluation studies was a narrowing of the curriculum and a lack of focus on theoretical knowledge. Bates writes that 'CBET [competency based education and training] reverses much of traditional educational practice with its emphasis on outputs rather than inputs and has been viewed as reducing the scope for teachers and students to act as creative participants in learning. It will be important to examine...the implications of competence models for the development of the creative 'lifelong learner' (p. 47).

Meijer *et al* (2010) distinguish between two types of skill: (a) domain specific eg 'students are capable of using compensating interpretation strategies, such as inferring the meaning of words from the context in which they occur' and (b) domain exceeding (cross-curricular, 'general' skills), eg 'students can arrive at a personal stance on the basis of arguments.' Alexander, Graham and Harris (1998) speak of a continuum from general to domain specific to task specific. While the term 'general skills' highlights that the skills have a broad sphere of application, the term 'cross-curricular skills' highlights that the skills need to be practised and taught in an educational context.

Throughout the literature, the importance of integrating expertise and competence is emphasised as critical to the success of CBE. Bereiter (2002) identifies six different types of knowledge that are necessary to become a competent expert:

- stable or declarative knowledge – knowledge in an explicit form;
- implicit or tacit knowledge – understanding through experience;
- episodic knowledge – memories, episodes, events, or narratives from the past;
- impressionistic knowledge – feelings and impressions that influence action;
- skills or procedural knowledge – knowing how;
- regulative knowledge – principles and ideas that professional groups pursue in order to accomplish their work.

He stresses that in high-level expertise these six types of knowledge are not separate but tightly integrated in their use. It is not helpful therefore to claim to develop one or more types of knowledge in school, and the other knowledge types in the workplace. The entire range of knowledge types should be developed in relation to each other, and across all kinds of settings. This implies integrating the learning activities of students in schools and workplaces to enable students to become competent professionals.

**Recommendation 2:** The above analysis therefore indicates that, if they are to lead to expertise and competence, CBE must be grounded in the local and individual context. OM should continue to offer a curriculum framework which enables schools to develop a localised curriculum which is relevant to their own school.

**Recommendation 3:** Since the evidence supports a view of competence as embracing a diverse range or types of knowledge, tailoring OM must also be realised by students being able to use standard knowledge in a localised context as well as embracing other existing knowledge types.

### **Learning Power**

A number of the papers reviewed addressed issues related to ‘learning power’ defined by Jaros and Deakin-Crick (2007 pp. 429–30) as ‘those dispositions, values, attitudes, and skills that coalesce to form the nature of an individual’s engagement with a particular learning (or living) opportunity’. These authors suggest that what is required is a shift in the focus of curricula from knowledge acquisition to one of learning itself.

The authors identify the key benefits of learning power as (p. 434):

... to engage critically in living in the world in relation to others over time. It is about ‘meaning-making’ as a central part of learning power; that is, not only connecting items of information and putting them together in new and creative ways, but also developing learning that is personally meaningful to the learner, through the use of personal and cultural narratives and the dynamic excavation of meaning. It requires risk-taking, lateral thinking, and imagination which constitutes creativity as part of learning power.

James and Brewer (1998) identified good practice in the development of key skills in academic and vocational programmes, with a particular emphasis on learner experiences; teaching approaches and learning strategies; and the day-to-day management of the relationship between key skills and wider programme content. They suggested that those responsible for curricular development should seek to establish better understanding of the conceptions of key skills – and especially, of their successful development – which are current and have currency amongst teachers, students, trainers and trainees. Good key skills programmes are those which develop a general ‘can do’ attitude and are best developed and assessed in a contextualised and fully integrated fashion, whether they are undertaken alongside NVQs, GNVQs or A levels. Most of the learners interviewed in their project seemed to be convinced of the value



and importance of key skills in present and future employment, and there were some examples of direct linkage with work tasks for those in work. There were also numerous occasions in which learners drew researchers' attention to the transfer of learning under key skills to new contexts.

A study (Hoskins and Deakin-Crick 2010) looking specifically at learning to learn considered whether, within the limited space of some national curricula, key competences directed towards social outcomes were competing against those aimed at employability. Two competences, drawn from the European Education Council Framework were analysed: learning to learn and civic competence.

The authors suggest that the idea that learning can lead to profound change in individuals and communities is an important link between these two core competences, because both the notion of competence and the notion of personal and social change are 'historical, contextualised, and value dependent: they imply a sense of direction leading towards a 'desired end'' (p. 129). The authors also draw on Haste's (2001) concept of an overarching 'metacompetence'; of being able to manage the tension between innovation and continuity. This, they suggest, is something which schools need to nurture and develop in their learners and is also a pre-requisite for both lifelong learning and active citizenship. The authors cite Haste in suggesting that, in order to be able to manage this tension between innovation and continuity, young people need the following additional competences:

- Adaptively assimilate changing technologies
- Address ambiguity and diversity
- Find and sustain community links
- Manage motivation and emotion
- Manage moral responsibility and citizenship

Further evidence of the link between learning to learn and civic competence was reported in two systematic reviews of the impact of citizenship education on the provision of schooling (Deakin-Crick *et al.*, 2004; Deakin-Crick *et al.*, 2005). The conclusions of these highlighted the relationship between a learner-centred pedagogy, which stimulates the development of a learning to learn competence and 'intentional learning' and the skills, values, attitudes and dispositions for active citizenship. The quality of dialogue and discourse in the classroom is essential both to learning to learn and to citizenship education and such discourse is connected with learning about shared values, human rights and issues of justice and equality. The reviews concluded that a facilitative, learner-centred pedagogy, characterised by trust and respect, integral, contextualised values education and personal meaning making is crucial in developing both learning to learn competence and civic competence. Central too are problem-based thinking, and context-based, real life learning. They show that developing civic competence can enhance students' ability to make meaning of and connections between their personal stories and society and improve their higher order creative and critical thinking skills, their communication skills and their overall academic achievement.

*The quality of dialogue and discourse in the classroom is essential both to learning to learn and to citizenship education and such discourse is connected with learning about shared values, human rights and issues of justice and equality.*

**Recommendation 4:** The analysis above implies that the CBE should centre on learning as a skill rather than simply lead students to acquire knowledge. As such, teachers using the OM curriculum should ensure that OM is fully grounded in an understanding of a conception of learning skills and, in particular how such skills can be developed over time.

### **Conditions for effective competence-based education**

There is significant literature on the conditions under which a competence-based curriculum is most effective. For example, Biemans *et al* (2009) provide evidence from research into possible pitfalls in designing and implementing competence-based education. The authors also provide ‘clues as to how the various pitfalls might be further addressed’ in the future. The list of pitfalls includes:

- Different stakeholders (eg teachers, learners, employers) having different perceptions of competence. Biemans *et al* developed a ‘matrix for competence-based vocational education’ to use as a ‘validated conceptual framework for comprehensive CBE’ to reduce differences in perceptions.
- Over-reliance on standardisation which ‘may result in too much insensitivity to context and in conservative training’ (see also Hodkinson and Issitt 1995; Wolf 1995, 2001).
- Developing and implementing appropriate competence-based assessment is a crucial issue in the implementation of CBE: new instruments have to be developed that meet quality criteria (eg observation and a criterion-based interview).
- Changing roles and the identity of teachers. Biemans *et al* (2009) found that it was difficult for many teachers to adopt their new coaching role: according to the students, teachers should not rely too heavily on their students’ independent learning at an early stage and support them in their learning process until they are competent enough themselves. ‘Teachers need to balance their roles as coaches and experts, and self-responsibility and self-reflection of the students should be stimulated to establish a sound basis for lifelong learning.’ Not only students should develop their competencies; teachers need to develop their teaching competencies to fit with competence-based curricula and to be able to fulfil their new roles.

Lord and Jones (2006) reviewed pupils’ experiences and perspectives of the curriculum over 1989–2006. Despite seeing the curriculum as relevant to passing exams, getting grades, and as a passport to their next steps, real-life connections are important in creating relevance for pupils and vocational relevance *for all* is a value espoused by pupils. Pupils enjoy subjects and activities in which teaching and learning is active, participatory and has practical application. They also noted that learners appreciate supportive and collaborative approaches, with preferences for increasing responsibility and autonomy as they get older. Explaining clearly is amongst the most consistently valued quality in a teacher. In addition, pupils appreciate teachers’ wide subject knowledge, and welcome sessions

with professionals from within the field (eg health professionals, visitors from colleges, the workplace and so on).

Wesselink *et al* (2009) suggest that, where competence development is the ultimate goal, educational programs should include the following eight aspects of competence-based education:

- **Aspect 1:** The competencies that are the basis for the study programme are clearly defined;
- **Aspect 2:** Core professional problems are the organising unit for designing or redesigning the curriculum (learning and assessment);
- **Aspect 3:** Competence development of students is assessed before, during, and after the learning process;
- **Aspect 4:** Learning activities take place in various authentic situations;
- **Aspect 5:** Knowledge, skills, and attitudes are integrated in learning and assessment processes;
- **Aspect 6:** Self-responsibility and (self-) reflection of students are stimulated;
- **Aspect 7:** Teachers, both in school and in the workplace, balance their roles as coaches and experts;
- **Aspect 8:** A basis is established for a lifelong learning attitude among students.

In addition to the recommendations listed above:

**Recommendation 5:** The RSA should consider its definition of competence and choose one that has salience with the main stakeholders concerned (i.e. teachers, learners and employers) whilst also reflecting the myriad and diverse outcomes that OM supports (as noted above).

**Recommendation 6:** Ensure that those teaching OM are themselves competent to do so (i.e. are comfortable in their roles as coaches and experts and the balance required between these roles and the need for self-responsibility and self-reflection in their students) and are able to demonstrate the competences that are required of their pupils.

**Recommendation 7:** The eight aspects suggested by Wesselink *et al* (2009) should also be considered by those using OM.

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## 2 Specific competency systems

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A number of competency systems were reviewed that specify areas of individual competences. In the table at the end of this section, we have attempted to map these for comparison against the Opening Minds framework. It is somewhat arbitrary how specific competences are classified and few if any evaluations appear to exist that test out whether the competences being taught and learned in schools or colleges using these systems are in fact the same as those intended or what outcomes they achieve. Broadly, the competency systems can be distinguished between those that focus primarily on skills for employment (eg CBI, 2011) and those that include mainly competencies for learning to learn. (eg Deakin Crick *et al*, 2004), though some (EU, 2006; Dąbrowski and Wiśniewski, 2011) explicitly include both.

The CBI equate competence to preparedness for employment and, in particular to ‘showing the skills and attitudes essential for work’ (CBI, 2011: 8). The CBI argue that ‘the mindset of schools as regards leavers at 16 and 18 has to be driven by employability’ and that this should be driven by ‘successful participation in work experience placements, careers advice, curriculum content and training in areas such as project working and presentation skills’ (CBI, 2011: 9). The CBI also argued that employers are concerned with the basic skills levels of school and college leavers. In particular, in 2011 the CBI/EDI annual Education & Skills survey of 566 employers suggested that 42% were not satisfied with the basic use of English by school and college leavers, while more than a third (35%) were concerned with the basic numeracy skills of that age group.<sup>1</sup>

Some individual employers also set out the competencies they require of school leavers. For example, professional services organisation KPMG’s applicants to the school leavers’ programme must demonstrate their competence in nine key areas,<sup>2</sup> which KPMG describe as encompassing the skills and behaviours needed to be successful in their organisation. These include career motivation, delivering quality, building relationships for collaboration internally and externally, a positive approach to self-development, exercising professional judgement, making an Impact, seizing business opportunities, demonstrating innovation and curiosity

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42%

were not satisfied with the basic use of English by school and college leavers

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1. See: [www.cbi.org.uk/media-centre/press-releases/2011/05/poor-standards-of-english-and-maths-among-school-leavers-could-hinder-growth-cbi-edi/](http://www.cbi.org.uk/media-centre/press-releases/2011/05/poor-standards-of-english-and-maths-among-school-leavers-could-hinder-growth-cbi-edi/)

2. See: [www.kpmgcareers.co.uk/SchoolLeaverProgrammes/HowtoApply--KeyCompetencies\\_\(1933\).aspx?pg=1933](http://www.kpmgcareers.co.uk/SchoolLeaverProgrammes/HowtoApply--KeyCompetencies_(1933).aspx?pg=1933)

and displaying resilience (under challenging circumstances). A smaller but almost identical set of competencies are also set out by Deloitte.<sup>3</sup>

Hipkins *et al* (2010) are critical of the instrumental and work-related purposes attributed to competencies in these models:

Competencies have become a ubiquitous feature of contemporary official curriculum documents, albeit variously named. However, despite their widespread use, they have been largely under-theorised in curriculum terms. Rather, they are usually named in curriculum documents without reference to the reason for their selection, and are left to take on a life of their own (p. 114). Haste (2009) has made an important contribution to theorising the ‘content’ of competencies by carefully building a case for new forms of civic engagement. Importantly, she has given competencies a social justice and democratic purpose, eschewing the instrumental and solely work-related form that they have assumed in many countries.

Predictably, systems which place greater emphasis on the social justice and democratic purposes of competencies tend to stress learning skills rather than employability and have often emerged from educational sources. Deakin Crick *et al* (2004) identified the elements of an individual’s capacity for lifelong learning. They defined learning as ‘a process carried out by individuals and groups. What is learned counts as knowledge or skills, which can take the form of the ability to do something which could not be done before’ (p. 248). Based on extensive literature searches, the authors suggested that there is a ‘strong link between the intellectual and emotional components of learning, that is the affective, cognitive and conative dimensions are deeply interrelated’ (p. 249). They trialled the Evaluating Lifelong Learning Inventory (ELLI) with pupils across a range of ages and subjected the data to factor analysis. Seven dimensions of learning power emerged. These dimensions ‘appear to be capable of differentiating between efficacious, engaged and energised learners and passive, dependent and fragile learners’. Although the authors recognise the need for larger scale field trials and no further evaluations of their typology have been undertaken, they suggest that the findings have ‘significant implications for conventional models of curriculum design and classroom practice’ (p. 247). Further empirical evidence might make this suggestion possible to operationalise.

The competency systems drawn up by governments and international agencies tend to include both employability and learning to learn competencies. The EU (2006) argued that key competences for lifelong learning are a combination of knowledge, skills and attitudes appropriate to the context and that they are particularly necessary for personal fulfilment and development, social inclusion, active citizenship and employment. Their reference framework defines eight key competences and describes the essential knowledge, skills and attitudes related to each of these. These key competences are:

- **Communication in the mother tongue:** the ability to express and interpret concepts, thoughts, feelings, facts and opinions in both

3. See: [http://careers.deloitte.com/united-kingdom/students/csc\\_general.asp?CountryContentID=12530](http://careers.deloitte.com/united-kingdom/students/csc_general.asp?CountryContentID=12530)

oral and written form (listening, speaking, reading and writing) and to interact linguistically in an appropriate and creative way in a full range of societal and cultural contexts;

- **Communication in foreign languages:** this involves, in addition to the main skill dimensions of communication in the mother tongue, mediation and intercultural understanding. The level of proficiency depends on several factors and the capacity for listening, speaking, reading and writing;
- **Mathematical competence and basic competences in science and technology:** mathematical competence is the ability to develop and apply mathematical thinking in order to solve a range of problems in everyday situations, with the emphasis being placed on process, activity and knowledge. Basic competences in science and technology refer to the mastery, use and application of knowledge and methodologies that explain the natural world. These involve an understanding of the changes caused by human activity and the responsibility of each individual as a citizen;
- Digital competence involves the confident and critical use of information society technology (IST) and thus basic skills in information and communication technology (ICT);
- Learning to learn is related to learning, the ability to pursue and organise one's own learning, either individually or in groups, in accordance with one's own needs, and awareness of methods and opportunities;
- **Social and civic competences:** social competence refers to personal, interpersonal and intercultural competence and all forms of behaviour that equip individuals to participate in an effective and constructive way in social and working life. It is linked to personal and social well-being. An understanding of codes of conduct and customs in the different environments in which individuals operate is essential. Civic competence, and particularly knowledge of social and political concepts and structures (democracy, justice, equality, citizenship and civil rights), equips individuals to engage in active and democratic participation;
- **Sense of initiative and entrepreneurship:** the ability to turn ideas into action. It involves creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. The individual is aware of the context of his/her work and is able to seize opportunities that arise. It is the foundation for acquiring more specific skills and knowledge needed by those establishing or contributing to social or commercial activity. This should include awareness of ethical values and promote good governance;
- **Cultural awareness and expression:** this involves appreciation of the importance of the creative expression of ideas, experiences and emotions in a range of media (music, performing arts, literature and the visual arts).

These key competences are regarded as interdependent, and the emphasis in each case is on critical thinking, creativity, initiative,

problem solving, risk assessment, decision taking and constructive management of feelings.

Halász and Michel (2011) commenting on the EU competencies observed that they interlock and overlap, each can contribute to a successful life in the knowledge society and that some themes such as critical thinking, creativity, initiative, problem solving, risk assessment, decision taking and constructive management of emotions should apply throughout as they play a role. These authors note that this set of key competences represents a consensus at a given moment in time and that many other basic qualities or attributes could also have been mentioned, for example, the capacity to set priorities, to be aware of one's limits or ignorance and to respect time-schedules and deadlines – this latter competence matching 'time management' within the Opening Minds competency area of Managing Situations. One challenge for schools noted by these authors is to make explicit the links between curricular subjects such that the interrelated nature of the EU competencies can be addressed, which has to be the responsibility of all teachers. It was noted that the first three are more commonly interpreted across Member States whereas the other five are transversal and have been perceived and interpreted in different ways in each of the European countries.

**Recommendation 8:** Teachers using OM should make explicit the links between curricular subjects such that the interrelated nature of competencies can be addressed.

In seeking to assess competence, PISA (Schleicher, 2007) focused its first three assessments on 'literacy skills': 'the capacity of young adults to access, manage, integrate and evaluate information, to think imaginatively, to hypothesise and discover, and to communicate their thoughts and ideas effectively' (ibid); and did so in relation to reading (in 2000 PISA examined the capacity of students to use, interpret and reflect on written material), mathematics (in 2003, PISA focussed on the capacity of students to put mathematical knowledge into 'real world' functional use) and science (in 2006 PISA focussed on students' scientific knowledge and use of that knowledge; their understanding of science as a form of enquiry; their awareness of how science and technology shape our material, intellectual and cultural environments; and their willingness to engage with science-related issues, and with the ideas of science, as a reflective citizen). Given the political and economic emphasis placed on PISA in comparisons of the effectiveness of the educational systems of different countries, this relatively narrow focus has been the target of much criticism. Responding to this, PISA has begun to look at students' dispositions to learning, their approaches to learning, their self-concept and their engagement with school more generally.

In 1997, a regulation in the Polish Government resulted in the formulation of the first list of key competences to be included in the Polish legislation on education (Dąbrowski and Wiśniewski, 2011). The emphasis of the regulation was on 'shaping skills and preparing students for responsible life in a democratic society and free market economy'. The competences which addressed both learning and employability included:

- **Learning:** solving problems related to cognition and carrying out projects. Organising the learning process and assuming responsibility for your own education. Using experiences and combining various elements of knowledge;
- **Thinking:** identifying connections between the past and present, as well as cause and effect and functional relationships. Coping with lack of self-confidence and complexity of phenomena; perceiving them as a whole and in context;
- **Searching:** searching, putting in order and using information coming from various sources, also prudent and competent use of the media;
- **Self-improvement:** assessment of individual attitudes and conduct and these of others in line with generally accepted standards and universal values. Assuming responsibility for yourself and for others. Flexible approach to changes, looking for new solutions, facing adversities. Keeping fit and caring for mental health;
- **Communication:** successful communication. Presenting individual point of view, arguing for and defending opinions. Readiness to listen to and take into consideration opinions of other people. Using the latest information and communication technology;
- **Cooperation:** group work; negotiating and reaching the consensus; taking group decisions, applying democratic procedures. Establishing and maintaining relationships;
- **Action:** organising your own and others' work; learning to use work techniques and tools. Designing actions and taking responsibility for their course and results. Efficient time management.

Cheetham and Chivers' (1996; 1998) holistic model of professional competence has a set of five interrelated competences:

- **Cognitive competence:** including underpinning theory and concepts as well as informal tacit knowledge gained experientially. Knowledge (know that) is underpinned by understanding (know why)
- **Functional competences (skills or know how):** things that a person should be able to do, and to demonstrate
- **Personal competency (behavioural competencies or knowing how to behave):** those relatively enduring characteristics of a person that relate to effective or superior performance
- **Ethical competences:** possessing the appropriate personal and professional values as well as the abilities to make sound judgments in work related and other situations
- **Meta-competences:** the ability to cope with uncertainty, as well as with learning, learning to learn and reflection.

Hoskins and Deakin-Crick (2010) reported that a number of OECD countries were asked to list which competences they considered to be key. Four groups were frequently mentioned:



- Social Competences/Cooperation;
- Literacies/Intelligent and applicable knowledge;
- Learning Competences/Lifelong Learning;
- Communication Competences.

These would seem to relate to the Opening Minds (OM) Framework in the following ways:

- Social Competences/Cooperation – OM’s Competences for Relating to People;
- Literacies/Intelligent and applicable knowledge & Learning Competences/Lifelong Learning – OM’s Competences for Learning;
- Communication Competences – OM’s Competences for Relating to People.

The OM’s Framework has a major emphasis on Competences for Citizenship that includes morals, ethics, diversity and self-reliance which while not listed in the OECD priorities, are included in the EU (2006) recommendations for Lifelong Learning and in Hoskin and Deakin-Crick’s (2010) own work. Furthermore, the emphasis placed on ‘Managing Information’ in the OM competences, which includes research and reflection is not well addressed in other systems though is often identified in surveys on the employability skills sought by employers (eg Forbes *et al* 2005; Morley *et al* 2006)

However, Winter (2011) regards OM as lacking in both ethics and political concerns:

The 1999 OM curriculum text overlooks the politics and ethics of knowledge through the dominance of a technical, economic, outcomes-driven competency framework (p. 357). The OM competency curriculum pays scant attention to developing students’ critical capacities and the word ‘political’ is absent. Competency knowledge of ‘critical judgement’ appears only once, under the heading ‘managing information’ (Bayliss/RSA 1999, 19), conferring a particular orientation towards evaluative judgements of a technical kind, instead of towards those founded on ethico-political concerns. Similarly, the term ‘ethics and values’ occurs only once in the competences, under the category of citizenship (p. 353).

The OM’s ‘Competences for Managing Situations’ includes time management, management of change, creative thinking and risk-taking which are addressed in a number of other systems (eg EU 2006). However, this competency group also includes ‘feelings and reactions’ such as celebrating success and managing disappointment which do not seem to be specifically mentioned in other systems. Halasz and Michel (2011) in commenting on the EU (2006) framework note that one of the many themes that should apply throughout this framework is ‘constructive management of emotions’.

**Recommendation 9:** The emphasis placed in the OM curriculum on ‘Managing emotions’ should be maintained given the evidence on the importance of these competencies in and out of the workplace.

*The OM’s ‘Competences for Managing Situations’ includes time management, management of change, creative thinking and risk-taking which are addressed in a number of other systems*

**Table 1: A comparison between the competencies included in Opening Minds and those in other specific competency systems**

RSA Opening Minds	Hoskins and Deakin-Crick (2010)	Dąbrowski and Wiśniewski (2011)	European Union	PISA	CBI
<b>Citizenship</b> Morals & ethics, Making a difference, diversity, technological impact, self reliance	Find and sustain community links  Moral responsibility and citizenship		Social and civic		
<b>Learning</b> Learning styles, reasoning, creativity, positive motivation, key skills, ICT skills			Learning to learn  Entrepreneurship  Digital competence  Cultural awareness and expression  Learning: solving problems related to cognition and carrying out projects		Attitudes and skills in relation to employability  Work ready literacy and numeracy skills
<b>Managing Information</b> Research, reflection		Thinking: identifying connections between the past and present, as well as cause and effect and functional relationships  Searching: putting in order and using information coming from various sources	Mathematical competence and basic competences in science and technology	"Literacy skills" in maths, science and reading	Work ready literacy and numeracy skills
<b>Relating to people</b> Leadership, teamwork, coaching, communication, emotional intelligence, stress management		Successful communication  Action: organising own and others' work  Cooperation: group work; negotiating and reaching the consensus	Social competence including personal, interpersonal and intercultural competence		Attitudes and skills in relation to employability
<b>Managing Situations</b> Time management, coping with change, feelings and reactions, creative thinking, risk taking	Adaptively assimilate changing technologies  Deal with ambiguity and diversity  Manage motivation/ emotion	Efficient time management, flexible approach to changes, facing adversities	Creativity, innovation & risk-taking, constructive management of feelings		

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# 3 Evidence to support a competency-based approach to assessment

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## The growth in assessment of competences

Competency based approaches to assessment differ in ways similar to the distinction drawn out in relation to approaches to Competency Based Education more generally, between those focusing on employability and those giving greater emphasis to the skills of learning to learn. There has been a significant growth in the use of competency/proficiency tests by British employers for selection purposes with 48 per cent of all workplaces making use of them according to Jenkins and Wolf (2002) who noted that ‘the reasons why some employers use tests while others persist in not making use of them are not well understood’ (executive summary). These authors went on to suggest that ‘this implies that new recruits are expected to have many relevant skills already and so may require little in the way of training’ (p. 11) which seems to contradict the view of CBE as a means of promoting lifelong learning. There is some evidence of learners preferring assessment that focuses on their possible future employment although this instrumental approach seems to contradict some of the aims of the OM programme. Wesselink *et al* (2009, p. 21) conclude that ‘studies on authentic assessments suggest that when students perceive that assessment tasks resemble their future professional practice (i.e., perceive the tasks as authentic), they are motivated to study more intensively and develop more generic competencies (Gulikers 2007)’.

Competency-based education and training models assume that outcomes can be defined and assessed as observable and discrete units of competency. Wheelahan (2006) in Australia argues that skills can be added up in different ways to make different qualifications. This author expresses concern that qualifications are aggregations of skills defined as units of competency, rather than relational and holistic in which the relationships between different elements matter, and where the whole is more than the sum of its parts, a relevant point in relation to the OM outcomes. Wheelahan argues ‘Qualification outcomes should be based on broad process-oriented learning outcomes, rather than precise specification of skill. This makes more sense for societies and economies experiencing perpetual change’ (p. 9). She further suggests that the problem with the idea of generic skills is that ‘they are based on an assumption that they

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**48%**

of all workplaces making use of them

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can be defined in isolation from the context that gives them their meaning, and unproblematically applied to other contexts.’ (p. 9)

In summary, in this section we indicate that competency based approaches to assessment differ in ways similar to the distinction drawn out in relation to approaches to Competency Based Education (CBE) more generally, between those focusing on employability and those giving greater emphasis to the skills of learning to learn. As the OM programme aims to develop a wide range of competences, assessment processes need to reflect this. The following sections analyse this approach in more detail.

### **The danger of limiting teaching to what is assessed**

With the introduction of the National Council for Vocational Qualifications (NCVQ) in the mid 1980s, the competence movement in the UK became ‘wedded to a national system of qualifications...uniform in its manifestations and most deeply entrenched’ (Bates, 1998 p. 1). Bates reminds us of the importance of competence-based education and training (CBET) within the UK government’s 1980s/early 1990s education policy agenda and its application to vocational and technical education (as opposed to general/academic education). Because of this, Bates argues that ‘what is emerging is a dominant definition which has narrowed and reified the meaning of the term [competence]’ (p. 7). This understanding of competence ‘hinges upon tight pre-specification and subsequent measurement of the intended consequences of learning’ (p. 15) which leads, in Bates’s view, to the removal of what is learnt ‘from the orbit of influence of practising teachers ...who instead become ‘deliverers’ and ‘assessors’ of learning outcomes’ (p. 15). Similarly, Ecclestone (2006, p. 330) warns that ‘Narrow instrumentalism ... can make ... assessment ‘not merely ‘for’ learning or ‘of’ learning: instead it was learning’. She suggests that using detailed grade descriptors and exemplars can encourage superficial compliance with atomized tasks derived from the assessment criteria.

A similar argument has been put forward by Wheelahan (2006) who suggests that education and training policy in Australia is based on the assumption that it is possible to separate qualification outcomes from the processes of learning. She writes that ‘Policy determines outcomes, pedagogy teaches to those outcomes. This is a destructive dichotomy that impoverishes learning and results in simplistic notions of skill’ (p. 8). The separation of means (teaching and learning) from ends (qualification outcomes) is supposed to allow industry to specify the skills needed for the workplace, and teachers to develop creative ‘delivery strategies’ to teach these skills. Confirming this view, Watson and Robbins make the point that learning and assessment have become divorced from one another, assessment methods have not been sufficiently responsive to change in pedagogy and curriculum, particularly with regard to summative judgements of practice or performance. They recognise the substantial body of work which addresses ‘assessment for learning’ (eg Gardner 2012). Here the focus is on the purposes of assessment, that is, whether one engages in an ‘assessment of learning, for grading and reporting ... or an assessment *for* learning, where the explicit purpose is to use assessment as part of the teaching to promote learning’ (James and Pedder 2006, p. 109).

Similarly, on the theme of separating qualifications from wider learning, Gibbs and Armsby (2011) noted in the context of higher education

that ‘the purpose of accrediting, rather than evaluating knowledge, seems to owe its origins to the argument that prosperity ... is based on economic success, facilitated by educational attainment’ (p. 388). This view has ‘been actualised in a more servile notion of education as one of obtaining qualifications’ (Guile 2003). Further support is provided by Watson and Robbins (2008) who confront what they see as the ‘assessment problem’, that is, the tradition of individualistic and competitive approaches to qualifications.

As the primary purpose of most summative assessment remains that ‘of rank ordering candidates for competitive entry into further and higher education, any problems with reliability of results affect the credibility of the assessment, which is usually at high public and political cost’ (p. 317). When assessments of learning are over-emphasised, and when the focus of the assessment is heavily concerned with producing reliable results then if the subject of the assessment is highly complex ... it may be that only the ‘more easily and reliably assessed parts of a construct are assessed’ (Stobart 2006, p. 140). The assumption that results are reliable has been challenged, Biemans *et al* (2009) noting for example that different schools interpret national standards and ideas on summative assessments differently. This issue of reliability was also raised by Ecclestone (2007) in the context of formative assessment where apparently agreed meanings and principles can conceal very different learning goals. Students and employers can provide useful input for the improvement of competency based assessments.

In a comprehensive analysis of how 21st century skills can be assessed, Binkley *et al* (2010) noted that ‘teachers tend to model the pedagogical approach reflected in high-visibility tests’ p. 2. The authors point out that when tests were composed of multiple-choice items, there was a tendency for teachers to become over-reliant on multiple-choice worksheets in their classroom, resulting in an emphasis on lower level cognitive skills. In contrast, when the assessments drew on extended writing and/or performance assessments, many teachers included similar activities in their teaching.

It is acknowledged by Schleicher (2007) that PISA only assesses a small element of the competencies that might make young people successful; it does not capture; for example, inter and intra personal dimensions of competencies (eg the capacity of students to manage and resolve conflicts or to adjust to an increasingly complex environment). This is due to a number of factors, including methodological issues associated with testing competence and the lack of international consensus as to what fundamental competencies, 15 year olds should possess. Nonetheless, Schleicher argues that the competencies that are assessed, do successfully predict the future outcomes of students. For example, PISA data has been linked to data from the Canadian Youth in Transition Survey (students took part in both) to show that the odds of students participating in post secondary education, are directly related to their performance on PISA.

The challenge of assessing or measuring the degree of attainment of competences was one of the concerns expressed by many Member States about the EU Competency Framework: ‘this is a real issue, as experience has shown that what can be effectively assessed in a curriculum is taken more seriously by learners and teachers and is therefore more likely to be

*Careful attention needs to be given to the development of both formative and summative assessment processes to ensure that gaining a qualification is not privileged over wider learning.*

learned and taught' (Halász and Michel 2011, p. 293). Hence, the tendency to limit teaching to what is assessed is a fear expressed in relation to competency-based education.

**Recommendation 10:** As the OM programme aims to develop a wide range of competences, assessment processes need to reflect this and ensure that the drive to gain a formal qualification does not inhibit wider learning and that the assessment process is not divorced from the pedagogical approach. Careful attention needs to be given to the development of both formative and summative assessment processes to ensure that gaining a qualification is not privileged over wider learning.

**Recommendation 11:** If formal accreditation is brought into the OM programme, different actors such as students and teachers can provide useful input for the format and operation of competency-based assessments.

### **Student-led assessment**

Gibbs and Armsby (2011, p. 393) stress the complexities of assessment and state that 'finding concepts which reveal the unique characteristics of achievements is no simple task and the complex assessment process for this, which involves understanding claims from the *claimants* perspective'.

The Assessment Reform Group (ARG) has developed principles of formative assessment that encourage teachers to develop the links between information about students' progress towards learning goals, adaptations to planning and teaching based on feedback and dialogue, and attention to the ways in which students learn. This requires 'encouragement of autonomy, some choice about activities and students' understanding of goals, criteria and the purpose of feedback' (ARG 2002 p 317). To be considered formative, Binkley *et al* (2010, p. 8) noted that 'assessment evidence must be acted upon to inform subsequent instruction. Rather than focusing backward on what has been learned, formative assessment helps to chart the learning road forward, by identifying and providing information to fill any gaps between the learners' current status and goals for learning'

Within the Teaching and Learning Research Programme (TLRP), James (reported in James and Pollard 2012) worked with staff in 40 infants, primary and secondary schools using large-scale questionnaires, interviews and classroom observations in an attempt to answer the question of whether Assessment for Learning (AfL) could help pupils learn how to learn. They found that implementing 'the spirit', the underlying principles, of AfL was hard to achieve with most teachers adopting the letter of AfL, in the shape of its procedures or techniques, for example by sharing the criteria with learners and implementing peer and self-assessment but few did so in a way which enabled the pupils to become more independent as learners. The teachers who did capture that spirit shared key characteristics. That is, they all had a strong belief in pupil autonomy and constructed activities that provided scaffolding for learning opportunities.

This perspective was reinforced by Ecclestone (2007) whose approach is based on a socio-cultural understanding of assessment. Ecclestone

acknowledges that research on formative assessment has been developed ‘in the context of the UK’s highly prescriptive summative assessment testing systems in schools’ (p. 315). As a result of an increasing emphasis on raising levels of participation and achievement there has been a blurring in the distinction between summative and formative assessment. She makes the point that ‘there is a marked difference in whether ‘teachers ... understand ... the *spirit* or *letter* of formative assessment’ (p. 318). A commitment to the ‘spirit’ of formative assessment might enable students to go beyond extrinsic success in meeting targets and, instead, to combine better performance with engagement and good learning habits in order to develop ‘learning autonomy’. This view was reinforced by Binkley et al (2010) who found that ‘testing has become dominated by routine, and highly predictable items, which are also often short and highly scaffolded, thus reducing the expectation that students should apply knowledge, skills and broader capabilities demanded by today’s world.

Ecclestone (2007, p. 324) cites Black and Wiliam (1998) to suggest that ‘specific assessment activities such as grading, feedback and questioning can explicitly or implicitly reinforce ego or a sense of self as an unsuccessful or successful learner, or focus solely on performance and achievement in the form of a good or poor grade. Teachers tend to use formative and summative assessment to reinforce these two goals rather than offering good advice about improvements to tasks and activities.’

In this section we have highlighted the complexities of competence-based assessment and would like to warn against attempts to over-simplify the process. In particular, we believe that in developing an appropriate assessment system of the OM competences, which encompasses both formative and summative assessment, account should be taken of the comprehensive research conducted by the Assessment Reform Group (ARG). Specifically, the embracing of principles of formative assessment which implement ‘the spirit’ rather than ‘the letter’ of Assessment for Learning. This would have the underlying aim of enabling pupils to become more independent as learners through constructing activities that provide scaffolding for learning opportunities.

### **How might competences be assessed?**

Watson and Emery (2009) note that the first challenge is to adequately describe *what* should be valued in young people, recognising that there is little consensus on what wider achievements or capabilities constitute and how they can be assessed or measured. Drawing on research funded by the Welsh Assembly, they discuss a range of curricular initiatives and programmes which have included a focus on social and emotional dispositions and skills (SEDS). Some have been centrally driven such as the Social and Emotional Aspects of Learning (SEAL<sup>4</sup>) and Healthy Schools<sup>5</sup>. Secondary SEAL is a loose framework on social and emotional learning that schools can use as they wish. Humphrey *et al* (2010) comparing 22 SEAL schools with 19 others concluded that there was a mixed picture due to differing patterns of implementation. There are also curricular

4. <http://webarchive.nationalarchives.gov.uk/20110809091832/http://www.teachingandlearningresources.org.uk/whole-school/social-and-emotional-aspects-learning-seal>

5. <http://education.gov.uk/schools/pupilsupport/pastoralcare/a0075278/healthy-schools>

initiatives introduced by organisations including Opening Minds, ELLI (Deakin-Crick *et al* 2004) and the certificate of personal effectiveness (ASDAN<sup>6</sup>). The authors note that a common thread has emerged with an emphasis on ‘well-being’, ‘transferable skills’ and on the development of social and emotional ‘intelligence’, ‘literacy’, or ‘competence’. However, with respect to defining what should be taught and how it should be assessed they comment that ‘the rhetoric belies the complexities involved in this aspiration’ (p. 771).

Examples are given by Watson and Emery of a socio-cultural approach to SEDS including *the Northern Ireland Skills and Capabilities framework* (CCEA 2002), *Enquiring Minds*<sup>7</sup> and *Opening Minds*. The authors note that assessment methods in these initiatives tend ‘to lean towards methods that include *in situ* observational assessment, portfolios, video evidence, diaries and journals, participatory approaches, simulations and drama-based activities, interpretive narratives or summaries (Delandshere and Petrosky 1998) and learning stories (Carr 2001)’ (p. 775). The emphasis through these approaches is ‘in the co-construction of interpretations of SEDS’ (p. 775). Adopting a socio-cultural perspective, assessment is ‘...the ability to form judgements and determine the significance of an event’ (Delandshere and Petrosky 1998, p. 16). In a collaborative model, ‘assessment is a process of a more knowledgeable or expert ‘other’ sitting alongside a learner and making an informed judgement of their knowledge, abilities, skills and performances. This definition of assessment implies that we engage in observational assessment of authentic performance’ (Watson and Emery 2009, p. 779).

Deakin Crick *et al* (2004) developed and tested an instrument to identify the elements of an individual’s capacity for lifelong learning including learning orientation which they defined as ‘the complex mix of experience, motivation, intelligences and dispositions that any particular learning opportunity evokes’ (p. 247). They argue that in an unpredictable and ever-changing world, it will be crucial to assess the characteristics of people as learners. If the capacity to go on learning throughout life is important, then it is important to be able to assess the developing qualities that make up an individual’s capacity for lifelong learning. Their research aimed to identify the elements that *define* a good learner and devise an instrument that could be used to *assess* where an individual is located in relation to these elements at any given time, and in any particular context.

Existing research suggested that there are at least 4 broad categories that can be identified are making a substantial contribution to learning:

- **Learning capacities:** dispositions, awareness and skills;
- **Learning identity:** the beliefs, values and attitudes about learning, self and knowledge held by the learner;
- **Learning story:** the socio-cultural formation of learners over time; Learning relationships: the quality and substance of learning relationships.

(Deakin-Crick *et al*, 2004, p. 249)

6. [www.asdan.org.uk/](http://www.asdan.org.uk/)

7. [www.enquiringminds.org.uk/](http://www.enquiringminds.org.uk/)



These authors provide a detailed discussion and analysis on how the Effective Lifelong Learning Inventory (ELLI) was piloted, refined and trialled with a cohort of 180 students who were drawn from a range of social, economic and ethnic backgrounds. They conclude that ‘the implications of our study must be seen in the light of how learners themselves feel about learning rather than from a more external measure of learner orientation – if indeed this was possible’ (p. 266). They note that being a good learner is critical to the response individuals make to new opportunities and contexts in enabling them to engage enthusiastically and effectively with learning.

An alternative model for assessing competencies is provided by Meijer *et al* (2001) at the University of Amsterdam, who developed and tested an instrument which was constructed to assess the level of competence of students (aged 15–16) on eight cross-curricular skills. These are defined as ‘general skills which can be taught and practised in curricula for different disciplines’ (p. 80). They noted that the challenge to use multiple-choice questions, not an approach usually associated with measuring general skills, was welcomed because there is an increasing need for assessment instruments which are appropriate for large-scale investigations.

Meijer *et al* identify four cross-curricular skills taught in secondary education: ‘designing and conducting investigations’, ‘stating one’s own ideas and opinions’, ‘working in collaboration on assignments’ and ‘using criteria to evaluate the quality of one’s own work and working methods.’ In designing an appropriate assessment they drew on literature about higher-order thinking skills (eg Marzano and Arredondo 1986). An instrument was designed for assessing students’ proficiency in eight skills, which were considered relevant for students of 15–16 years of age. The instrument included 64 multiple-choice questions, eight for each cross-curricular skill. In 1996, the revised version of the assessment was administered to a representative sample of approximately 9,000 students who were 15 and 16 years of age. The results of the test were used to ‘establish a base level for future evaluation studies on the mastery of cross-curricular skills of students in secondary education’ (p. 95). In conclusion, the authors note that the use of a multiple-choice questionnaire to assess skills is to be welcomed because ‘there is an increasing need for assessment of general skills and for assessment instruments, which are appropriate for large-scale investigations’ (p. 103).

In this section we highlight a number of studies in which attempts have been made to develop a tool for assessing competences. However, none seem to be directly relevant to the OM programme, either because they had been designed to test large cohorts of pupils or to test generic ‘thinking’ skills. Instead, we believe that the OM programme benefits most from adopting a socio-cultural approach to assessment, that is, using a collaborative model in which assessment is based on the involvement of a more knowledgeable or expert ‘other’ sitting alongside a learner and making an informed judgement of their knowledge, abilities, skills and performances authentic performance.

**Recommendation 12:** An appropriate system of assessment of OM competencies should embrace the principles of Assessment for Learning through a collaborative approach in particular by sharing the criteria for learning

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An instrument was designed for assessing students’ proficiency in

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which were considered relevant for students of 15–16 years of age

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with the learners incorporating self and peer-assessment and ensuring feedback informs future teaching and learning.

## Portfolio assessment

A portfolio is described as ‘a purposeful collection of examples of learning collected over a period of time, and gives visible and detailed evidence of a person’s attainment of competences’ Segers *et al* 2008, p. 36). Portfolio assessment has developed partly in response to concerns that qualifications and testing assess only the surface learning which relies on memorisation and reproduction of material needed to complete the assessment. In contrast, modes of assessment such as assignments and portfolios enhance the adoption of deep approaches to learning because they require students to ‘relate, analyse, solve and evaluate’ (Segers *et al* p. 35).

One hundred and ten students in Applied Science using portfolio assessment participated in the study by Segers *et al*. The researchers used an Assessment Experience Questionnaire to capture students’ perceptions of this assessment method and its relationship to their learning approaches. The study highlights, as noted by Wade and Yarbrough (1996), that feedback is essential when implementing portfolio assessment and that it is not the assessment design that matters, but how it is implemented. The construction process of a portfolio over time is found to contribute to individual learning (Zeichner and Wray 2000). Collecting targeted information in a portfolio is a highly reflective process (Hamilton 1998). In addition, Tang *et al* (1999) reported that students who engage in portfolio assessment, compared with multiple choice tests, show deeper approaches to learning.

Segers *et al* (p. 37) describe 11 conditions for assessment to enhance student learning. These are summarised as:

Quantity and distribution of student effort	
Condition 1	Sufficient assessed tasks are provided to capture sufficient study time and effort
Condition 2	These tasks distribute student effort evenly across topics and weeks
Quality and level of student effort	
Condition 3	These tasks engage students in productive learning activity
Condition 4	Assessment communications clear and high expectations of students
Quantity and timing of feedback	
Condition 5	Student feedback is provided both often enough and in enough detail
Condition 6	The feedback is provided quickly enough to be useful to the students
Quality of feedback	
Condition 7	Feedback focuses on learning rather than on marks or on students themselves
Condition 8	Feedback is linked to the purpose of the assignment and to criteria
Condition 9	Feedback is understandable to students, given their sophistication

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**Student response to feedback**

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Condition 10	Feedback is received by students and attended to
Condition 11	Feedback is acted upon by students to improve their work or their learning

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The Questionnaire addressed students' perceptions of the 11 conditions and two main findings emerged: in comparison with a multiple-choice test, students adopted 'more cognitively challenging activities such as application, relation and reflection.' Secondly, the results indicated there was a 'significant positive correlation between a deep approach to learning and what students do with the feedback they receive' (p. 41).

These conditions provide a useful set of factors to build into the assessment of Opening Minds.

In summary, this section highlighted the benefits of assessment processes which encourage deep approaches to learning rather than those which embrace surface learning, such as tests which rely on memory. Deep learning can be fostered through the inclusion of modes of assessment such as assignments and portfolios. Of primary importance is the need to include high quality feedback. The Table above (Segers *et al*) helpfully outlines eleven conditions for assessment to enhance student learning feedback and the OM programme may benefit from drawing on some of the ideas detailed in the table. We offer the view that an appropriate assessment tool for use in the OM programme may be the construction of a portfolio of evidence coupled with formative feedback.

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# Concluding comments and recommendations

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*The little empirical work that exists in this area suggests that RSA should be encouraged: their competency framework is more balanced than most others reviewed here.*

Opening Minds covers a wide range of outcomes and embraces many of the conceptual positions supported by the research reviewed in this report. There are insufficient empirical studies and none except the 2010 evaluation commissioned by the RSA that specifically address OM to be able to state clearly whether OM generates better attainment or other outcomes than other approaches. The little empirical work that exists in this area suggests that RSA should be encouraged: their competency framework is more balanced than most others reviewed here. For example the EU's competencies are heavily weighted to 'Learning'; Hoskins and Deakin-Crick's to 'Citizenship' and 'Managing Situations'; PISA's to 'Learning' and 'Managing Information'. Jaros and Deakin-Crick (2007, p. 436) support these characteristics of *Opening Minds* in suggesting:

The RSA Curriculum Project 'Opening Minds' (2003) is another example of an innovative approach to the curriculum for school-aged students that aims at integration, rather than a subject-based and thus fragmented approach to knowledge. It lends itself to a more holistic and learner-centred approach that encourages interdisciplinary enquiry, the stimulation of learning power, and the acquisition of transferable skills.

Throughout this review recommendations are given that might assist in improving the OM approach.

**Recommendation 1:** The Opening Minds curriculum resonates well with both the economic and wider learning characteristics that emerge from the review as important. As such the RSA should be promoting both the versatility of its curriculum and how it appears to meet the diverse aims or drivers underpinning competence based approaches. Below we now consider the individual elements that contribute to making CBE effective and the conditions required for its success.

**Recommendation 2:** If they are to lead to expertise and competence, CBE must be grounded in the local and individual context and this is what OM already does.

**Recommendation 3:** Since the evidence supports a view of competence as embracing a diverse range or types of knowledge, tailoring OM must also be realised by students being able to use standard knowledge in a localised context as well as embracing other existing knowledge types.

**Recommendation 4:** The evidence on learning power implies that the CBE should centre on learning as a skill rather than simply lead students to acquire knowledge. As such, teachers using the OM curriculum should ensure that OM is fully grounded in an understanding of a conception of learning skills and, in particular how such skills can be developed over time.

**Recommendation 5:** The RSA should consider its definition of competence and choose one that has salience with the main stakeholders concerned (i.e. teachers, learners and employers) whilst also reflecting the myriad and diverse outcomes that OM supports.

**Recommendation 6:** Ensure that those teaching OM are themselves competent to do so (i.e. are comfortable in their roles as coaches and experts and the balance required between these roles and the need for self-responsibility and self-reflection in their students) and are able to demonstrate the competences that are required of their pupils.

**Recommendation 7:** The eight aspects suggested by Wesselink *et al* (2009) should be considered by those using OM.

**Recommendation 8:** Teachers using OM should make explicit the links between curricular subjects such that the interrelated nature of competencies can be addressed.

**Recommendation 9:** The emphasis placed in the OM curriculum on ‘Managing emotions’ should be maintained given the evidence on the importance of these competencies in and out of the workplace.

**Recommendation 10:** As the OM programme aims to develop a wide range of competences, assessment processes need to reflect this and ensure that the drive to gain a formal qualification does not inhibit wider learning and that the assessment process is not divorced from the pedagogical approach.

**Recommendation 11:** If formal accreditation is brought into the OM programme, different actors such as students and teachers can provide useful input for the format and operation of competency-based assessments.

**Recommendation 12:** An appropriate system of assessment of OM competencies should embrace the principles of Assessment for Learning through a collaborative approach, in particular by sharing the criteria for learning with the learners incorporating self and peer-assessment and ensuring feedback informs future teaching and learning.

Hipkins *et al* (2010 p. 114) remind us:

...an understanding of the curriculum role of competencies is mostly still a task to be tackled. Given the power of the competitive academic curriculum, there are many questions in this agenda that must be addressed if competencies are to be enacted in the way envisaged by Haste (2001). These include: What is the relationship between competencies and subject 'content'? Are competencies assessed and reported on, and if so how? How are they planned for and 'taught' in the curriculum? What kind of professional development is needed? Unless these and other questions are addressed, competencies will simply be subsumed by the dominant curriculum grammars and fail to live up to the potential of their transformative promise.

The RSA should consider re-evaluating the effectiveness of Opening Minds looking at the impact at school, teacher and pupil level with a view to strengthening existing arguments regarding its efficacy. Whilst acknowledging that accreditation of the OM programme is at school level, the overall accreditation process could draw on Hipkins *et al* in asking: how the competencies will be assessed and reported on, who will be involved in the assessment and what kind of professional development supports the effective use of the Opening Minds curriculum?

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# Appendix: Search terms

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Competence terms	Evidence/ assessment terms	Contextual terms	Specific programme terms
Capability	Analysis	Curriculum	Opening Minds
Competence*	Appraise	Education	SEAL
Competence-based	Assessment	Programme	Enquiring Minds
Competency indicator	Effectiveness	Pupils	ELLI
Core skills	Evaluate	School leavers	Learning Power
Employability skills	Evidence	Students	
Expertise		Study	
Integration of knowledge, skills and attitudes		Syllabus	
Key competencies		Use	
Key skills		Assessment	
Learners			
Learning power			
Lifelong learning			
Proficiency			
Transversal skills			
Vocational			



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