Creativity, Culture and Education Series

CREATIVITY CULTURE & EDUCATION

Progression in Creativity – developing new forms of assessment: a literature review

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May 2012

Creativity, Culture and Education (CCE) Literature Reviews

These reports have been commissioned to introduce readers to the main principles, theories, research and debates in the field. They aim to introduce the major themes and writing pertaining to each area of study and to outline key trends and arguments.

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Acknowledgments

We would like to thank our steering group, Dr Francesco Avvisati, Paul Collard, Prof. Anna Craft, Dr. David Parker, Naranee Ruthra-Rajan, Prof. Julian Sefton-Green, Jo Trowsdale, and Stéphan Vincent-Lancrin for their help in developing and supporting this literature review.

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About the Creativity, Culture and Education Literature Review Series

Creativity, Culture and Education (CCE) is a national charity with a vision for all children, regardless of their background, to experience and access the diverse range of cultural activities because these opportunities can enhance their aspirations, achievements and skills. We promote the value and impact of creative learning and cultural opportunities through our strong evidence base and policy analysis, stimulating debate among policy makers and opinion formers, and delivering front line high quality programmes.

Through our research and programmes, we promote a systemic approach to creative and cultural initiatives and one which builds on the excellent practice which already exists to make opportunity consistent, to ensure that all children and young people are included and to place quality at the core of any creative or cultural experience.

CCE's work has included:

- **Creative Partnerships** - England's flagship creative learning programme worked to foster long-term partnerships between schools and creative professionals to inspire, open minds and harness the potential of creative learning. www.creative-partnerships.com
- **Find Your Talent** - worked in 10 areas across England to help children and young people to access arts and culture: www.findyourtalent.org

Fostering creativity is fundamentally important because creativity brings with it the ability to question, make connections, innovate, problem solve, communicate, collaborate and to reflect critically. These are all skills demanded by contemporary employers and will be vital for young people to play their part in a rapidly changing world.

Our programmes can have maximum impact if teachers, parents, children, young people and practitioners themselves learn from the experience and activities delivered through the programmes. For this reason, one of the most significant legacies is the product of our research and evaluation and how that is effectively communicated to stakeholders.

However, because CCE works by creating partnerships drawn from the widest fields of endeavour, the different stakeholders recognise that there is often a

‘knowledge gap’ between reflection, analysis, and learning. In addition, the wide focus of approach – which is fundamental to the nature of creativity – means that people are often working at the limit of their disciplines.

For these reasons we have commissioned a series of literature reviews exploring the key issues in current literature and summarising the history and latest developments in each subject. Each review is written by an experienced and respected author in their field. They aim to be accessible, clearly referenced and to act as ‘stepping-stone’ resources to underpin the research conducted by and for CCE.

Foreword

In this review, Ellen Spencer, Bill Lucas and Guy Claxton provide an overview of the key issues and debates surrounding creativity and the potential for assessing it in individuals. They discuss the concepts of assessment, progression and creativity itself, how it is experienced in society and in school, and consider the tensions faced by schools working to promote and develop it in their pupils.

In commissioning this work, Creativity, Culture and Education (CCE) wished to extend our understanding of creativity in young people and the ways the development and progression of creativity can be better recognised in individual pupils at school. The review was the first stage of a larger research project that sought to explore the viability of a tool or framework for the assessment of creativity in school age learners. It was important that the researchers ensured any tool or framework developed was based on an understanding and acknowledgement of key literature and existing practice.

Over the years Creative Partnerships has been operating, there has been a keen interest in this issue and a number of small scale frameworks which look at pupils' progression have arisen, many of them with overlapping but nonetheless varied definitions of creative development. Recent examples include a framework developed in Thomas Tallis School in London[1], and Creative Partnerships' own 'Creativity Wheel'[2], which was developed in the Durham/Sunderland area. In addition there are older frameworks and tools for measuring creative learning in individuals such as the Torrance Test[3] and the Creative Learning Assessment model developed by the Centre for Literacy in Primary Education (CLPE) in South London schools (Ellis and Myers, 2008).

The fact that no single model or approach has ever been able to assert itself within educational settings suggests that there are some deep rooted challenges to overcome. Not least is the question of whether there is a central contradiction between the development of creativity in young people and the way schools are currently configured. With their focus on age related exams, large class sizes and non-individualised projects it often seems difficult to see how schools might be able to sustain a credible focus

[1] www.creativetallis.com/index.html
[2] www.creative-partnerships.com/in-your-area/durham-sunderland/resources/the-creativity-wheel-resource-for-teachers,217,ART.html
[3] www.coe.uga.edu/torrance/

on both the development of creativity while at the same time conforming to other mandatory modes of assessment which value different forms of learning and knowledge than those we might describe as creative.

However, despite recent cuts to funding for arts and creative programmes, and the establishment of the English Baccalaureate (EBacc) with its prioritising of non-arts subjects, there continues to be an interest in and commitment to developing creative practices in staff. In many cases this includes a focus on the development of creativity in pupils, particularly to know when creative attributes are developing well in learners and what evidence for this might look like. This review will offer support to all those facing the challenges associated with nurturing creativity in the contemporary curriculum, and indeed anyone interested in the broader debate around the value and place of creativity in education.

Dr David Parker, Creativity, Culture and Education

How we might understand and define creativity has long been the work of developmental and educational psychologists, who have attempted to explore the possibility of its measurement. …No single model or approach has, to date, become established widely in educational settings, suggesting that assessing creativity is challenging and that there may, potentially, be a number of deep-rooted challenges to overcome.

1 Introduction

This review underpins a piece of work undertaken by the Centre for Real-World Learning (CRL) at the University of Winchester, and commissioned by Creativity, Culture and Education (CCE) to explore the possibility of developing a framework for assessing creativity in school age learners. It explores creativity, and its assessment, adopting a socio-constructivist perspective, drawing on the work of such theorists as Vygotsky (1978), and Lave and Wenger (1991). As such, it does not cover areas of organisational creativity (often referred to as 'innovation'), although there are large bodies of work focusing on this aspect of creativity in both the private and public sectors. While recognising a diversity of approaches to the theorising of creativity, this review narrows its focus to those approaches that look specifically at the individual student (within a social context). Because the work this review supports attempted to develop a framework for assessment of individuals, the review thus gives only limited space to work focusing on creative outputs or environments that support creativity. It gives primary weight to focusing on the characteristics of the creative individual that might be assessed.

How we might understand and define creativity has long been the work of developmental and educational psychologists, who have attempted to explore the possibility of its measurement. There has been a large and growing interest in the assessment of creativity in recent years. Schools have done much valuable work in the promotion of creativity, particularly through the work of Creative Partnerships, although there is little work exploring the long term impact of exposure to the work of Creative Partnerships and similar interventions. It is hoped that this piece of work will serve as a continuing legacy in promoting the importance of creativity in schools. In this regard, this review may be of interest to teachers and practitioners interested in furthering their understanding of the many debates around creativity and its assessment.

Throughout the lifespan of Creative Partnerships, a major part of CCE's work and England's flagship creative learning programme from 2002 - 2011, a number of small scale frameworks looking at progression in creativity have been created by practitioners. No single model or approach has, to date, become established widely in educational settings, suggesting that assessing creativity is challenging and that there may, potentially, be a number of deep-rooted challenges to overcome.

Through six main sections, this review seeks to lay out what we know about the assessment of creativity in schools. Running throughout is the notion that there might be an inherent tension between the development of creativity in young people and the way schools are currently configured. More fundamentally, assessment of creativity is problematic because there is not one unifying theory of creativity to guide those developing test instruments. Further, there is the vexed question about whether creativity in schools should be assessed at all and, if it should, what form that assessment might take, and what purpose it might have.

- Section 2 sets out the context for assessment: why we assess individuals; what it means to track progression; some different models of assessment; and the international precedent for tracking skills development and the conflicts with English policy priorities.
- Section 3 provides an overview of the main approaches to defining creativity, exploring the different lenses through which creativity is examined.
- Section 4 looks at the diverse and often contradictory range of ways that creativity is experienced in society.
- Section 5 considers how policy, curriculum, and third sector organisations have driven the creativity experience in schools.
- Section 6 describes the philosophical issues underpinning any assessment of creativity and the inherent tensions between the structure and goals of schools and particularly assessment, and the prioritising of creativity.
- Section 7 explores how research and practice have shaped assessment of creativity, focusing on some of the significant attempts to assess it.

Emerging from this review is an understanding of the degree to which any framework for the assessment of creativity in schools will be likely to succeed, as well as ideas for its construction derived from key literature and existing practice within a number of Creative Partnerships schools, and some other schools in England. Successful development and uptake of an assessment tool for creativity would provide a valuable legacy for CCE, whose research demonstrates the contribution creative practice can make to the lives of children, families, and wider society.

Societies tend to want to measure the things that either they value, or that impact upon those things they value. To develop a specific behaviour, proponents of testing would claim it must be measured through testing, assuming that preparation for tests leads to improvements in the skills measured through the test.
(Harlen, 2005)

2 Why assess creativity?

2.1 Classroom assessment

This review is about the assessment of progression in creativity. Before we delve into an exploration of what we mean by creativity, and how it has been, and might be, assessed, we need to ask what is meant by 'assessment', and by 'progression'. Each term is complex, and has a meaning situated within historical and political contexts that give each a set of socially constructed values and assumptions.

Regarding assessment, 'there is no single activity called "classroom assessment"' (Earl, 2003:3). 'Assessment' covers a whole range of judgments about students: from the formal to the informal, as well as ongoing, formative, and diagnostic (Filer, 2000). It serves a range of complex purposes: while prime assessment concerns in the US, for example, have historically been accountability and raising 'standards', the emphasis in England has historically been about the certification, segregation, and selection of students although, argues Filer (2000) this has increasingly become conflicted with accountability and 'standards' agendas. Earl (2003:3) refers to the 'paradox of classroom assessment' that must satisfy multiple goals 'such as providing feedback to students, offering diagnostic information for record keeping, proffering evidence for reports, and directing efforts at curriculum and instructional adaptations'.

The discourse around assessment covers many areas and perspectives. Filer (2000) includes the technologies of testing, classroom contexts of assessment, the socio-historical and cultural contexts guiding assessment policy, the experiences of those being assessed, and the outcomes of assessment.

For some, the word 'assessment' may conjure up images of silent examination halls, written tests whose outcomes sift the 'winners' from the 'losers', and the careful measuring and sampling of papers by moderators determining where to set the bar for quality, achievement, and competence. In this sense, it is something that is 'done to' students in order that they can progress to a higher level of study and, eventually, into a career. Yet, as Conner (1991) observes, the Latin roots of the phrase educational assessment is *educare* (to bring out) and *assidere* (to sit beside). Thus, educational assessment 'should be seen as the sitting beside the child and bringing out the potential that exists within them, creating an opportunity for them to demonstrate what they are able to do' (Conner, 1991:xi).

Broadfoot (2000:x) argues that educational assessment itself is 'a fundamentally modernist creation' that represents 'the desire to discipline an irrational social world in order that rationality and efficiency could prevail'. In a book exploring the social, educational, and economic implications of the dominance of educational assessment in the world today, she opens with a comment illustrating the pervasiveness of assessment practices:

> From its modest beginnings in the universities of the eighteenth century and the school systems of the nineteenth century, educational assessment has developed rapidly to become the unquestioned arbitrator of value, whether of pupils' achievements, institutional quality or national educational competitiveness. (Broadfoot, 2000:ix)

Across the world, the interest in educational assessment at policy level has become paramount (Filer, 2000) and shows no signs of abating. By controlling 'high stakes' assessment programmes, politicians have significant power over the methods and content of teaching (Filer, 2000). High stakes testing enables analysts and policy makers to formulate hypotheses about where best to focus attention on a national scale. We discuss assessment for international comparison further in section 2.7.

2.2 Tracking progression

Tracking learner progression in schools has many potential purposes, both formative and summative. Formatively, by better articulating pathways, learners may be able to learn more effectively and teachers may be helped to teach with a closer understanding of what 'improving' looks like. Summatively the tracking of progression is mainly conceived of as an accountability measure. At the end of certain periods or at certain ages, progression is determined to enable success rates of pupils, teachers, school leaders, and school systems to be compared. We explore concepts of formative and summative assessment more fully in section 2.4.

Within specific subject areas, the concept of learning progressions (LPs) is increasingly used with regard to understanding progression. LPs describe 'successively more sophisticated ways of reasoning within a content domain that follow one another as students learn' (Smith *et al.*, 2006[4], cited in Duncan

[4] Smith, C., Wiser, M., Anderson, C., and Krajcik, J (2006) 'Implications for Children's Learning for Assessment: A proposed learning progression for matter and the atomic molecular theory'. *Measurement,* 14, 1-98

and Hmelo-Silver, 2009:606). This 'content domain' might be a particular body of knowledge, or a professional practice. In a special edition on learning progressions in the *Journal of Research and Science Teaching*, Duncan and Hmelo-Silver identify an emergent body of scholarship on learning progressions. Although they note that LPs have long been explored by developmental psychologists, a new perspective aims to consolidate definitions of LPs and to develop new applications. They draw attention to recent policy documents advocating LPs in the US 'as a means of aligning standards, curriculum, and assessment' (Duncan and Hmelo-Silver, 2009:606). Indeed, the concept is intuitively interesting, at least theoretically: Wilson, in the same special edition, suggests that 'devising a means of measuring a student's location within or along a learning progression is a crucial step in advancing the scientific study of learning progressions, and for finding educationally useful applications of the idea' (Wilson, 2009:716).

While learning progressions may provide a way of aligning learning and assessment, their development brings about its own set of questions. LPs are 'by their very nature hypothetical: they are conjectural models of learning over time that need to be empirically validated' (Duncan and Hmelo-Silver, 2009:607). The authors problematise the validation process itself, suggesting that:

> Methods of validating progressions, and what the notion of validity means in this context, are also ambiguous. A valid progression implies that the underlying cognitive model of learning holds true in different instructional settings and for different learners. However, learners bring with them unique experiences and knowledge and it is not yet clear how LPs can take into account these different learner histories. (Duncan and Hmelo-Silver, 2009:608)

A second issue identified by Duncan and Hmelo-Silver (2009:608) is raised by Steedle and Shalvelson who present evidence 'that students do not always express ideas that are consistent with a single learning progression and thus raise questions about the validity of diagnosing students' level of performance based on a given LP'. Steedle and Shalvelson's study (2009:713) suggested that students cannot always be placed at a single progression level, which casts doubt on the validity of LP interpretations because 'valid interpretations…are only possible when students consistently express the ideas associated with a single learning progression level'.

In a paper reviewing the tensions and contradictions inherent in recent conceptions of progression, Wood and Bennett (1999) drew on perspectives from theory, policy and practice, stating (similarly to Duncan and Hmelo-Silver, 2009) that there is a lack of empirical studies examining the relationship between progression in learning and progression in curriculum. They suggest that policy language in England and Wales has tended to base progression on subject structures, assuming that it is an issue of content alone. For example, Her Majesty's Inspectorate defined progression in the Rumbold Report (DES (1990)[5] cited in Wood and Bennett, 1999:7) as 'the sequence built into children's learning through curriculum policies and schemes of work so that later learning builds on knowledge, skills, understandings and attitudes learned previously'.

Wood and Bennett suggest also that theoretical perspectives concerning assumptions about progression vary. Drawing on research evidence, they show that educators in a range of settings 'are experiencing problems in providing the conditions which might achieve effective patterns of progression and continuity'(1999:5).

The notion of progression is further complicated in the UK by the structuring of the National Curriculum around Key Stages and the decisions taken relating to the content of each. Regarding the science curriculum, Galton (2002:260) argues that as a result of decisions taken by the then Conservative government committees about specific content that should be taught at primary age in order to preserve progression at that age:

> Key Stage 3 was left with all that was not included in Key Stage 4 or which had not been transferred down to Key Stage 2. Not surprisingly it now lacked any overall clear structure or a set of principles…This uncertainty then had a knock-on effect in the development of the assessment targets and levels of attainment…At no point in the development of these programmes, other than applying criteria based on face validity, was there any serious effort to assess the degree of comparability of these attainment levels between the different Key Stages. (Galton, 2002:260)

Although there have been efforts to smooth over this problem (e.g. the 'bridging unit' as described by Galton 2002 which provides a unit of study for pupils to begin at the end of Key Stage 2 and complete in the first few weeks of Key Stage 3) these have not fully overcome the structural problems.

[5] DES (1990). *Starting with Quality: The Report of the Committee of Enquiry into the Quality of the Educational Experiences Offered to 3-4 year olds, chaired by Angela Rumbold.* London: HMSO, DES/WO

In the teaching of English, work has been done to map progression which, on the surface, makes intuitive sense. Marshall (2004:103) cites a 1999 QCA document as a 'sophisticated and interesting' example, commenting that 'the essential premise that lies behind this model is that the skills and knowledge needed to be good at English are known, quantifiable and reducible to a systematic teaching programme'. Marshall (2004:103) argues, however, that observations in the same QCA document threw up complexities so that 'the neat progression of simple to complex sentences [from F to A grade writers is] undone' as other, less tangible rules come into force.

But, as we explore later in this review, creativity is one of the most complex and contested of domains. Consequently any expectation of understanding learning progressions or tracking learner progression is likely to be highly challenging.

2.3 Assessing progression in creativity as a way of valuing it

Societies tend to want to measure the things that either they value, or that impact upon those things they value. To develop a specific behaviour, proponents of testing would claim it must be measured through testing, assuming that preparation for tests leads to improvements in the skills measured through the test (Harlen, 2005). Society perpetuates its values similarly, by placing status on certain subject areas in school, which it does through ensuring these are assessed to recognised standards.

If creativity is to be encouraged, it might follow that it should be given equal status. Indeed, an EU exploration of the feasibility of measuring creativity states that '[t]he promotion of creativity and innovation in education requires having measures that can provide evidence on the progress made over the years' (Hingel, 2009:421).

Assessing creativity would, under the preceding logic, ensure that its presence and development in children is valued. It would also help teachers to develop appropriate learning activities, or even flag individuals who may benefit from gifted and talented provision (Treffinger *et al.*, 2002). Not only this, where it is used summatively, it permits policy learning so that 'adequate measures…can tell us something in the progress achieved with the political decisions taken in

Europe' (Hingel, 2009:421), and as Harlen (2005) explains the result of focusing on passing tests is that test scores rise. There are of course unintended consequences – for example: the practice of grading tends to put undue emphasis on competition rather than upon personal improvement; teaching to the test means that knowledge is quickly forgotten (Galton, 2002); and feedback from assessment often impacts negatively on students, particularly low-achievers (Black and Wiliam, 1998). Black and Wiliam (1998) cite a range of assessment practices that lead to undesirable consequences, but the common thread is that each lacks a formative element, or precision in that formative aspect. It has long been recognised, however, that creativity is perhaps the most difficult psychological concept to measure (Hocevar, 1981). Notwithstanding this, the assessment of creativity has had a long and rich history (Plucker and Makel, 2010), which we explore in more depth in section 7.

In their study of progression in 'creative learning', Craft *et al.* (2007:141) tell us that there has been little work on 'how progression (i.e. developmental change over time in terms of what children know, understand and can do) in creative learning might be conceptualised'. They explored progression from Foundation to Key Stage 4 as indicated by teacher stance towards learner engagement, creativity/creative learning, and teaching for creativity/creative teaching. Their study found distinct consistency across the schools studied. For example:

> Progression in musical and written composition was marked by a growing competence and capability as composers, and a comparison with adult standards. Apprenticeship approaches to teaching in relation to fostering creative learning were in evidence, with a gradual shift from collaboration and co-participation between children and between adults and younger children, toward greater modelling on the practices of the field, as children grew older. (Craft *et al.*, 2007:141)

2.4 Formative and summative assessment

Boud and Falchikov (2006:401) tell us that 'it has long been assumed that there are two purposes of assessment'. While one is to provide certification of achievement, the other is to facilitate learning. The authors suggest that 'these two purposes have been associated with two sets of practices: summative and formative assessment respectively'. We outline the key purposes of each,

and in section 6.7. we explore the tensions between formative and summative assessment in more detail.

Loveless' (2002) review of the possible role of digital technologies in assessing creativity problematises the purpose of assessment: whether it will be for grading individuals using national standards ('summative' or 'evaluative'), or for helping individuals progress ('formative' or 'diagnostic'). The major consideration for summative assessment is that of validity, or shared meaning. Summative assessment is used primarily for three purposes (Wiliam, 2000):

- To monitor national standards; to provide evidence about trends over time within a country or to compare standards of achievement with those of other countries
- To provide information with which teachers, educational administrators and politicians can be held accountable to the wider public
- To determine the route a student takes through the differentiated curricula that are on offer, as well as to report on a student's educational achievement either to the student herself, or to her parents or guardians

Formative assessment, on the other hand, aims to spark successful action. It is a mechanism by which learners improve their understanding and practice. It is defined most comprehensively by Black and Wiliam thus:

> Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited. (Black and Wiliam, 2009:9)

The common element in all forms of formative assessment is that of feedback to the individual concerning the gap between the actual- and reference-level of a particular parameter. As such, formative assessment is validated by what happens as a result of outcomes reported as feedback, rather than by the outcomes themselves. Assessment that does not serve to narrow the gap between actual and desired behaviour cannot be regarded as formative (Wiliam and Black, 1996).

2.5 Assessment 'for' and assessment 'of' learning

'Assessment for Learning' (AfL) is based on a formative model of assessment. Given the debates about assessment of progression, and about the value of assessing creativity, and about how it should be assessed, it may be helpful to lay out a brief history of the AfL movement that has shaped assessment in England in recent years.

Although AfL is now recognised internationally, in the US and other OECD countries the presumption remains that only paper-and-pencil style tests can be used to gain comparative data. In the US, for example:

> Multiple demands for accountability at different levels of the system have resulted in multiple assessment systems, but these tend to be focused on measuring the amount of learning that has taken place, providing little insight into how it might be improved. (Black and Wiliam, 2005:249)

In Germany, the shock of the first round of the OECD's PISA (*Programme of International Student Assessment*) study in 2000 led to the development of a set of prescribed measurable competencies, on whose development educational standards are focused. These standards are used as a basis for assessing pupils in order to determine whether the 16 federal *Länder* are meeting them. Ertl (2006:628) argues that the notion of standards, competences and outcome-orientation 'pushes learning processes into the background'. A similar shock was experienced by Norway, also in 2000, who scored below the PISA average despite its 'highest per capita investments in education'(Stobart and Eggen, 2012:4).

The English assessment tradition diverges from this approach. Morris (2012:92) suggests that the lack of discernible impact on policy of the poor PISA results 'may be explained by England's exceptional tendency to engage in the serial, rapid and repeated restructuring of public services which makes the system unstable and subject to constant criticism and reform, reducing the potential for a shock effect from any one source'. In 1988 a government task force (*Task Group on Assessment and Testing*) emphasised the importance of formative assessment in classrooms. The recommendations of the task force were supported by parents and parent-governors as well as receiving wide support generally (Black, 1988). Rather than supporting this with strategy and resources, however, Government decisions meant that

these went to fund summative assessments via national testing. Reflecting upon these decisions some years later, Black and Wiliam commented that 'as researchers the world over have found, high-stakes external tests always dominate teaching and assessment' (1998:142).

In 1999 the Nuffield Foundation funded a piece of research called the *King's-Medway-Oxfordshire Formative Assessment Project* (KMOFAP), which is described in Black *et al.*'s book *Assessment for Learning: Putting it into practice* (2003). As a result of the project, AfL is 'a central theme in education policy in England and Scotland' (Black and Wiliam, 1998:10). Black *et al.* (2004) distinguish assessment *for* learning from assessment *of* learning thus:

> 'Assessment for learning is any assessment for which the first priority in its design and practice is to serve the purpose of promoting students' learning. It thus differs from assessment designed primarily to serve the purposes of accountability, or of ranking, or of certifying competence.' (Black *et al.*, 2004:10)

This literature review and the ensuing work in designing a trialable tool adopt a formative approach to assessment. This decision is one of the most significant because of its potential impact upon quality of teaching and learning.

2.6 Assessment in context: authentic assessment

The notion of authentic assessment gained widespread use in education towards the end of the 1990s. The goal of authentic assessment is 'to cultivate the kind of higher-order thinking and problem-solving capacities useful both to individuals and to the society. Cumming and Maxwell argue that this 'mastery gained in school is likely to transfer more readily to life beyond school' (1999:179). Indeed, Riley and Slater Stern (1998) go as far as to make the claim that authentic forms of assessment are more qualitative and valid than traditional paper-and-pencil style tests. In their view, authentic assessment provided opportunities for students to demonstrate their ability to link theoretical constructions with classroom practice.

In a vocational education context, Gulikers *et al.* (2006:337) tell us that assessments are situated on a continuum from artificial and decontextualised,

to authentic and situated. They propose that new models of assessment focusing on employment competencies 'lean towards the authentic side of the continuum, since authenticity is expected to be crucial for preparing students for the dynamic world of work that characterises current society'. The five dimensions they consider in their model of authentic assessment are the assessment task, the physical context, the social context, the result or form that defines the output of the assessment, and the assessment criteria.

2.7 Assessment in context: assessment for international comparison

Assessment of creativity poses a number of unique challenges because of the sheer breadth of discourse on its nature, construction, measurement, and applicability in different domains. To place assessment of creativity in a European context this section explores the possibility of using composite indicators to create an index of creativity. The on-going EU measurement of problem-solving skills shows that at policy level, the very reasons for and against measuring something like creativity are up for debate.

Since the 1990s there has been a considerable increase in the number of countries involved in international assessment of pupil achievement. This focus reflects a central position of globalisation: 'that knowledge is a key strategic resource, replacing raw materials and labour, and that thus the availability of human resources is critical in determining the rate of economic development' (Kellaghan, 2001:95).

The issue of developing and tracking '21st century skills' (including creativity) in children and young people has captured the attention of governments and other organisations globally. Lucas and Claxton's (2009) international review of wider skills for learning, commissioned by the National Endowment for Science, Technology and the Arts (NESTA) evidences this by drawing together a large number of approaches to codifying and developing 21st century skills, from research organisations, third sector organisations, and commercial bodies. There are numerous examples of international attempts to decide upon a set of dimensions or personal attributes by which to measure a complex construct such as 'problem solving', 'citizenship' or,

indeed, 'creativity'. In a higher education context, Cumming (2010:409) reports that 'the external push for generic and employability skills development' has received both positive and negative responses. They caution against the 'checklist approach' and 'deficit models' when identifying individuals' attributes.

The organisation 'Assessment and Teaching of 21st Century Skills' (ATC21S) based at the University of Melbourne, encompasses researchers from over sixty institutions and sponsorship from three major IT providers (Cisco, Intel and Microsoft). ATC21S aims to develop an assessment framework to map how students learn with regard to two particular skills; those of collaborative problem-solving and ICT literacy. The assessment framework aims to be both formative and summative, with an emphasis on raising standards as its driver. ATC21S identifies four groups of skills; 'ways of thinking', 'ways of working', 'tools for working', and 'living in the world'. Creativity is placed within the 'ways of thinking' group of skills. Each of the skills, creativity included, is broken down into a series of 'measurable' descriptions based around a framework of Knowledge, Skills, Attitudes, Values, and Ethics.

EU interest in assessing creativity remains particularly strong, and 2009 was designated *European Year of Creativity and Innovation*. Key contributions from the EU's international conference *Can Creativity Be Measured* held in Brussels in that year were compiled into a publication *Measuring Creativity: The book* edited by JRC's (Joint Research Centre, European Commission) Villalba (2009). In this book, Saltelli and Villalba (2008:19) suggest that, for EU purposes, measurement provides insight for policymaking and also holds potential for allowing 'country performance comparison with other variables [which] might provide insight into the relationship between variables'. For example, they suggest the relationship between product market regulation and productivity, or between the rise of the 'creative class' and economic growth. Saltelli and Villalba (2008:17) acknowledge the difficulty inherent in measuring creativity, which is proposed primarily through the use of composite indicators that must be agreed upon, and which 'encapsulate a series of dimensions to form a single measure that represents complex phenomena' – and such examples as the Global Competitive Index and the Human Development Index are given to show what this might look like in practice. The authors draw attention to the work of the OECD (Organization

for Economic Cooperation and Development) and JRC in developing a series of steps for the creation of a composite indicator. These ten steps are:

1. Developing a theoretical framework
2. Selecting indicators
3. Imputation of missing data
4. Multivariate analysis
5. Normalisation of data
6. Weighting and aggregation
7. Robustness and sensitivity
8. Back to the details
9. Association with other variables
10. Presentation and dissemination

Work by Kern and Runge in the same publication (2008) aimed to develop a *European Creativity Index* (ECI) in order to show the socioeconomic impacts of creativity, and to allow a comparative assessment of the creativity of performance of EU member states. They looked, therefore, at the *cultural* dimension of creativity, itself multifactoral. They grouped 'pillars' of indicators, all of which approach creativity through a context-dependent, collective lens. These included 'human capital', 'technology', 'the institutional environment', 'the social environment', and 'openness and diversity'. Based on Villalba's 2008 work (2009) they concluded that 'it is preferable to build a creativity index that focuses on the social and economic factors that influence creativity in general' (Kern and Runge, 2008:193). This view of creativity does not attempt to wrestle with the context-specific or domain-situated debate, or the individual versus collective argument, given that its purpose is to assess national performance as a whole, not individuals. Its thirty-two indicators of creativity are consequently inappropriate for assessment of individuals of school age.

Nevertheless, the means by which such a composite could be constructed is of relevance to our issue of assessing school-age learners, particularly summatively, even if the specific dimensions comprising it were not right for this purpose. Hingel explains that agreement over:

> 'the construction of such a composite [however] would require more theoretical and statistical analysis, especially in order to integrate the different aspects into a single measure of creativity … [and] we are probably still far from being able to provide an adequate measure … [because this] will require a long process of consultation with experts and Member States representatives to agree on what are the defining characteristics of a cross-national construct of creativity' (Hingel, 2009:422).

Hingel's summary suggests, however, that it is not impossible, and that assessing creativity would help this phenomenon to become a central aspect of European educational systems

2.8 Assessment in context: EU attempts to measure 'skills' in English context

Europe has a legitimate concern in measuring complex skills which do not easily sit within subjects. Indeed, as Kellaghan (2001:95) noted over a decade ago, a whole host of skills 'considered to be required in the global economy' were not being monitored successfully through international testing. Kellaghan cites a range of skills said to be 'required in the global economy' in various papers, including thinking, reasoning, learning, problem-solving, strategizing, adaptability, information management and manipulation, and autonomy.

The OECD's recent attempt to measure problem-solving is a good example of these concerns being addressed. Its programme of international assessment, PISA, provides assessment information to policymakers, aiming to improve education systems internationally as a consequence of the decisions it facilitates. Since its inception in 1997, the programme has garnered support from governments worldwide, with 74 countries participating in the 2009 phase.

In terms of what PISA sets out to measure, its focus is on knowledge and skills perceived to be essential for full participation in contemporary society. The assessment's content is informed by the common denominator of the national curricula of participating countries, as well as the skills deemed necessary for life in those countries. PISA 'combines the assessment of

domain-specific areas such as reading, mathematical and scientific literacy with important cross-curricular areas, also a priority among OECD countries' (Schleicher and Tamassia, 2003:9). The 2003 assessment saw the introduction of problem solving as an additional domain alongside other cross-curriculum competencies. Data regarding the performance of fifteen year old students has been collected in three-yearly tranches (2000, 2003, 2006, and 2009) with a view to aiding policy development rather than (at this stage) for tracking (or formatively aiding) individual progression. The Head of OECD stated that this aspect of PISA is a response to the 'need to assess problem-solving abilities as governments around the world seek to equip young people with the skills they need for life and employment' (Pearson, 2011).

The body of literature around problem solving is broad, just as it is with the creativity literature, and several have commented on the lack of comprehensive definition (Schleicher and Tamassia, 2003). OECD reviewed existing studies and the tests they documented for assessing capabilities in problem solving. OECD aimed to develop a framework that would extend these 'prototypes developed in the feasibility and research studies to a workable model for a large-scale assessment' (Schleicher and Tamassia, 2003:156), which they did, based on the assessment criteria of one author[6].

International comparisons such as PISA 'have introduced a new high-stakes phenomenon – tests that are low-stakes for the individuals taking them and for their schools but high-stakes for politicians, policy makers and governments' (Stobart and Eggen, 2012:1). Despite its potential usefulness as a tool for benchmarking English performance, and for underpinning policy development with evidence, the DfE is currently uncertain about whether England will participate in the problem solving element of the 2012 PISA study (Stewart, 2011). While a possible reason for the DfE's lack of participation might be a desire not to overburden schools with additional paperwork, critics propose that the real reason is that the problem solving element of PISA runs counter to the English Coalition Government's current focus on subject knowledge. In a talk given at the think-tank Learning Without Frontiers Sir Ken Robinson (2011) said that:

[6] Richard Mayer's 1992 publication on assessment of problem solving: *Thinking, Problem Solving, Cognition* asserted that test designers must ensure that candidates have to engage their minds in higher order thinking; that tasks are authentic and require combining skills; that tests present candidates with problems that do not occur day-to-day and thus require a novel strategy.

> Some very smart politicians…believe that the basics in education are a group of subjects that they became used to at their own prep school. And typically these subjects turn out to be ones which are associated with two ideas. One is a certain type of academic ability, and the other is utility for work… (Robinson, 2011)

As an example of political thinking, in a speech to the Royal Society of Arts, Michael Gove, Secretary of State for Education expressed concern over a lack of subject knowledge teaching 'because time, and effort, is spent cultivating abstract thinking skills rather than deepening the knowledge base which is the best foundation for reasoning' (Gove, 2009:14). The developers of the framework for the 2015 test commented in response to the thinking behind this sort of view that '[the PISA approach] requires a different approach to the education system than a hothouse around the acquisition of knowledge' (Stewart, 2011).

In *An Introduction to Assessment*, Broadfoot (2007) illustrated this point well with a quote from Sir Richard Livingston (a classical scholar and education writer) writing about the future of education in 1941:

> The test of a successful education is not the amount of knowledge that a pupil takes away from a school but his appetite to know and his capacity to learn. If the school sends out children with the desire for knowledge and some idea of how to acquire and use it, it would have done its work. Too many leave school with the appetite killed and the mind loaded with undigested lumps of information. The good schoolmaster (sic) is known by the number of valuable subjects that he declines to teach. (Livingston cited in Broadfoot, 2007:154)

Besides the potential conflict between PISA's exploration of 'skills' and the English policy agenda, questions had already been raised about the possibility of using existing large-scale survey data to construct a creativity index. Based on a number of arguments, a review by JRC, the European Commission's Joint Research Centre (Villalba, 2008:33) concluded that 'it seems costly and maybe not very effective to use PISA or other international scales as a measure of creativity.'

The usefulness of data generated by international surveys that provide for summative assessment has been subject to scrutiny. For example, Tymms *et al*. (2004:674) argue that PISA and large-scale international studies:

> …enable comparisons to be made between pupils at particular points in time but they were not designed to measure the progress of children within the different educational systems… Without a common baseline it is surely hard to interpret the data generated. (Tymms *et al.*, 2004:674)

Given the apparently intuitive link between education and economic prosperity, Harlen claims that 'it is not easy to shake faith in the relationship between standards of educational performance and economic success' (2001: 80), and argues that the work of many international organisations such as UNESCO, the World Bank, OECD, and the IMF is underpinned by such a belief. She concludes that although PISA's work is useful, it 'like international surveys of performance before it, is attempting the impossible, for there will never be completely identical opportunities for demonstrating achievement across countries' (Harlen, 2001:101). Broadfoot (2007) articulates this rather more strongly in her assertion that politicians and policymakers make much overstated claims for objectivity and rigour, in order to make their statements sound more credible to the public. Indeed, she tells us we each know from experience that assessment is in fact a fairly blunt instrument, often missing that which it intends to capture, and causing much damage on the way.

The bigger picture in Europe appears largely to be one of summative assessment with creativity as a stepping stone to the ultimate goal of ensuring nations are developing economically useful individuals. To ensure that creativity is valued for its own sake, and as a step in the finding of one's niche in life, it could be argued that this approach is not the most fruitful direction for educators to pursue.

Creativity is a complex and multi-faceted phenomenon, which prevents promotion of a universally accepted definition (Treffinger *et al*., 2002). **It occurs in many domains, including school, work, the wider world, and home.**

3 What is creativity? A big idea dissected

In this chapter we ask what creativity is, and what are the key characteristics and dispositions of creative individuals. We explore its multidimensional character, observing an emerging consensus. The concept of creativity occurs in many domains and overlaps with ideas of learning and intelligence. Study of creativity is engaged in from a number of different, and sometimes competing, angles. Those interested in linking it to learning and intelligence may favour approaches that reflect what is happening at the creative-learner 'end' as they recognise and try to develop their creativity. Those focusing at organisational level may explore aspects of the environment that give rise to creative experiences. Those interested in quantifying creativity for purposes other than its development may focus on the more psychometric 'trait' approaches. The breadth of literature on creativity is vast, and in attempting to draw it together in this relatively small volume, we focus on authors who have themselves attempted to analyse, or meta-analyse, the field, as well as a small number of the most influential thinkers.

3.1 Creativity relates to intelligence

Creativity is a complex and multi-faceted phenomenon, which prevents promotion of a universally accepted definition (Treffinger *et al.*, 2002). It occurs in many domains, including school, work[7], the wider world[8], and home. Czikszentmihalyi (1996:56), a key thinker on creativity, wrote of his hesitation to describe the creative thinker, pondering that 'there is not much to write about, since creativity is the property of a complex system and none of its components alone can explain it'.

Assessment of creativity only has value if we take the view that children can learn to become more creative. We take the well-supported view that creativity is comparable to intelligence in a number of ways, including in its ubiquity and its 'learnability'. For instance; every individual has it to some degree (Csikszentmihalyi, 1996); it has levels, so that we can ask 'how creative' an individual is (Treffinger *et al.*, 2002); it can be expressed in many ways; it can be viewed as both a domain specific and a general ability; it has both automatic and controlled processes (Zabelina and Robinson, 2010), and it can be developed. While Torrance believed that creativity could be taught like any other skill, Csikszentmihalyi believed that children could not be

[7] Torrance: www.creativityatwork.com
[8] Torrance: www.creativityforlife.com

taught creativity but, instead, the right combination of personal characteristics and an encouraging environment could produce it (Heindel and Furlong, 2000). Torrance also believed that the potential for creativity is innate in individuals: that 'there were general mental abilities that are involved in, and predict, creative achievements' (Runco *et al.*, 2010:362).

Plucker and Makel's (2010) review of the creativity assessment literature cites Sternberg and O'Hara's earlier work suggesting five potential ways in which creativity and intelligence could be related:

1. Creativity is a subset of intelligence.
2. Intelligence is a subset of creativity.
3. They are overlapping sets.
4. They are essentially the same set.
5. They are unrelated.

They sum up with Kaufman and Pretz's conclusion that the relationship between creativity and intelligence depends largely on how each is defined and measured.

In Fillis and McAuley's review of the creativity literature (Fillis and McAuley, 2000), they note that 'when attempting to measure creativity, although there appear to be links with intelligence and the notion of genius, they should be differentiated'. They cite Spearman's 1931 work to demonstrate that ultimately, creativity involves 'displacing a relation from the ideas which were its original fundamentals to another idea, and thereby generating the further idea which is correlative to the part named, and which may be entirely novel'. They further draw a distinction between views of creativity as a conscious process (citing Spearman, Guilford, Mednick, and Rothenberg), and as an unconscious process (citing Koestler).

Sternberg's concept of 'successful intelligence' links the concepts of creativity, analysis and practical gumption to show what it is that successful people do to achieve their life goals: 'I define creativity not only as the ability to come up with ideas. I believe it is a process that requires balance and application of the three essential aspects of intelligence – creative, analytical, and practical' (1996:191). Importantly Sternberg reminds us that it is the use of these three aspects in combination which determines whether you are successful or not in the real world.

3.2 Creativity relates to learning

Theories of early learning seek to address two key questions: how development occurs as part of the process of maturation, and how social and cultural interactions influence development (Wood and Bennett 1999). These questions are addressed through two dominant theoretical perspectives: the constructivist orientation drawing on the work of Piaget, and social-constructivism stemming from Vygotsky.

Creativity and learning are clearly connected. They both, for example, involve imagination and imitation. From the moment individuals start talking or walking they are using their imagination to engage with the world. Indeed von Humboldt (1963) suggests that the learning of a language is an act of creative engagement. Both learning and creativity initially require imitation of others, whether learning from an expert or mastering a new form. To become a very creative mathematician it may help to observe the way an expert tackles a complex set of formulae. To realise one's creativity as a song writer, say, one may start out with simple formats and then move on from these. Bandura's study of the role of imitation in the development of intelligent behaviour tells us that 'most human behaviour is learned observationally through modelling: from observing others one forms an idea of how new behaviours are performed, and on later occasions this coded information serves as a guide for action' (Bandura, 1977).

Nevertheless creativity is but one aspect of learning, albeit a significant and complex one. Although aspects of self-regulation and meta-learning might make use of creative processes to some degree, they cannot be defined solely in terms of creativity. Similarly with 'reflective practice', another aspect of learning (amply documented in the work, for example, of Donald Schön, whose influential book *The Reflective Practitioner* (1983) examined the process involved in making professional judgments); while the ability to pause for thought and withhold judgment comprises aspects of the creative trait 'imagination', reflection may also involve analytical thought, or deliberate action such as checking facts.

It is hard to overstate the importance of the creative imagination for learning, however. Early work on psychological development by Vygotsky, for example, discussed the role of creative imagination as a precursor to human learning through action. As a nascent grasp of language begins to develop in the child, the child is able to carry out mental rehearsal so that

'action in an imaginary situation teaches the child to guide her behaviour' (1978:97). Resulting actions simply repeat that which has already been carried out through this creative mental action. Vygotsky's analysis 'alters the traditional view that at the moment a child assimilates meaning of a word… her developmental processes are basically completed. In fact, they have only just begun' (1978:90).

The close relationship between creativity and learning was recognised by CCE in their choice of the term 'creative learning'. Craft *et al*. (2007) identify the conceptualisation of 'creative learning' and its application in England, as being developed through work supported by Creative Partnerships, the National College for School Leadership, the Qualifications and Curriculum Authority, and organisations such as Cape UK. This term has enabled practitioners to draw elements from both 'traditions' without over-worrying about definitions. A range of other learning theories inform our understanding of the concept of contextualised performance and the social element of learning. Cumming (2010:415) cites this set:

- Experiential learning (Kolb and Fry, 1975);
- Reflection-in-action (Schön, 1987);
- Cognitive apprenticeship (Collins, Brown, and Newman, 1989);
- Legitimate peripheral participation (Lave and Wenger, 1991);
- Communities of practice (Wenger 1998);
- Work and practice-based learning (Beckett and Hager, 2002); and
- Peer learning (Boud and Lee, 2005).

3.3 Creativity is socially situated

Creativity is a socially situated phenomenon, which both benefits from and depends upon the inputs of others. As an early and prolific writer on child development, Vygotsky (1978:57) proposed a theory of development whereby creative imagination, a higher mental function, develops from a child's play interactions. He saw imagination as a consciously directed thought process learned through collective social interactions, so that 'every function in the child's cultural development appears twice: first on the social level, and later, on the individual level; first between people

(interpsychological) and then inside the child (intrapsychological)'. By interacting (through play) with an adult or more capable peer, the child creates a *zone of proximal development*. Vygotsky coined this term to describe the higher level of performance the child benefits from through social interaction.

An early authoritative text on creativity was Koestler's (1964) *The Act of Creation*, which takes a broad conception of creativity and, similarly, emphasises its social dependencies. Koestler's general theory of human creativity in art, humour, and scientific discovery pinpointed the role of external influences on an individual's creative thought process. Citing the scientific 'discoveries' of Kepler, Kelvin, Newton, Pasteur, and Fleming, Koestler demonstrated the way all ideas develop through cross-fertilisation and recombination of existing components. Human beings do not, he argued, ever 'create' wholly original thinking.

3.4 Creativity is studied from different perspectives

In her review of the different views of creativity, Beattie (2000) proposes that, since 1950, creativity has been analysed from nine different perspectives, which are:

1. cognitive;

2. social-personality;

3. psychometric;

4. psychodynamic;

5. mystical;

6. pragmatic or commercial and, latterly, more postmodern approaches;

7. biological or neuroscience;

8. computational; and

9. context, systems or confluent approaches.

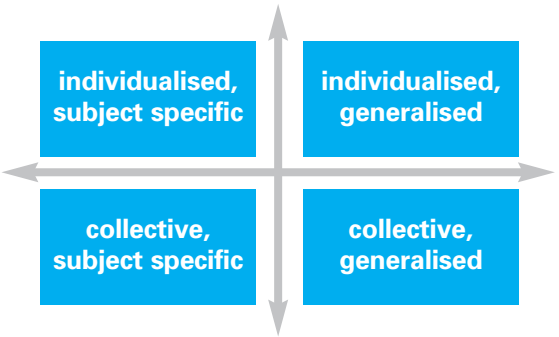
In noting the range of approaches to the study of creativity, she picks up on different themes explored through research including women and creativity; politics and creativity; and levels and types of creativity, either generally, or within specific subjects such as art education.

Kozbelt *et al*. (2010) similarly list ten major categorisations of 'theory types and orientations':

1. developmental
2. psychometric
3. economic
4. stage and componential
5. process
6. cognitive
7. problem solving and expertise-based
8. problem finding
9. evolutionary
10. typological and systems

The different views of creativity can be classified using two bisecting continua. One spans the range of views from creativity as an *individualised* phenomenon to creativity as a collective endeavour. This intersects the line representing the range of views that hold creativity as domain-specific versus those that hold creativity as *domain-free*. The two-by-two matrix produced gives rise to four dimensions of creativity, as shown by Craft (2008a) in a piece of work that formed part of her team's advisory role to DCSF, co-ordinated by CapeUK and shown in Figure 1:

Figure 1: **Creativity: Person and location**



With reference to the *individual/collective spectrum*, Craft writes that:

> Some creativity theorists would dispute the very existence of an individual view of creativity, arguing that evidence suggests that, even in what appears to be the most individualistic of enterprises, individual endeavour is linked to that of others, across time and space… (Craft, 2008a:7)

Looking at the *subject-specific/domain-free* continuum, Craft comments that:

> Whilst some views of creativity argue that at its heart, creativity in one domain is the same as in another, in that it ultimately involves asking 'what if?' in appropriate ways for the domain…, others would argue… that creativity cannot be understood without reference to the domain of application… (ibid.)

Craft's matrix is a useful way of categorising theories of creativity, as each will have implicit or explicit assumptions about where they lie on each of the two continua.

Citing Mooney's 1963 model for integrating four approaches to the identification of creative talent, Beattie (2000) summarises four components that provide a basis for discussing creativity. Eysenck (1996) listed the same four dimensions: the creative *environment* (or place); the creative *product*; the creative *process*; and the creative *person*. To this list, Kozbelt and colleagues' (2010) synthesis of theories of creativity notes that others have added to the list *persuasion and potential*.

Kozbelt *et al*. (2010) use this framework of six Ps as a way of codifying a wide range of issues in the study of creativity. *Process* theories explore the nature of mental mechanisms, or the 'stages' of processing, occurring when individuals engage in creative thinking or activity. Plsek (1997) draws together some of the more prominent models of creativity in this respect. *Product* foci tell us much about the artefact and even about the highly creative individual, but can tell us less about the individual whose creative potential is yet to be fulfilled. Cowdroy and de Graaff (2005) suggest that the crux of the problem of assessing creative ability through products is this:

> …given a work to assess, what is there to indicate that there was any creativity beyond the crafting? That is, what is there to indicate that there

> was any creative imagination involved? We may be able to judge that a work is innovative, even unique, but was it a fortunate aberration or was it the outcome of genuine creative imagination? And, if the latter, was it highly creative or exceptionally creative? (Cowdroy and de Graaff, 2005:509)

Continuing with Plsek's (1997) list of models of creativity: creative *person(ality)* approaches compare traits indicative of creative potential within and across different domains. Research on place attempts to define interactions between the creative individual and the environment, and Amabile's (1988) exploration of organisational climates that support creativity is a key example of this work. The persuasion perspective emphasises the importance of the impact the creative individual has upon the domain within which their creativity is situated. The issue of domain specificity is a source of contention to which this review will return. Kozbelt *et al*. (2010:25) cite Runco's recent work suggesting that the P's could in fact be further organised into a hierarchy beginning with theories of creative performances vis-à-vis creative *potential*; with the latter including creative personality and place 'and any other perspective that appreciates yet-unfulfilled possibilities and subjective processes'.

Chappell and Craft's (2011:381) work exploring the co-creation of creativity in young people studying dance is an example of work that focuses on the context, or *place*, where creativity is developed. 'Place' refers to the setting of creative partnerships between dance-artists and teachers. The authors develop their analysis with reference to Bronfenbrenner's micro-, meso-, exo-, and macro-systems within which the fostering of creativity, through 'dialogue within creative learning conversations and living dialogic spaces' takes place.

These classifications are potentially useful in distinguishing approaches to the study of creativity. For the purposes of this review and the study it informs, several of the approaches are more appropriate. Our focus on progression emphasises the creative 'person'. The individual's creative 'potential' is also relevant for an approach that sees creativity as learnable. While assessment of the individuals' creativity may involve documenting thought processes and actions that led to development of a creative product, and it may involve looking at products (final or draft) as evidence of

the processes and individuals' creative dispositions, we do not look at the assessment of the creative product or process *per se*. Neither do we propose to make judgments about the extent to which an environment is or is not conducive to creativity, although our later exploration of the tensions within the school environment suggests that 'place' itself may not be.

3.5 Creativity has levels

A number of authors distinguish between levels of creative magnitude: between small c 'creativity' and big c 'Creativity'. In their synthesis of creativity theories, Kozbelt *et al*. (2010:23) identify a number of reasons for this, summarising that the distinction between creativity in the 'everyday' and creativity as 'genius' or 'eminent' allows for 'a more complete consideration and conceptualization of creativity'. For example, focusing only on the 'genius' level focuses attention on the creative product, rather than the creative process, or indeed creative potential that never materialises into a product.

To address the potential limitations of shoehorning creativity into two categories, Kaufman and Beghetto (2009) proposed a 'Four C' model of creativity, adding two further categories to big and small c: 'mini-c' and 'Pro-c'. These include the creative potential of children, and the creative productions of professionals. They suggest that the Four C model could be useful for working out the best form of assessment, the best form of motivation, or the level of domain-specificity particular to a given creative phenomenon, once it was classified according to their model. Kozbelt *et al* (2010) suggest that while use of categories for classifying creative phenomena is always limited by its very nature, the usefulness of these four categories could be rather for comparing the focus and scope of creativity theories, a function which Kaufman and Beghetto acknowledge.

3.6 The creative individual has observable attributes

Early work by Guilford examined creativity from a psychological trait theory perspective. His definition of traits linked them with the broad categories of aptitudes, interests, attitudes and temperamental qualities. From his

perspective, the 'creative personality is then a matter of those traits that are characteristics of creative persons' (Guilford, 1950).

In 1950, Guilford posed two questions: '(1) How can we discover creative promise in our children and our youth, (2) How can we promote the development of creative personalities'. His solution was a traits approach using factor analysis to explore the traits comprising the creative personality. Recognising that *intelligence quotient* (I.Q.) did not fully account for creative talent, nevertheless, the means by which he planned to fulfil his goals was through the assumption that 'carefully constructed hypotheses concerning primary abilities will lead to the use of novel types of tests' (Guilford, 1950:444).

Despite the multidimensional nature of creativity, a consensus is now emerging that suggests that creativity comprises a number of observable attributes which could serve as indicators of the presence of creativity in individuals. Csikszentmihalyi wrote that the key difference between creative people and their less creative peers is the 'complexity' of their tendencies of thought and action. Those veering toward creativity 'tend to bring together the entire range of human possibilities within themselves' (1996:57). This is not to say that only a privileged few have capacity for creativity, but that the creative side is nurtured and cultivated in the process of developing maturity. Csikszentmihalyi's 'creative individual' moves between two opposing tendencies: that of competitiveness, and that of cooperativeness; experiencing each at the appropriate time and without inner conflict. Ten pairs of traits show how the complex 'creative personality' exists in what Csikszentmihalyi refers to as 'a dialectical tension' (1996:58). The creative individual:

1. combines their capacity for physical and mental exertion with an ability to be quiet and restful.
2. is 'smart' and yet shows naivety.
3. shows a playful attitude while remaining disciplined.
4. has a capacity for imaginative thinking that is limited only by a firm sense of reality.
5. expresses characteristics of both an introvert and an extrovert.
6. is aware of the importance of their contribution, yet its place on a larger 'stage'. They thus combine pride with humility.
7. escapes the rigid role of gender stereotyping and can thus be aggressive and nurturing.

8. values the traditions of their discipline, yet seeks to break its boundaries: is conservative yet rebellious.
9. is passionate while remaining objective.
10. is willing to experience, and yet is sensitive to, extremes of emotion and sensation.

Edward De Bono is acknowledged as a leading authority in the field of creative thinking. His *Six Thinking Hats* is particularly popular in the world of business and also, increasingly, in schools, where teams apply the six 'Hats' or modes of thinking in turn to reach creative solutions. The 'Green Hat' represents creative thinking, a kind of lateral thinking encouraging individuals to look actively for alternatives[9].

In terms of specific attributes of the creative individual, our review stands on the shoulders of other meta-analytical reviews of the creativity literature. A key meta-analysis is that of Treffinger *et al.* (2002) because of its systematic review of 120 definitions of creativity. This review located definitions of creativity in papers exploring the traits, characteristics, and other personal attributes distinguishing highly creative individuals from their peers. They chose fourteen key definitions (shown in Appendix 1) to represent the breadth of variety in emphasis, focus, and implications for assessment of the definitions. From these 120 definitions they compiled a list of characteristics (cognitive, personality, and biographical), cited in at least three sources, clustering them into four categories:

- generating ideas,
- digging deeper into ideas,
- openness and courage to explore ideas, and
- listening to one's 'inner voice'.

These are not simply traits located within the individual as, the authors note, many definitions of creativity challenge the notion that traits alone are sufficient. Fillis and McAuley (2000:9), for instance, cite the work of Amabile as they assert that 'examining creativity from a trait perspective can have limited impact, given that social surroundings have also been shown to impact upon creative behaviour'.

[9] www.debonoconsulting.com/green-hat-thinking.asp

3.7 Creativity has a large research following

There are recognised bodies excelling in research and promotion of creativity both UK-based and overseas, for example:

- *The Torrance Center*[10] at The University of Georgia;
- The Buffalo State University of New York's *International Center for Studies in Creativity*; and
- Harvard's *Project Zero*.

UK-based bodies include a number of university centres such as:

- City University's *Centre for Creativity in Professional Practice*;
- St Andrews' University *Institute for Capitalising on Creativity*;
- Open University's *Open Creativity Centre*; The University of Exeter's *CREATE (Creativity Research in Education at Exeter)*;
- *The Creativity Centre* at University of Brighton;
- *The Centre for Creativity and Learning* at University of Sunderland;
- *The Centre for Creativity and Enterprise Development* at Oxford Brookes;
- University of Sussex' *Attenborough Centre for Creative Arts*; and
- *The CAPITAL Centre* at University of Warwick.

The British Educational Research Association has a Special Interest Group, Creativity in Education convened by Anna Craft, and formed in 2001 as a knowledge exchange for researchers, policymakers, and practitioners in creativity in education. A number of UK schools gained status as centres of enterprise to exemplify certain ways of thinking. The UK government's Creative Partnerships programme designated 57 schools as national Schools of Creativity as part of a strand of the programme that ran from 2008 - 2011[11].

[10] www.bera.ac.uk/creativity-in-education
[11] See www.creative-partnerships.com/about/schools-of-creativity for a full list of the schools and explanation of aims of the Schools of Creativity programme.

The words ‘creativity’ and ‘creative learning’ filter into many areas of society. …It is also linked to intelligence and thinking (Farquhar, 2004) and its values have ‘taken on the force of a moral agenda’ as it becomes ‘more or less compulsory in an increasing number of areas of life’.

(Osborne, 2003:507)

4 How is creativity experienced in society

In this chapter we ask how creativity is manifest and valued in society. Creativity is discussed in a number of ways through sometimes conflicting rhetoric which creates tension in society. We provide an overview of the historical and political context briefly.

4.1 As a characteristic of the working life

The words 'creativity' and 'creative learning' filter into many areas of society, not restricted to those fields of work held to be traditional 'creative industries' or to the expressive arts. Creativity is acknowledged as important in science, technology, business management and sport. It is also linked to intelligence and thinking (Farquhar, 2004) and its values have 'taken on the force of a moral agenda' as it becomes 'more or less compulsory in an increasing number of areas of life' (Osborne, 2003:507).

In his book *The Rise of the Creative Class*, Florida (2002) suggests that creativity is held as the most important competence by many employers, increasingly characterizing the working life. Examples from specific industries illustrate this point. Darby, for instance, cites creativity as a core skill required for 'the next generation of professional journalists' (2010:7). Banks *et al*. (2002:262) suggest that the media industry (at SME level in particular) 'increasingly values managers who can successfully generate the required levels of creativity and creative action within individuals and teams'. Allen and Coleman speak of the importance of creativity for all graduates, as higher education institutions' aspiration statements declare creativity to be 'an attribute that graduates require to successfully engage in contemporary and future professional life' (2011:59). Indeed, creativity is 'a central concept in a number of disciplines, ranging from the fine arts and architecture to psychology, science and management studies' (Fillis and McAuley, 2000:8).

4.2 The view of the 'creative industries' and 'creative practitioners'

The creative industries emerged 'as a discourse and policy construct' towards the end of the 1990s (Oakley, 2009b). At this time, the creative

sector in the UK was a significant focus for the new Labour government of 1997 in its pre-election strategy. Labour claimed that the arts and cultural industries were among the most profitable of the British economy, and that evidence-based policy would play a vital role in developing it. Rigorous policy research remained, nevertheless, scarce. Creigh-Tyte's (2005:178) study of the economic data available for helping British Government meet its goal of creating an environment for sustainable growth found that 'policy towards many of the creative industries is handicapped by a limited evidence base'. The sector is broad, and in the UK the sector contains 13 industries, according to the Department for Culture, Media and Sport's (DCMS, 2001) *Creative Industries Mapping Document*. These include: advertising; architecture; art/antiques trade; crafts; design; designer fashion; video, film, music and photography; music and the visual and performing arts; publishing; software (including leisure) and computer services; radio and television.

There is debate, however, about precisely what the so-called 'creative industries' incorporate, as noted by authors as distant from one another as Austria (Poettschacher, 2010), England (Banks, 2010), Scotland (Galloway and Dunlop, 2007) and Australia (Cunningham, 2002, Flew, 2002, O'Connor, 2009). The debate does not just concern which types of activity or organisation should be labelled as 'creative' but what such an organisation might look like. Poettschacher (2010) argues that 'the dichotomy between 'real' creativity 'carried out by professionals and all other types of creativity carried out by 'ordinary' people' is mythological. If we are to take the perspective that creativity is not limited to a few individuals with 'creative genius', and that it is not the creative genius who sets the 'creative' business apart from the 'non-creative' business (but a whole range of other factors linked to the unique 'cultural DNA' of each business) our thinking about what constitutes the creative industries and, thus, how they should be supported by policy, must change. Further, if certain industries are labelled as 'creative', this puts the focus on individuals, and what the organisation produces rather than what it does: 'it is essentially output rather than process driven' and 'rules out the role of social context in the creation process' (Banks *et al.*, 2002:256).

The value of attracting creative graduates to a broad range of industries, and recognition that modes of assessment must reflect this need, has been recognised by higher education institutions as well as by

educationalists, 'transformative learning theorists', cultural commentators, and industry leaders. Allen and Coleman (2011:60) cite a 2010 global study of CEOs by IBM that found creativity was 'believed to be the most crucial factor for a company's future success'.

As the so-called 'creative sector' is broad and loosely defined, there is no consensus from within about the significance or desirability of assessing creativity in those individuals it employs. Within elements of the creative sector in the UK there is a recognised need to understand various aspects of creativity and how they affect the organisation. For example, within cultural institutions Falk and Dierking (2008:233) suggest that organisational excellence should be measured in three areas: support of the 'public good'; financial stability; and, most significantly, 'organisational investment'. This latter, includes nurturing a climate and culture of creativity. Within small and medium media enterprises, Banks *et al.*'s (2002:255) research suggests that the *management* of creativity, although 'strongly determined by the internal workplace culture, and the external social and economic conditions within which firms operate', was often necessary in order to stimulate creativity by introducing challenge, uncertainty, and encouraging individuals to step outside of their comfort zones.

Creative Partnerships uses the term 'creative professionals' to refer to those artists, architects, and scientists who helped to deliver Creative Partnerships programmes (as Creative Agents) or who worked directly with students and teachers as 'creative practitioners'. Referring to policy sources including DfEE, QCA, and DFES, one local Creative Partnerships office produced a report for teachers entitled *The Creativity Wheel: Assessing creative development* (Redmond, undated). In this report, the team proposed that 'the principal purpose of assessing creative development is to better understand pupils' needs for appropriate experiences that will promote and develop their creative behaviour'. This outcome was posited to arise from immediate outcomes of whole school improvement, improved learning, and improved teaching. Such value judgments about the purpose and outcomes of assessment necessarily emphasise *formative* rather than *summative* assessment. Indeed, in his Creative Partnerships research report, *Creative Practitioners in Schools and Classrooms*, Galton (2006:75) found that teachers and creative practitioners both assigned importance to assessment of creativity, but differed in their interpretation of its purpose so that

'whereas for teachers, evaluation is primarily about whether the pupils have achieved the set criteria, for creative practitioners its main purpose is to indicate possibilities for the learner's future development'.

In terms of creative practitioners, there is a lack of clarity about whether creativity can (and should) be assessed. One study shedding some light on this issue is Rogers and Fasciato's (2005) exploration of conceptions of creativity by primary school teachers. This study raised questions about the extent to which there was even a shared understanding of creativity in the classroom. The authors found marked differences in teachers' responses to the question 'can creativity be assessed?' Of trainees at two institutions, they found 43% of trainees to be very certain that creativity could be assessed at one institution, compared with 12% at the other. Most teachers problematised the question in some way, recognising a complex set of issues surrounding assessment of creativity; whether, and how, it should be assessed.

4.3 As an educational policy focus

The strong policy focus that creativity has received in education, worldwide, shows no sign of abating. In the western world, globalisation and the forces of capitalism have driven an individualistic value system. Creativity has established itself as an important element of economic success in this system, which places value 'on individuality and being open to thinking generatively in ways that may involve challenging social and other norms' (Craft, 2008c), and as an important aim of the 2000 English National Curriculum (QCA, 2004) as well as being acknowledged in the EU Council's conclusions on key competencies, where the importance of creativity was evident in all the basic competencies (Hingel, 2009). Creativity is spoken of as though it is a panacea for ensuring individuals, and thus, nations remain competitive and businesses are successful. The tendency of politicians and economists to use the term instrumentally in this way, however, 'binding it to the future needs of the workforce without questioning substantive issues' is questioned as contentious by Gibson (2005). Some of the implications of this are explored further in section 4.5 and chapter 6.

4.4 Policy discourse: concept convergence

CCE has previously commissioned a number of reviews of different aspects of creativity. Three in particular touch on the issue of policy discourse, and the extent to which the discourse of policy makers is in agreement, or shows contradiction from one policy to another. One of these reviews (Oakley, 2009a) finds agreement in contemporary policy rhetoric that the meaning of creativity is relatively well established, with the field emphasising the compatibility of creativity and economic change.

In another review, Banaji *et al*. (2010) suggest that there are nine different uses (or 'rhetorics') of the term 'creativity', each of which brings to bear its own set of assumptions and implications. They use the term 'rhetorics' to mean claims that have emerged from academia, research, policy, and practice. Although reflecting different understandings, the use of rhetorics allows consensus building around identifiable areas of discourse, and allows educators and practitioners to situate their own views within these areas of discourse. The nine rhetorics are outlined briefly.

1. Creative genius: this 'post-romantic' rhetoric argues for 'creativity as a special quality of a few individuals'. It traces its roots to Kant's *Critique of Judgment*.
2. Democratic and political creativity: an 'anti-elitist' rhetoric that argues for creativity as 'inherent in the every day cultural and symbolic practices of all human beings'. It stems mainly from empiricist traditions as the experiences of individuals led to creative transformations in society.
3. Ubiquitous creativity: a 'skills' rhetoric that argues creativity is about 'having the flexibility to respond to problems and changes in the modern world'. It originated mainly in early years education.
4. Creativity as a social good: this 'inclusion' rhetoric sees 'educational policy of the arts as tools for personal empowerment and ultimately for social regeneration'. Its origins lie in 'contemporary social democratic discourses of inclusion and multiculturalism'.
5. Creativity as economic imperative: an 'economic prosperity' rhetoric that argues that 'the future of a competitive national economy' depends on flexibility and problem solving skills of workers and managers. It traces its origins to neo-liberal economic thinking.

6. Play and creativity: a 'creativity as play' rhetoric that sees play in childhood as 'the origin of adult problem-solving and creative thought'. It emerged from Romantic thought; specifically Rousseau.
7. Creativity and cognition: a 'psychological and scientific' rhetoric that sees creativity in those terms, looking both at 'the internal production of creativity by the mind, and at the other extreme on external contexts and cultures'. This rhetoric derives from Piaget, and (on the social side) Vygotsky, Dewey and Bruner.
8. The creative affordances of technology: a 'social and situational' rhetoric that links technological developments with creativity.
9. The creative classroom: a 'pragmatic' rhetoric that explores teaching and learning within the framework of a tightly regulated curriculum and aims to give advice to educators.

The sheer breadth of these discourses; from the exclusive to the inclusive; from economic well-being to individual empowerment, illustrates clearly the diversity of thought surrounding creativity. In the context of this review, a number of these rhetorics are relevant; particularly the ideas of 'skills', 'inclusion', 'economic prosperity' and 'psychological and scientific'.

4.5 Policy discourse: the economic imperative

Another review for CCE by Ken Jones (2009:60) takes the view that there is a general agreement 'discursively, at least, [that] creativity is established as central to economic life'. It is a means of handling economic change successfully. For education, this means prioritisation of the development of creative citizens.

Jones delves deeper into the critique of this perspective, however. He observes that the notion of creativity as a source of economic value has little evidential support. Citing Richard Sennett, Jones observes that this perspective 'puts a premium on quick but superficial skills [including] teamwork and initiative that are characteristic of descriptions of the creative workplace' (2009:59).

The perspective of creativity as a source of economic value also leaves little room for a view that sees creativity as a species-enhancing capacity or as the bringer of wellbeing that Csikszentmihalyi (1997:113) writes of in his

discussion of 'flow', which is an optimal experience borne out of the creative process . He writes: 'In many ways, the secret to a happy life is to learn to get flow from as many of the things we have to do as possible'. As the pressures on people's time are ever expanding it seems that, by dint of losing a sense of that time and becoming fully engaged in the creative experience, things become worth doing for their own sake and the rewards are a huge sense of wellbeing and enjoyment.

4.6 Policy discourse: contradictions

In discussing policy, Banaji *et al*. (2010:23) conclude that 'at the level of policy, creativity is being constructed in quite contradictory ways'. As evidence for this, we see an incongruity between the supposed importance of creativity and its marginalisation on the curriculum. For example, Menter's (2010) review of teacher 'formation' (the development of their professional identity), points to a contradiction between the forces of performativity (performance, targets, and accountability) and creativity still present within the current educational climate. This issue of a performativity culture is but one of a number of tensions that pose a challenge to assessment of creativity that will be returned to later in our section exploring the tensions between schools and creativity.

This contradiction affects the learner: Abbs (2003:9) claims that most changes in English education in the last twenty years 'have engineered a vast prescriptive system of convergent learning…at the expense of the potential creativity of the overloaded learner'. And for the teacher, Siraj-Blatchford (2007:6) observes that despite efforts to encourage development of greater creativity, 'colleagues have often expressed frustration that their efforts in this direction have been undermined by other initiatives (often seen as 'top-down') that have been focused on teaching young children basic (especially literacy and numeracy) skills.'

Witkin (1974) similarly recognised a tension in English and the arts, whereby teachers' claims for the importance of self-expression, and their suppression of it, perhaps in order to fit pupil responses within a fairly restricted set of acceptable arguments for standardised assessment were at odds with each other. Hardy illustrates the potential impacts of just this kind of a mismatch between creativity and its assessment:

> I recall the sense of injustice felt when an exquisite pen and ink drawing submitted as an exam piece in the days before coursework was awarded a D grade by the old London Examination Board. When queried, the examiner explained that it would have been awarded an A if entered as an illustration but as a fine art submission it was too linear. (Hardy, 2006:270)

There may be a practical tension, too, with respect to classroom discipline. Menter (2010:49) points out that while few would argue against the desirability of developing creativity in pupils, 'one might expect that the more creative people are, the more dissent and diversity will emerge. These are not tendencies that are always welcomed in institutional educational settings'.

Further evidence of this contradiction is seen in a comparison of two policy imperatives: discourse around 'social inclusion' treats creativity's facets as being important for all individuals in the wider economy, and not confined to an elite minority. Compared with the 'gifted and talented' provision, we can see two distinct 'rhetorics' (an 'elite' and a 'democratic' view of creativity) with two distinct purposes (Banaji *et al*, 2010). Ken Robinson, in the NACCCE report (National Advisory Committee on Creative and Cultural Education, 1999:30), claims to favour a democratic conception of creativity; this is to say, 'one which recognises the potential for creative achievement in all fields of human activity; and the capacity for such achievements in the many and not the few'. Banaji *et al*. (2010) argue, however, that the discourse of the report is more indicative of an elitist rhetoric.

Having reviewed the different ways in which creativity is discussed and studied Banaji *et al*. (2010:73) we would suggest that there are still unanswered questions (see Banaji *et al*. 2010: 73-74). Creativity is seen as both all-pervading and everyday, and yet also domain specific, depending on the discourse. This gives rise to Banaji *et al*'s question: 'how might democratic accounts of creativity, which avoid the problem of elitism, nevertheless accommodate notions of exceptional talent?'. It also gives rise to issues of assessment: educators wishing to develop and monitor everyday creativity may spot creativity in every piece of work or action of a child. In another context it may be inevitable, however, that more domain specific definitions 'related to forms of aesthetic effect and judgment' (Banaji *et al*., 2010:60) are required to allow adequate assessment. These issues are returned to, along with other tensions, in section 6.

While its rhetoric and the reality faced by schools may be at odds …education policy widely positions itself as putting creativity at the centre of learning for all children (rather than an elite minority) in order to ensure that pupils are able to solve problems and challenges beyond the classroom.

5 How is creativity experienced in schools?

In this chapter we ask how policymakers and third sector organisations drive the creativity agenda in schools. Policy in England has attempted to re-shape the curriculum to allow for creativity's development and positioning at the centre of school learning. A two-pronged approach through the 'Personal Learning and Thinking Skills' (PLTS) framework, and a proliferation of development organisations, has led to a body of emerging best practices around creative teaching, and teaching for creativity.

5.1 Curriculum: creativity as a priority

Since the late 1990s creativity has become increasingly important in education, coinciding with a recognition that its growth in society at large is beneficial from a social and economic perspective (Craft, 2003). Craft (2003:116) cites 'an increasing number of policy statements including changes to the school and pre-school curriculum to encompass creativity, and government-funded development projects established within education, designed to nurture pupil and teacher creativity' as evidence for this.

While its rhetoric and the reality faced by schools may be at odds (we discuss the tension between the creativity and performativity agendas in schools in section 6.6) education policy widely positions itself as putting creativity at the centre of learning for all children (rather than an elite minority) in order to ensure that pupils are able to solve problems and challenges beyond the classroom. For example, QCA's understanding of creativity (Banaji *et al.*, 2010:23) is that it 'improves pupils' self-esteem, motivation and achievement'; it 'prepares pupils for life'; and it 'enriches pupils' lives'.

Education in the arts is considered important because the creative skills and attributes it entails are necessary in the wider economy, not just in the arts and related fields of employment where they may be highly developed. The significance of creativity thus penetrates beyond the arts, as creativity within the curriculum has become 'a wider conception that draws on ideas about entrepreneurialism and so can be seen as touching many, if not most, curriculum areas (Menter, 2010:48).

5.2 Curriculum: creativity beyond the arts

This broader 'beyond the arts' view of creativity was not always the case. In response to the Government's 1997 White Paper *Excellence in Schools, The NACCCE report* (1999) shed light on the undervaluing of arts, humanities, and technology. It served to highlight the disparity between the need for flexible, responsive learners in the economic climate of the time, and the proliferation of tests that favoured recall over critical thinking (Oakley, 2009a).

Ken Robinson stated in the NACCCE report that Britain's economic prosperity required a national strategy for creative and cultural education. The language of subsequent education policy has spoken of creativity as a necessary life skill for all individuals, and an important focus for education policy. This emphasis has filtered through into schools.

5.3 Curriculum: creativity at the centre

After considering a wide range of evidence, the NACCCE report presented creativity as 'imaginative activity fashioned so as to produce outcomes that are both original and of value' (1999:30). From this understanding stemmed the Qualifications and Curriculum Authority document *Creativity: Find it, promote it* (QCA, 2004), which recommended to ministers that creativity be placed at the centre of the curriculum. The QCA document formed the NACCCE report's definition into a series of observable creative behaviours within the themes of:

- questioning and challenging,
- making connections and seeing relationships,
- envisaging what might be,
- exploring ideas and keeping options open, and
- reflecting critically on ideas, actions and outcomes.

In the late 1990s, following the establishment of the National Curriculum (1988) and National Literacy and Numeracy Strategies (1998 and 1999), concerns were voiced that creativity and innovation in teaching had become constrained (Loveless, 2002, The House of Commons, 2007). Throughout the last decade the emphasis on accountability driven by The National

Strategies has led to a certain kind of 'well-paced' lesson in three sections; a starter, the substantial content in the middle and a plenary to check understanding at the end. While desirable in many ways in terms of structure, this framework has restricted more creative approaches to teaching and learning, as identified in the 2008-09 report 'National Curriculum' (The House of Commons, 2009):

> Part of the problem with the National Strategies guidance in this respect is that it has often promoted a particular approach as the 'one best way', whether, for example, objective-led lessons, the three-part lesson or synthetic phonics. This is all the more problematic given the suggestion that the National Strategies have typically been supported by post-hoc justification based on selective use of the available evidence. (The House of Commons, 2009:s.84).

5.4 Change: new frameworks

The English Government's response to the concerns of the NACCCE report and other parties was twofold. Firstly, to tackle the issue from within schools, the 'Personal Learning and Thinking Skills'[12] framework was introduced at Key Stages 3 and 4. This served to earmark room within the school day for the development of six groups of skills, one of which was 'creative thinking'.

Secondly, in tandem with this approach, the Government instigated a range of projects through agencies external to the school. These aimed to improve learners' creative experiences, and included the Culture Online service, and Creative Partnerships. There has been a proliferation of development work both in and out of schools, supported by a range of organisations (Grainger *et al.*, 2005) including The Arts Council, through Creative Partnerships[13], by the Qualifications and Curriculum Authority[14] by the National College for Leadership of Schools and Children's Services[15] and by the government's training scheme through the Teacher Development Agency (TDA)[16].

12 http://curriculum.qcda.gov.uk/key-stages-3-and-4/skills/personal-learning-and-thinking-skills/index.aspx accessed 17 September 2011. The full list of six groups was: independent enquirers, creative thinkers, reflective learners, team workers, self-managers, effective participants. See section 6.5 for more on this.
13 www.creative-partnerships.com
14 www.qcda.gov.uk
15 www.nationalcollege.org.uk/publications
16 https://cpdsearch.tda.gov.uk/ProvisionDetail.aspx?e=fQCguFY5tkyuJPeymYnInlzRNSzuTT/6

5.5 Change: new partnerships

Creative Partnerships brought arts and creative approaches to learning into English schools for nearly a decade, working with over a million children (Lammy, 2010) and bringing about positive effects on the attainment of young people (Kendall *et al.*, 2008), although budget cuts announced in November 2010 by England's Coalition Government (elected in May 2010) have led to withdrawal of funding by the Arts Council (Thorpe, 2011)[17].

Find Your Talent[18], ran as a CCE pilot across 10 areas in England between 2008 and 2010, when funding ceased. Access to cultural experiences through the programme was linked to the development of personal life skills including creativity and problem solving, and emerging lessons are informing the work of CCE.

5.6 Change: new organisations

During the last decade many others have contributed to the body of emerging practices around development of (among other things) creativity in young people and more creative ways of teaching. These include, for example, Building Learning Power[19], the Campaign for Learning's work on learning to learn[20], the Learning Outside the Classroom alliance[21], the RSA's Opening Minds[22], Musical Futures[23], Open Futures[24], and Philosophy for Children[25]. Most recently, the Expansive Education Network[26], supported by eight UK universities, provides Action Research training for teachers who want to focus their classroom practice on prioritising the development of useful, transferable habits of mind in children and young people.

17 www.guardian.co.uk/education/2011/jan/09/creative-partnerships-funding-cut
18 www.findyourtalent.org
19 www.buildinglearningpower.co.uk
20 www.campaign-for-learning.org.uk/cfl/index.asp
21 www.sportandrecreation.org.uk/projects-programmes-and-initiatives/aaiac/learning-outside-the-classroom
22 www.thersa.org/projects/education/opening-minds
23 www.musicalfutures.org.uk
24 www.openfutures.com
25 www.philosophy4children.co.uk
26 www.expansiveeducation.net

5.7 Change: new curriculum

Following the announcement on 20 January 2011 that the Coalition government of Conservatives and Liberal Democrats would review the National Curriculum in England[27], recent changes to the English National Curriculum may further impact what is valued in schools. The government's priority is stated as ensuring that: 'the National Curriculum be slimmed down so that it properly reflects the body of essential knowledge all children should learn and does not absorb the overwhelming majority of teaching time in schools' (DfE, 2010). If this proposed change creates more space within the curriculum for creative learning and activities, as some commentators are advocating (Dunford, 2010, Lammy, 2010), then creativity will not suffer. On the other hand, if 'creative' subjects, the arts, and other opportunities for creative thinking and learning are marginalised by the changes, this will be to the detriment of creativity.

The context for the changes is described by Winter (2011:6) who identifies three phases of KS3 policy reform that took place in 1995, 1999, and 2007; each 'heralded a slimming-down and loosening of centrally prescribed knowledge content within the integrity of the separate subject framework'. In 2008, and revised in 2010, the QCA's new approach was to allow schools freedom to 're-organise the traditional subject-based curriculum in radical and innovative ways', providing non-statutory guidance around personalised learning, thinking and social and emotional skills relating to humanities and English in secondary schools. These changes were indicative of a global trend toward reconceptualising school subject knowledge into more skills-centred approaches to knowledge.

Winter cites a 2005 QCA argument that National Curriculum knowledge, and the sorts of knowledge required for life in the new millennium, are at odds. Part of the English solution was to introduce the SEAL guidelines (Social and Emotional Aspects of Learning) in order to generate 'connections between subjects and cross-curricular dimensions' (Winter, 2011:9). A concurrent problem was the international skills deficit. Part of the English solution was to develop the PLTS framework, with its six groups of skills (independent enquiry, creative thinking, reflective learning, team work, self-management and effective participation). Harris and Burn (2011: 245) argue that this

[27] www.education.gov.uk/schools/teachingandlearning/curriculum/nationalcurriculum

approach to 'policy-making is divorced from curriculum theory, and in particular from any consideration of the nature of knowledge'. Rather than promoting a pedagogy that fosters development of learning dispositions within a subject context, forces asserting the importance of the 'development of skills for life and work' have ensured that these are meshed into the curriculum in such a way that 'destroy[s] the security, and certainly the integrity' of the place of certain subjects within mainstream education.

The 2011 review has a remit to reduce prescription in terms of the number of subjects covered but simultaneously to give closer attention to what constitutes 'essential knowledge' in a more limited range of core subjects (McCormick and Burn, 2011). According to Michael Gove, the Secretary of State for Education, 'what is crucial is first identifying the crucial concepts and ideas that each year group should learn' (Oates, 2011:121). The reviewing panel's report (DfE, 2011:7) was intended to 'generate public discussion and and constructive contributions' to the review. Their recommendations centre upon reducing the remit of the National Curriculum to a limited range of subjects within the wider school curriculum (the totality of a school's curriculum). The new National Curriculum would set out 'a core of essential knowledge'. They propose that:

> …the existing curriculum subjects are retained in some statutory form (in either the National or Basic Curricula). However, to achieve a reduction in prescription we recommend that significant efforts are made to focus curriculum subjects on essential knowledge only, and that level of detail is specified carefully. (DfE, 2011:23).

The current system has 'core' subjects of English, mathematics and science. At Key Stages 1-3, 'foundation' subjects are Art and Design, Design and Technology, geography, history, information and communications technology, music, modern foreign languages, physical education, and citizenship (at KS3). At KS4, foundation subjects are citizenship, information and communications technology, and physical education. Under the panel's recommendations, 'core subjects' (English, mathematics, and science; as currently) would have detailed Programmes of Study and Attainment Targets. 'Foundation subjects' would have refined but condensed programmes of study, with minimal or no attainment targets.

The panel noted the importance of curricular breadth, which:

> …persuades us that most existing curriculum elements should be retained in some statutory form. However, we recommend that some subjects and areas of learning should be reclassified so that there is still a duty on schools to teach them, but it would be up to schools to determine appropriate specific content' (DfE, 2011:8).

The 'Basic curriculum' would thus include subjects whose contents and attainment targets were not specified centrally but were, nonetheless, statutory subjects.

One of the key recommendations for the purpose of this publication is that 'the arts' be made compulsory for KS4 in order to ensure that with the introduction of the English Baccalaureate (EBacc), the role of art and music should not be lost. 'The arts' would also include 'other aspects of the arts (e.g. dance and drama)' (2011:71). The panel recognise the importance of the arts for economic, social, cultural, and personal outcomes. They cite evidence that promotes the value of arts and humanities education to both pupils, specifically, 'pupil engagement, cognitive development and achievement, including in mathematics and reading'; and to the wider economy (2011:27). The UK's lead professional body for teachers of art, craft, and design, the National Society for Education in Art and Design (NSEAD) support the recommendations. In a letter to the Secretary of State for Education (NSEAD, 2012), they wrote 'we have received, and welcomed the recommendations for the National Curriculum in England published by the Expert Panel for the National Curriculum in December 2011'.

In 2011 the Department for Culture, Media and Sport and the Department for Education commissioned an independent review of cultural education. The resulting Henley Review (Henley, 2012) made 24 specific recommendations. One such recommendation was that the government develop a strategic National Cultural Education Plan where it currently has none. This echoes Ken Robinson's recommendation in 1999's NACCCE review – which we discussed in section 5.2 – that Britain's economic prosperity required a national strategy for creative and cultural education.

The Henley Review also called for the assignment of greater priority to 'design', 'dance' and 'drama' as discrete curriculum subjects within the

national curriculum and English Baccalaureate. The coalition government's initial response was positive, declaring a commitment to invest in solutions to a number of the recommendations (Department for Education, 2012). Commentators have shown concern, however, that the government has not yet given a clear indication that it is in agreement with the Henley Review's call for the place of arts and culture within the National Curriculum or English Baccalaureate (Arts Council England, 2012; Crump, 2012; Cultural Learning Alliance, 2012). If the government accept the position of both the expert panel and the Henley Review, there is hope that the changes may not be as detrimental to the subjects traditionally held to be 'creative' as some feared and, in fact – given some of the changes already being undertaken as a result of the Henley Review – may prove advantageous.

5.8 Teaching creatively or teaching for creativity?

Before moving on to the issue of making judgments about whether pupils are creative, we focus briefly on the terms *teaching creatively* and *teaching for creativity*, which reflect distinct ways that creativity is experienced in schools. The distinction between *teaching creatively* and *teaching for creativity* may shape up to be an unhelpful dichotomy, as pointed out by Craft (2005) in *Creativity in Schools: Tensions and Dilemmas*, which examines the issues surrounding creativity in schools. Her recent work with Jeffrey (Jeffrey and Craft, 2004) analyses the distinctions between the two terms, and what they both involve in practice. So while creative teaching may involve making learning more interesting, for example, teaching *for* creativity values the agency of the learner. A large body of work stemming from the mid 1980s to the mid 2000s focused on pedagogical strategies that foster creativity, without truly exploring the interrelationship between the two ideas. Craft notes that since that time, a programme of research has shifted focus to explore instead the creative impact of creative teaching upon learners. Jeffrey and Craft's (2004) findings showed that:

- Teachers who work creatively employ both *creative teaching* and *teaching for creativity* according to the circumstances they consider appropriate.
- *Teaching for creativity* may well arise spontaneously from teaching situations in which it was not specifically intended.

- *Teaching for creativity* is more likely to emerge from contexts in which teachers are *teaching creatively* even if the teacher was not planning to *teach for creativity*.

Learning environments themselves can also be conducive, or not, to creative learning. The QCA's (2004) *Creativity: Find it, promote it* suggests that schools which stimulate such learning:

- Value and celebrate creativity, the process as well as the outcome;
- Develop creative pedagogies by encouraging professional collaboration, within and beyond the school;
- Provide opportunities for pupils to experience a stimulating physical environment and to engage with creative people; and
- Manage time effectively, providing opportunities for pupils to explore and concentrate for extended periods of time to reflect, discuss and review.

The elements of a lesson and a learning environment that schools and teachers must address in order to foster creativity in pupils, are numerous. Craft (2005) cites her earlier work for the QCA looking at the many sources of evidence one might look to in making a judgment about whether an environment fosters creative learning. A useful tool designed to address issues around a school's creative offer to its pupils was developed as part of the Creative Partnerships programme – the Creative School Development Framework. This was developed to help schools assess different aspects of their school in relation to creativity. It is divided into five sections (leadership and ethos, curriculum development and delivery, teaching and learning, staff learning and development, and environment and resources).[28]

[28] https://creativeweb.creative-partnerships.com/guidance/090921/change-school-csdf-planning-form-guidance, descriptors-and-form.pdf

A House of Commons Select Committee acknowledged that developing new methods of assessing incremental progress is an urgent priority, which no-one appears to be taking forward

(The House of Commons, 2007).

…The fact remains that few educational programs, even well-conceived, well-designed ones are adopted universally, and for complex social, political and economic reasons (Perkins, 2001), **a number of issues complicate assessment of creativity.**

6 Schools and creativity: chalk and cheese?

The desire for children and young people to reach and expand their own capacities for creativity is shared by both leaders and policymakers in education. An exploration of the nature of creativity itself, and the way the educational environment itself is established, reveals a number of distinct tensions when creativity is brought into the school arena. In our earlier discussion of apparent policy contradictions (section 4.6) we touched on issues of ambiguity over the level of domain-specificity of creativity and pervasiveness of creativity. We tease out these and other ideas, here, as they relate specifically to education in England. Although the literature is largely school-based, it is reasonable to assume that the arguments would be relevant in colleges also.

A House of Commons Select Committee acknowledged that developing new methods of assessing incremental progress is an urgent priority, which no-one appears to be taking forward (The House of Commons, 2007). If tools are available then, why are they not in common use? The fact remains that few educational programs, even well-conceived, well-designed ones are adopted universally, and for complex social, political and economic reasons (Perkins, 2001), a number of issues complicate assessment of creativity. Issues with measuring creativity, for example, include among others reliability, validity, authenticity, honesty of self-assessment measures, and operationalisation of creativity (Ferry, 2003).

Despite the many complications of assessing creativity, it could be argued that difficult times bring out creativity. There are those who have held the assessment of creativity as a valuable venture. Work by Ellis and Barrs (2008:74) demonstrates how the implementation of new forms of assessment can stimulate interesting and vibrant classroom practice. They argue: 'we…feel that it is both possible and potentially valuable to assess creative work and creative learning…influencing teaching and learning in constructive and helpful ways'.

In terms of current research activity, there is a body of literature relating to development of creativity in individuals that focuses on the characteristics of highly creative individuals. The notion of 'possibility thinking' at the centre of creativity in education is about learners posing the question 'What if?', which has obvious implications for the practice of problem solving. What, then, are the philosophical, political, and practical issues inherent in any discussion of assessing creativity?

6.1 Tension: multi-dimensional nature of creativity

One such issue is the difficulty of securing a universal conception of what it means to be creative. Unsurprisingly, the assessment of a nebulous concept presents various challenges and existing tools have not secured universal acceptance.

Plucker and Makel's (2010:48) review of the creativity assessment literature notes the problems implicit in research that fails to address the definition of creativity which, they argue 'partially accounts for the often-conflicting research on the same topic'. Research by Rogers and Fasciato (2005) highlights the importance of consensus among teachers about how creativity is defined. Where teachers believed creativity to be an aspect of personality, they questioned the ethics of assessing it. The same may apply if teachers perceived that data was being used summatively, to monitor their own performance perhaps, rather than to help children and young people improve.

Let us suppose an agreement could be reached about how to define creativity. Such a definition would surely be multi-faceted, to reflect the nature of creativity. This would, necessarily, problematise any decision about which elements to assess, in which contexts, or even how to rank them in order to make a selection about which to assess. Across the broad range of subjects within the curriculum, how do we decide what constitutes creativity if it is not a universal concept?

We have already seen that creativity is also examined from a number of perspectives, and is often defined taking account of these (see section 3.4). For example, Plucker and Makel (2010:49) cite their own definition of creativity, which takes into account the six P's: 'the interaction among *aptitude, process and environment* by which an individual or group produces a *perceptible product* that is both *novel and useful* as defined within a *social context*'. Indeed, the National Advisory Committee on Creative and Cultural Education's report (1999), which made recommendations for the English curriculum about focusing on creativity, chose to define creativity in terms of four characteristics of creative processes: being *imaginative*, being *purposeful*, producing outcomes that are *original*, and that are also *valuable* . Their approach to developing creativity cites these broad aspects, but does not give specific guidance about developing individuals' attributes.

6.2 Tension: subject dominated nature of schools

In common with concepts such as 'citizenship', 'sustainable development', and 'learning to learn', creativity transcends subjects. Having much in common with 'learning' and 'intelligence', creativity can similarly be broken down into its component elements. Likewise, however, it ends up being included within the bundle of wider skills that policymakers throughout the developed world believe all children and young people must acquire if they are going to experience both success and fulfilment (and economic utility) in life.

The curriculum's emphasis upon subjects, rather than on developing the skills involved in thinking and learning, however, 'means that teachers are unlikely to find it easy to document and support progression in creativity' (Craft, 2008b). Because creativity then becomes the responsibility of all teachers, the concept of teaching and assessing it brings a certain level of anxiety. Who becomes the 'subject matter expert'? How do teachers judge progression collectively? Why should teachers prioritise arguably ill-defined concepts like 'creativity' over established subject matter?

Similar problems arise when teachers attempt to assess the similarly cross curricular phenomenon of 'learning'. In a report on creative approaches to learning and assessment, Ofsted (2010) shows that 'schools found it harder to establish systematic and consistent methods for recording and evaluating pupils' development as learners, rather than their attainment at the end of a unit or a key stage, and the success with which this was done varied considerably'. As such, progression in creativity may be equally hard to monitor.

Sefton-Green (2000) draws attention to the complexities of evaluating creativity in relation to a range of curriculum subjects. Where specific subjects are valued above 'learning' or 'creativity', modes of assessment are already ingrained leaving little room for additional assessment.

6.3 Tension: domain-specificity and 'possibility thinking'

As well as the issue of 'subjects' dominating the school day, and that of whether creativity can ever truly be tied to the individual, ambiguity over whether creativity is context-specific or domain-situated, even within the

curriculum, makes representing and documenting progression of creativity problematic. It 'leaves practitioners with the challenge of what to focus on and how to represent progression' (Craft, 2008b:7).

Contradictions in policy, mentioned earlier, are important here, and Craft (2008a:7) argues that the tension between the *subject-specific* and *domain-free* perspectives 'is currently unresolved at the level of educational research and also in policymaking'. Craft (2003:119) makes the observation that 'the differences between creativity as conceived of in the early years curriculum, compared to the National Curriculum and the NACCCE report, are striking'. While the latter two concern themselves with creativity as a cross-curricular, transferrable skill, creativity in the early years curriculum:

> is by contrast located in a specific set of domains – the creative and expressive arts including art, design and music, and it is linked strongly with early learning processes such as play in such a way that it is sometimes not clear what the distinction between play and creativity is. (Craft, 2003:119)

As another example, although the NACCCE report *All Our Futures* (1999) states that individuals have different capacities for creativity, which are domain dependent, the curriculum actually values creativity as both context-free and domain-specific (Craft, 2008b). Craft's recommendation emerging from this is that assessment should address both approaches, as well as the process and outcomes (Craft, 2008a). If creativity or elements thereof are viewed as domain specific, however, the challenge in developing a single assessment tool is that in ensuring it is sufficiently all inclusive it risks becoming too cumbersome. Craft's (2008b) review of creativity in the school draws together the key thinkers regarding creativity and domain specificity. She cites some (including Woods, and Jeffrey and Mardell) who argue for its transferability across domains. She cites others, however (including Amabile, Chappell, Csikszentmihalyi, Gardner, and Vass) who argue that creativity 'cannot be understood without reference to the specific disciplinary area in which it occurs whether this be within or beyond schools'.

Craft herself takes, with others, a third view that:

> …the creative impulse is identical across domains, in that it ultimately involves Possibility Thinking… the transformation from 'what is' to 'what might be' through asking 'what if?' in appropriate ways'…Possibility

> Thinking…is at the heart of all creative engagement and the contention is that whilst the manifestation of creativity is diverse according to the domain of application…the at-heart impulse is the same. (Craft, 2008b:7)

Her observation that the manifestation is diverse dependent upon the domain is confirmed by others, Craft tells us, including Clack, Cremin, Burnard, and Chappell. An implication for assessment is that teachers need to be given scope to recognise expression, attitudes and values of creativity that might be specifically legitimate in their own classroom context.

6.4 Tension: the social element

In their examination of the 'distributed creative processes' that occur as groups interact to produce a shared creative product, Sawyer and DeZutter (2009:81) tell us that 'a wide range of empirical studies has revealed that significant creations are almost always the result of complex collaborations'. Documenting the history of thinking and research regarding the creativity embedded in social groups, they tell us that cognitive processes 'become visible, and scientists can observe them by analyzing the verbal and gestural interactions among the participants'.

In our earlier section engaging with the different perspectives of creativity, however, Craft's (2008a:7) intersecting continua of 'individual' versus 'collective', and 'generalised' versus 'subject specific' were shown to give rise to four dimensions. These four dimensions yield quite different sets of assessment values and practices. Craft writes 'the *individual/collective*' spectrum raises questions in terms of how assessment can be documented and counted toward individual pupil progress, in the case of collective work'.

6.5 Tension: no requirement to assess creativity

Although the importance of creativity in education is recognised both politically and professionally, the tracking of the development of creative individuals, by whatever means, is not given equal weight to other forms of assessment. This is not to say that teachers do not want to focus their efforts on developing more creative children and young people On the contrary; other forms of assessment are so ingrained within the school

environment, that it is inherently difficulty for teachers to find time to implement non-statutory assessment.

Broadfoot (2007) writes that English children today:

> …are the most tested generation there has ever been. They are subjected to some 200 different testing episodes as they go through school, starting in the infant years and repeating every year relentlessly as a diet of summative and increasingly high stakes assessment. In UK schools alone, 20 million examination scripts are marked each year containing some 2 billion answers and involving some 50,000 markers. (Broadfoot, 2007:158)

In this context, despite best intentions and the importance of other activities, teachers find it hard to find room for carrying out non-statutory tasks.

Indeed, the National Curriculum review's expert panel (discussed in section 5.7) proposes that foundation subjects no longer have detailed national attainment targets. Within the context of a flexible local curriculum, schools will be free to adopt their own approaches and priorities. The impact upon existing foundation subjects such as Art and Design, and Music, of 'minimal or no' (DfE, 2011:71) attainment targets, remains to be seen.

6.6 Tension: performativity versus creativity

Loveless (2002) cites the NACCCE report (1999) in highlighting the tension between a need for raising the standards of school achievement in the UK but simultaneously easing the pressure of assessment, and ensuring it is appropriate and formative. Part product of the current performance driven system and assessment that at times values recall over understanding, and part product of the (perhaps related) didactic pedagogy of many teachers, the transmission model of teaching as normative is all too common in classrooms[29]. This approach to knowledge as transmitted by the teacher rather than as co-constructed by the learner does little to develop creativity in pupils.

[29] See Thomson, Hall, Jones and Sefton-Green (2012:7) for a useful exploration of 'the differences between arts related signature pedagogies and the "default pedagogy" established in schools by a standards agenda that defines excellence in terms of progress against a limited set of measurable indicators.'

It may be that a formative assessment valuing creative habits is at odds with the performative agenda of national testing, and is therefore subordinated. Craft's (2008b:3) report for Futurelab notes: 'the powerful drive to raise standards and to make performance judgments about individuals and about schools, can be seen as being in tension with an almost equally powerful commitment to nurturing ingenuity, flexibility, capability…'. Indeed, Stoll (2009:6) tells us that teachers and school leaders 'often find it difficult to devote attention to promoting creativity because of what they describe as "the immense pressure" of focusing on standards or being "very burdened by being driven by targets"'. For most educators, she argues, balancing creativity within a 'standards' approach is not easy.

Wiliam *et al.* (2004) put it more strongly, that high-stakes state-mandated testing in England means that:

> Attempts to maximise student and school scores appear to result in a lack of attention to the kinds of higher-order thinking involved in formative assessment… Indeed, it appears as if there is a widespread belief that teaching well is incompatible with raising test scores. (Wiliam *et al.*, 2004:50).

Although there is much evidence that embedding the teaching of thinking skills (creativity included) into lessons raises achievement (for example Watkins, 2010), this sentiment demonstrates the perceived tensions between teaching for performance and teaching for creativity.

In a related line of thought, Menter's (2010:47) review of teacher formation highlights concerns over the contradictory forces of performativity and creativity. The 'performative' culture relates to performance assessment systems, new pay regimes, and a loss of professional freedom and creativity to set the curriculum agenda. 'Test mania', for example, leads some teachers to focus their efforts on improving pupils' test scores 'creatively', which Menter suggests is a 'somewhat paradoxical deployment of creativity!'.

In a higher education context, Cumming (2010:412) suggests that the skills agenda should be framed to 'prioritise performance over performativity'. While a performativity approach would focus on meeting the demands of employers and governments by focusing on front-end skills training, a performance approach focuses on contextualised performance: the execution of skills in novel, as well as familiar, situations.

6.7 Tension: formative versus summative

We introduced formative and summative assessment in section 2.4, citing the key differences. There are inherent tensions between the summative and formative functions of assessment within any curriculum stemming from historical beliefs about the purpose of assessment and, at a deeper level, the purpose of education. These lie at the heart of our issue, potentially confounding the creation of a progressive framework for development of creativity. Further clouding the issue is the way in which teachers' use of each type of assessment is coloured by their own understanding and beliefs of the role of the learner in the learning process. These intertwined tensions are explored here.

Educational assessment frameworks are traditionally rooted in a positivist paradigm. Positivism has a particular view of knowledge, that of:

> 'knowledge as skills, as information that can be divided into testable bits, or as formulaic routines. With positivism there is a truth, a correct interpretation, a right answer that exists independently of the learner…Within a positivist framework, there is no room for the idea that several equally valid interpretations may be possible.' (Murphy and Grant, 1996:285)

The paradigms within which formative and summative assessment sit are very different, and (Kaufman *et al.*, 2008) identify a number of key variations. For example, formative assessment has a view of reality as socially constructed, while summative assessment sees facts as having an objective reality. While context is of prime importance for formative assessment, summative assessment values the primacy of method. Variables assessed formatively are seen as being complex, interwoven and difficult to measure; summative assessment assumes variables can be identified and their relationships measured. A complex construct, such as creativity, is thus likely to make summative assessment problematic.

A summative framework would necessarily have to establish, as a minimum, its validity and reliability. To ensure its reliable implementation it would require the development and trialling of criteria, as well as a system of moderator training and moderation to ensure its consistent application. A formative framework, on the other hand, would require a different approach.

Establishing the truth value of a formative assessment framework on the positivistic 'natural science' criteria of reliability and validity would be inappropriate. Values such as apparent face validity, usefulness, internal coherency, comprehensiveness, and consistency with current understandings would be more appropriate. While the dominating positivist position demands validity, a non-positivist viewpoint would demand 'trustworthiness' (Swanwick, 2010). Indeed, Lincoln and Guba's (1985) seminal work substituted 'reliability' and 'validity' with the concept of 'trustworthiness', for qualitative inquiry, containing four aspects: 'credibility', 'transferability', 'dependability', and 'confirmability'. Thus, communities of teachers, and the teacher and pupil, might develop shared understandings that make the assessment tool meaningful and of formative, or ipsative, use to them. The truth value of any teacher assessment could be triangulated through the use of multiple sources of evidence particularly, as already suggested, the learner self-report.

While any assessment can be used summatively (without making a claim for its validity) not all can make the additional claim of serving formative functions. Indeed, Taras (2005:466) argues that 'formative assessment is in fact summative assessment plus feedback which is used by the learner'. A framework of progression can be both summative and formative, although the ability of an assessment to serve both formative and summative functions is a fine balancing act, with many criticising the notion that this is even possible (Wiliam and Black, 1996). Teachers can make use of both formative and summative assessment data in planning lessons. 'In-the-moment' formative assessment might, however, provide more relevant information to help teachers manipulate lessons by focusing on areas of learning or subject knowledge as required.

A concern raised by Lucas and Claxton (2009:25) illustrates clearly the tension between, on the one hand, providing post hoc comparative data to decision-makers particularly at policy level and, on the other, giving children and young people the information they need in order to develop their thinking: 'The idea that young people could come out of school labelled as a 'level 7 imaginer' or 'grade C collaborator' is horrific – yet clearly some kind of evaluation of success [in wider skills] is necessary'. Rogers and Fasciato (2005) suggest that such assessment would lead to discouragement in learners.

The evidence for the use of formative assessment is strong. Black and Wiliam's (1998:142) seminal paper *Inside the Black Box: Raising standards through classroom assessment* presented firm evidence that formative assessment can raise standards of achievement. In doing this they drew on more than 250 high-quality published journal articles.

Quantifying the benefits further, empirical research by Wiliam *et al.* (2004:63) explored the development of teachers' formative assessment practices alongside use of national summative assessment frameworks, i.e. minus the summative gradings. This research provides 'firm evidence that improving formative assessment does produce tangible benefits in terms of externally mandated assessments (such as key stage 3 tests and GCSE examinations in England)…equivalent to approximately one-half of a GCSE grade per student per subject'.

Leahy and Wiliam's address to the American Educational Research Association conference in 2009 similarly suggested that there is a strong case for the use of formative assessment to improve learner outcomes. They observed that over the past 25 years, 'at least 15 substantial reviews of research, synthesizing several thousand research studies, have documented the impact of classroom assessment practices on students' (Leahy and Wiliam, 2009:2). They quantified the 'substantial increases in student achievement – in the order of a 70 to 80 percent increase in the speed of learning' (2009:15).

When assessment is done formatively, one might ask whether there is an inherent need for consistency between the approaches different teachers in different contexts take. Would it matter, for example, if two teachers assessed a pupil differently, or would this become ironed out in the day-to-day processes of the teacher working in professional collaboration with colleagues?

While a shared understanding within domains may be helpful, such an understanding across different domains may not be necessary. For example, a Drama teacher could use the same assessment tool without concern about whether his understanding of its descriptors precisely matched those of his History teaching colleague's. So, while carefully considered language to describe aspects of the creative personality may possibly lend itself to broad usage, forms of evidencing progression in those same aspects may vary from one context to another.

Given the various contexts, perceptions, and levels of understanding of teachers, consistency of formative progression assessment across (or even within) domains is a difficult thing to ensure. Understanding of the assessment becomes socially constructed, developing as individuals attribute meaning to it. There nevertheless needs to be a certain level of clarity over the purpose, utility, and language of an assessment tool. Experience in England with 'Assessment for Learning' (AfL) has shown that schools can take a good idea, and translate it until it is quite far removed from the original intention.

On this matter Watkins (2010) writes of the perhaps predictable tensions arising as interventions are 'packaged and sold in such a way that they lose their focus on learning'. He cites recent evidence suggesting that '80% of classrooms conformed to the letter of assessment for learning interventions, while 20% embodied the spirit of the intervention, which is the promotion of learner autonomy' (2010: 11).

Marshall and Drummond (2006), reviewing how teachers engage with AfL in practice, suggest that where teachers' beliefs map more readily onto the 'spirit' of AfL this is not just because they value the 'thing' the intervention is trying to improve (be this 'pupil autonomy', in the case of AfL, or perhaps extended to creativity, in our own exploration) but:

> …it also has something to do with how they see the classroom as a site of their own learning…[they] had an essentially progressive, rather than fixed, view of what went on in any given lesson. Neither circumstance nor the disposition of pupils was beyond change… Indeed these provided a challenge to be reflected upon and overcome. Such an attitude gives these teachers a far greater sense of agency than those who tended to see constraints in the school culture, the examination system or the ability of the pupils. (Marshall and Drummond, 2006:147)

Indeed, use of the words 'assessment' and 'learning' are laden with meaning, and diverse conceptions abound (Hargreaves 2005). Teachers vary greatly in their beliefs about the extent to which teachers and pupils hold agency over the various aspects of assessment and subsequent action. Some see decisions about 'next steps' in learning to be the role of the teacher; others see it as a shared role for teachers and learners. Hargreaves' paper gives six distinct groups of definitions for assessment for learning that

teachers came up with. Each group has its own implicit conception of assessment, and its own implications for the way in which teachers focused on the learning process. These include assessment for learning as:

- monitoring pupil performance against targets or objectives;
- using assessment to inform next steps in teaching and learning;
- teachers giving feedback for improvement;
- teachers learning about children's learning;
- children taking some control of their own learning and assessment; and
- turning assessment into a learning event.

Hargreaves (2005) thus argues that the issue is thus not necessarily an incompatible duality in the two extremes of formative and summative assessment (as all teachers thought they were doing formative assessment), but an incongruity between these two concepts: 'of knowledge as external to the learner and fixed – at one extreme; and a conception of knowledge as constructed or co-constructed by the learner/s and fluid – at the other extreme.' (Hargreaves 2005:224).

Wiliam (2006) argues that all activities under the 'assessment for learning' banner can be expressed as one of five key strategies and that anything not fitting into this set of strategies is, in fact, not assessment for learning:

- Clarifying and understanding learning intentions and criteria for success;
- Engineering effective classroom discussions, questions and tasks that elicit evidence of learning;
- Providing feedback that moves learners forward;
- Activating students as instructional resources for each other; and
- Activating students as owners of their own learning;

In stark contrast with Wiliam's notion here of what it means to utilise AfL in spirit as well as in word, Hargreaves (2005:222) finds that 'the measurement/objectives model has a dominant influence in schools in this country, at this time, and that teachers sometimes believe it is the *correct model*, even if their own beliefs do not square with it'. She explores the political-historical contributing factors, including the rise of Taylorism that

linked behaviour with performance; post-war tensions between left- and right-wing political forces in England and the creation of a statutory National Curriculum. The National Curriculum conforms to an objectives model of learning, and its level descriptors 'lend it an objectives-led flavour to learning although this model is never made explicit'. Consequently, teachers tend to be 'more immersed in an objectives model of learning than in one of constructing or co-constructing [their] own knowledge; and…are more comfortable with a measurement paradigm of assessment than with an inquiry paradigm'. These two competing conceptions would support two very different sets of policy and practice concerning the purpose of assessment.

Ultimately then, it would appear that if an assessment framework is to be of formative use to teachers and learners, its utility is likely to be in developing shared understanding between teacher and learner, and in shedding light on the necessary steps for progression for each of them rather than in providing individuals with a crude labelling of their creativity. It might be further developed to serve a secondary function as a summative tool.

…it is interesting to note lessons learned in the context of visual arts assessment in Sweden (Lindström 2006) **about simplicity: if assessment is to be of formative use, the important factor is multidimensionality and not the differentiation of multiple levels within each dimension. Multidimensional, formative assessment both acknowledges the achievement of each student, and encourages them to progress.**

7 Measuring creativity in schools: some noble attempts

Measurement of creativity is not just confined to the field of education. In this chapter we ask what has been learned from attempts to assess creativity in schools. We introduce major government sponsored milestones and raise issues that complicate assessment, and we explore the possibility of developing a progressive framework for assessing creativity.

7.1 Assessment of creativity beyond school is common

In many walks of life, primarily in the workplace, it is relatively common to find aspects of creativity being assessed. For example, since the middle of the 1990s, employers and prospective employers have been using psychometric testing to compare individuals in terms of their 'soft skills'. According to Sefton-Green (2008:21), although there are significant differences between 'soft skills' and creativity, there is an overlap and such skills and behaviours are 'part and parcel of what it means to be a creative person', and play a crucial role in determining work success. Fillis and McAuley (2000) write that several attempts have been made to assess creativity in diverse disciplines such as engineering and social psychology. Tests include a variety of tools, including ratings scales; interviews; checklists; peer, parent, or teacher rating; observations; assessment of end products; personality tests; biographical sketches; aptitude and ability tests; problem finding and solving. Online tests are readily available for individuals or organisations wishing to analyse such things as openness to creativity[30], ability to think creatively[31], and degree of right- or left-brain dominance[32].

7.2 Assessment categories

Plucker and Makel (2010) suggest tests for creativity fall into a number of categories:

- Psychometric tests for *divergent thinking*
- Behaviour or personality tests of *past behaviour* or *personality characteristics*

30 www.queendom.com/queendom_tests/transfer
31 http://stupidstuff.org/main/creative01.htm
32 www.wherecreativitygoestoschool.com/Vancouver/left_right/rb_test.htm

- Personality tests of *personality correlates of creative behaviour*
- Activity checklists of *experience associated with creative production*
- Scales assessing *attitudes towards important aspects of creativity or divergent thinking*
- Advanced techniques for the assessment of *creative products*
- Expert judges to assess *level of creativity in a product or response* (Consensual Assessment Technique)
- Six components to assess *creative design of product* (Consumer Product Design Models): newness, ability to resolve problems, level of pleasure induced, ability to match needs of customer, importance to needs of customer, level of desirability or criticalness

The authors highlight one further category, developed by Amabile and colleagues, who developed an instrument for assessing the climate for creativity. This employee self-report instrument assesses individuals' perceptions of aspects of their work environment that may influence creative work, and the influences of those perceptions on the creativity of their work. This work developed a 'psychometrically sound tool for quantitatively assessing the perceived work environment for creativity' (Amabile *et al.*, 1996:1178). A large number of specific instruments have been designed to assess creativity, the most popular of which continue to test divergent thinking (DT) skills (Beattie, 2000), just as they did 30 years ago (Hocevar, 1981). Plucker and Makel (2010) suggest the dominance of the psychometric approach to creativity assessment stems most likely from the pre-existing interest its developers had in other cognitive phenomena. Having studied factors associated with variance in such phenomena as ability, aptitude, and intelligence using similar methods, natural cross-fertilisation led to psychometric approaches (such as tests for divergent thinking) being used to measure creativity.

7.3 Assessment rubrics

Ferry (2003) observes that tests for creativity (some of which are aimed at schools; some at employers) measure the same four areas that Beattie (2000) touched on earlier: the *individual*, the *process*, the *product*, or the

environment. For Lindström (2006), *process* criteria in a visual arts context include a student's investigative work, inventiveness, ability to use models, and capacity for self assessment. Each criterion contained four general, descriptive, rubrics, with a 'plus', 'medium', and 'minus' (i.e. a 12-grade scale). Lindström's assessments were tested for reliability by calculating the frequency with which two assessors (a teacher and a co-assessor) differed by two steps or less, considering two steps on a twelve-grade scale to be acceptable. A key learning point is that where used, good, descriptive rubrics should be supported by examples of both high quality and less satisfactory work to 'help students to assess their own work and to understand what qualities of performance the teaching aims to achieve' (Lindström, 2006:57).

7.4 Assessment instrument drawbacks

Treffinger *et al.* (2002) examined around 100 and Beattie (2000) identifies over 200 tests, summarising critiques of existing instruments on a number of grounds, and citing Sternberg (1991) in her claim that none have measured creativity adequately. Models of assessment vary in their compatibility with different epistemological and ontological positions. Psychometric testing, and product-focused methods, for example, reflect a position that knowledge is objectifiable, while methods that assess performance in context take a view that knowledge is situated (Craft, 2008b).

Hocevar (1981:459) classified test instruments into ten categories, each with its own set of drawbacks. For example, he concludes that tools involving use of third party judgment (such as peer nominations, supervisor rating, teacher nominations and judgments of products) 'are often inadequate indicators of creativity due to the rater's inability to discriminate creativity from other traits'. Further, tools that function as correlates of creative behaviour in a real life setting, such as divergent thinking, biographical and personality characteristics, attitudes and interests 'should not be taken as direct measures of creativity'. Tools involving measurements of potential, such as the Torrance Test of Creative Thinking, do not guarantee actual creative behaviour or attainment, and knowledge of potential is of little use if individuals do know how they are currently performing and what they might do in order to reach that potential. Runco *et al.* (2010) tell us that motivation and other factors can have an impact on whether potential is reached.

Hocevar's ten categories of test instruments included tests of:

1. DT
2. attitude and interest inventories
3. personality inventories
4. biographical inventories
5. teacher nominations
6. peer nominations
7. supervisor ratings
8. judgment of products
9. eminence
10. self-reported creative activities and achievements

He concludes with an argument for the use of self-report inventories of creative achievement as the most defensible, from perspectives of sound measurement of psychological traits, simplicity of administration, predictive utility, and discrimination across different domains. Cowdroy and de Graaff (2005) identify the significance of a change from teacher- to student-led assessment. They write that an approach involving teachers trying to assess students' understanding of the 'conceptual origins and schematic development' of their own creative works:

> …involves a significant double-paradigm shift, from teacher-derived criteria for examination of a work, to student-derived criteria of assessment of the student's understanding of his or her own concept in terms of the philosophical and theoretical frameworks of the relevant field of creativity. (Cowdroy and de Graaff, 2005:515).

7.5 Assessment through portfolios

In a not dissimilar approach (insofar as it requires learner input), Lindström argues for the use of learner portfolios, which he observed in order to establish whether students showed progression in their visual design and ability to work independently and assess their own work. In their report

Wider Skills for Learning Lucas and Claxton (2009:31) similarly argue for assessment that focuses on the learner: 'our experience suggests that finding ways of tracking and articulating progression in the wider skills may well best be done in collaboration with the learners themselves'.

Futurelab's (Facer and Pykett, 2007:14) review of personal learning and thinking skills assessment proposes that the traditional approach to assessment would break down descriptions into many 'detailed descriptions of behaviour'. The authors propose an alternative approach that facilitates evidence-informed inquiries and conversations between teachers and learners. These discussions would develop around 'key trajectories' (2007:3) to give a more holistic picture of progression, than would be gained through the pervasive 'tick box' exercises. Such an approach would include exemplar statements underpinned by key questions and an example bank, and assessment by discussion of a portfolio of evidence.

7.6 Assessment by peers

A paper by Strom and Strom (2011) examined the assessment of a similarly cross-curricular set of skills; those of team-working. Their assessments were made by peers, and the extent to which peers give consistent scores is implicitly taken as sufficient evidence to support a set of peer judgments. To make this assessment formatively useful, however, there needs to be an additional step between a young person knowing that their peers think that they never offer new ways of looking at problems, for example, and them having the competence and means to start doing this.

7.7 Assessment of divergent thinking

Plucker and Makel list a number of tests based on the DT approach. These include Guilford's Structure of the Intellect (SOI) divergent-production tests, Torrance's Tests of Creative Thinking (TTCT) and Wallach and Kogan's as well as Getzels and Jackson's DT tests, noting James Kaufman's comment on the ironic way in which tests for creativity have clustered around use of a single type of instrument.

In a comparison of the different approaches, Ferry (2003) lists tests of the individual's creativity including:

- Gough and Heilbrun's *Adjective Checklist*
- Mind Garden's *Alternate Uses* assessment
- Institute for Behavioural Research in Creativity's *Biographical Inventory Form U*
- Psychologists and Educators Inc.'s Creative *Attitude Survey*
- Pro-Ed's *Creativity Assessment Packet*
- SOI Systems' *Creativity Tests for Children*
- Creative Learning Press, Inc.'s *Creative Behaviour Inventory*
- Scholastic Testing Services Inc.'s *Khatena-Torrance Creative Perception Inventory*

Tests of the process include:

- Puccio's *Buffalo Creative Process Inventory*
- Kirton's *Kirton Adaption Innovation Survey*

Some approaches to assessment are specifically school based. Notwithstanding the notion that creativity may be domain specific, we are concerned with assessment of creativity *per se*, rather than assessment of creativity in specific, *creative subjects*. In terms of assessment of creative subjects, were there successful models in place to assess these, such knowledge would be useful for our study. Hovland and Soderberg (2005:8) propose, however, that while the 'high status cultural aspects of human behaviour' (such as Art and Music) have received attention in terms of their assessment, the physical and practical knowledge areas have not attracted so much attention from research or policy.

The Torrance Test of Creative Thinking provides an example of a school based approach. The notion of divergent thinking as a proxy for creativity is explained by Torrance (1970) thus: 'Children are so accustomed to the one correct or best answer that they may be reluctant to think of other possibilities or to build up a pool of ideas to be evaluated later'. Built on the psychometric testing work of Guilford, it aims to test DT and other problem-solving skills, scored on dimensions of fluency, originality, and elaboration.

The higher scores for fluency are given to individuals generating the most ideas. Originality of ideas is observed in the degree to which a respondent's ideas are unusual, flexibility is noticed in the degree to which the respondent dreams up multiple categories of response, and elaboration is seen in responses that take an initial idea as their starting point and develop it from there (Plucker and Makel, 2010).

DT tests have had mixed support, however. In some circumstances and under some conditions, DT tests have suffered from methodological rigour and from lack of evidence of predictive validity. It is also known that the conditions under which DT tests 'work' as predictors are quite precise. The waters have become further muddied as evidence is presented to suggest that test conditions (whether individuals are timed; whether they are given specific instructions; whether the test is treated as a 'test' or a 'game') affect originality and/or fluency scores, and that the test itself, which is quite transparent, can be 'learned'. These problems, irrespective of whether they are concept or user errors, deter many researchers and educators from their use.

Another example of a school-based approach, the *Creativity Wheel*[33] developed by a Creative Partnerships local area, identifies 17 segments. Each segment represents an indicator of creative development. Themes within each segment are introduced and reflected upon. Corresponding with the definition of creativity promoted by QCA, creativity is operationalised in three ways: imagination with a purpose, value and originality. Schools, such as that reported by Farquhar (2004), also develop their own assessment tools. The body of practitioner literature includes the Creative Partnerships work generated through projects with participating schools. Craft *et al.*'s (2006) pilot study *Progression in Creative Learning*, provides an example of this work. It sought to explore ways of documenting and understanding Progression in Creative Learning from Foundation Stage through to Key Stage 4 in English and Music.

7.8 School-based literature reviews

Three significant school-based reviews of the literature on assessment of creativity exist – Treffinger *et al.* (2002) and Beattie (2000) and Harlen and Deakin Crick (2003).

[33] www.creative-partnerships.com/data/files/creativity-wheel-127.pdf

Treffinger *et al.*'s (2002:43) review of the literature on creativity assessment agrees that self-report data has the benefit of comparative ease of administration and scoring. They caution the reader based on their synthesis of the literature, however, that the body of knowledge in this respect is: 'very clear that it is not wise to rely on a single instrument or to use results if they represent absolute, fixed classifications of a person's creative ability'.

Proposing a four-pronged approach to assessment of creativity in schools (using a matrix combining behaviour or performance data, self-report data, ratings scales, and tests) Treffinger *et al.* (2002) observe that, standing alone, each has advantages and limitations. Used together, a matrix combines evidence from each of the four data sources with a descriptive guide helping to rate the individual's current level of creativity (in terms of whichever creativity characteristic the assessor is trying to develop). Table 1 shows a very pared-back version of this table which, in reality, could be populated with descriptions to guide the person collating evidence. This exercise is carried out for each of Treffinger *et al.*'s creativity characteristics, as deemed appropriate to the situation.

Table 1: **Matrix for assessment of creativity (Treffinger *et al.*, 2002)**

Data source	Not yet evident	Emerging	Expressing	Excelling
Behaviour or performance data				
Self-report data				
Rating scales				
Tests				

For each characteristic of creativity (generating ideas, digging deeper, openness/courage, and listening to one's inner voice), Treffinger *et al.* detail a range of data sources (around 100 tools for assessment of creativity, in total, as noted previously). What is clear from this systematic approach is the level of complexity such a method might present to teachers. With regard to the use of multiple instruments, Plucker and Makel (2010:62)

make a similar argument for a better way forward that 'almost certainly involves strategies that move well beyond DT, such as multifaceted, multimodal assessment systems'.

Beattie addresses questions regarding the possibility of assessing creativity in a school curriculum, the factors that might be most feasible to assess, and how and when the assessment might take place. She recommends a systems approach to take account of the cultural environment. A two by three 'creativity specifications' matrix is then constructed by assessment specialists (see Table 2) which 'determines what one must do in a domain and in a culture to be identified as creative' (Beattie, 2000:181). The school setting serves as the 'culture' within which specific creative behavioural requirements would be decided upon. The specific subject area would provide the domain, which, again, would demand specific creative behavioural requirements. The extent to which an individual met these requirements could then be measured. Beattie gives some examples about what such behaviours might be in an art domain, for example, the tolerance of ambiguity or the ability to abstract and move from wholes to parts.

Table 2: **Suggestions for content in creativity assessment (Beattie, 2000)**

	Culture	Domain
Components of creativity		
As a trait		
As a process		
As a product		

To move the assessment debate forward, Beattie argues for an approach to testing that involves use of set tasks, problems, or projects at a moment in time and makes 23 suggestions for how to improve such tests, including the idea that assessment should focus on tasks or problems that are student driven rather than exclusively tester designed. The full list is given in Appendix 2.

Beattie's position emphasises some key learning points for assessment of creativity. In assessing 'budding creativity potential' or 'germinal creativity' in children, for example, she suggests 'a panel of judges' and 'a battery of assessment methods' are particularly critical (2000:18). This point is made with the caveat that there is debate (originating with Vygotsky's work on the maturation of imagination in adolescents) about the extent to which young children can be creative. Vygotsky's observation of the child's imaginary play, for example, suggested that even in an imaginary situation, for the child, 'there is very little of the imaginary' (1978:103). Beattie recommends, therefore, that although aspects of germinal creativity can be assessed, teachers should focus on modelling creative behaviours to young children, and that the most fruitful site to assess would be Grade 9 in secondary schools, where children have the required domain related skill, ability, and knowledge, the latter of which younger children do not possess. In practice, however, there is a trade-off between the possible level of input to be obtained from the number of subject teachers each secondary-level child has, and the practicalities of trying to obtain a consensus from a range of individuals. Development of an assessment tool may, therefore, be conceptually easier at Primary level, where fewer adults interact with each child.

Beattie's (2000:188) final recommendation is that, 'the latest thinking about creativity indicates that the assessment thereof should occur within a domain and not as a construct separated from a domain'. This is, however, an ongoing debate, according to Craft (2008b:7) who supports an alternative 'Possibility Thinking' view that 'whilst the manifestation of creativity is diverse according to the domain of application the at-heart [creative] impulse is the same [across domains]'.

Harlen and Deakin Crick's (2003) synthesis of research and literature relating to the use of ICT for assessment of creative and critical thinking skills proposes that ICT has many advantages for assessment, particularly in relation to its interactivity. The review showed some evidence that computer software can help teachers with formative assessment by recording information about how students are developing understanding of new material, and also by providing feedback to students allowing the teacher to focus elsewhere.

Despite the vast range of tools available, many of which this literature review is using to inform our future work, there is no agreed upon framework, or standard tool, for assessment of creativity in schools. In QCA's (2004) *Creativity: Find it, promote it* document, some suggestions are made for how teachers can 'spot' creativity. The five creative behaviours (listed earlier as 'questioning and challenging', 'making connections and seeing relationships', 'envisaging what might be', 'exploring ideas, keeping options open', and reflecting critically on ideas, actions and outcomes') are broken down into some more everyday examples. This list of observable behaviours does not, however, receive a mention in QCA's subsequent chapter called 'how can you promote creativity?'. Instead of taking forward its idea of five observable behaviours in order to promote assessment formally, QCA focuses on informal assessment, which features implicitly through the notion of feedback. Teachers are also encouraged to collect evidence of pupil responses though video, audio, notes, or observation, as a means to further developing their creativity.

Finally, it is interesting to note lessons learned in the context of visual arts assessment in Sweden (Lindström, 2006) about simplicity: if assessment is to be of formative use, the important factor is multidimensionality and not the differentiation of multiple levels within each dimension. Multidimensional, formative assessment both acknowledges the achievement of each student, and encourages them to progress.

… from the enrichment of young people's lives, to their economic utility, the importance of creativity is paramount … and a way of tracking progression becomes desirable both for teachers and learners. …In developing a progressive framework for assessment of creativity, the evidence from experience would suggest that we need to be careful it does not become 'a justification for ever more surveillance of learning, and even more detailed record-keeping about every child'.
(Claxton 2008:168)

8 Conclusions

In this review we have explored a number of tensions between the development of creativity in young people and the way schools are currently configured. With their focus on academic performance within specific subject areas, and on the competing demands of public examinations, schools surely have little room left in their days to focus on the non-statutory assessment of creativity. Nevertheless, from the enrichment of young people's lives in and out of school, to their economic utility as 21st century workers in a world fraught with change, the importance of creativity is paramount. An understanding of what 'progression' in creativity might look like is thus extremely valuable, and a way of tracking progression becomes desirable both for teachers and learners. Underpinning this aspiration is a 'learnable' view of creativity; one which emphasises the potential of all individuals to develop their creative dispositions.

A number of strands of thinking have become clear from this review that might be used to guide the development of a formative tool for assessing progression in individuals' creativity. Based on the different strands of this literature review, we see that any framework used to assess creativity should bear a number of factors in mind:

- A 'learnable' view of creativity might mean that the 'learner end' is of importance first and foremost to an assessment framework. Thus, primary weight might be given to the characteristics of the creative individual, rather than to the assessment of creative outputs or environments that might support creativity.
- While the characteristics, traits, dispositions, or attributes put forward for understanding creativity are many and varied, there is sufficient consensus about what the core of these are and any framework will inevitably be multidimensional.
- To ensure a framework's usefulness, its set of dispositions may not be exhaustive, but yet they would be cohesive, distinct from one another, and suitably related to the existing literature.
- A framework might further consider the 'grain' of analysis; it should not be so abstract that teachers cannot easily see how they might address the learnability of each habit of mind; but not so fine-grained that the framework becomes unwieldy or loses its utility.
- Any framework may well be judged more by its actual usage by practitioners than purely by scientific criteria.

- The benefits of good formative assessment for learning and the huge challenges of developing summative tools mean that a framework should aim primarily to be of formative use to teachers as they help learners plan for development of their creativity.
- A framework should take an inclusive perspective, aiming to ensure all children and young people are helped to value and develop their creativity in order to enhance their aspirations, achievement, and skills, both inside and out of the school. Thus, it might align with the 'social good' rhetoric of creativity.
- A 'social' view of creativity sees that manifestations of creativity are almost always the result of complex collaboration across social groups. Thus, a framework might allow sufficient scope for the social element of creativity to be accounted for; perhaps through inclusion of specific social dispositions.
- A framework might involve self- or peer-assessment and collection of evidence to demonstrate and support claims, potentially through some form of portfolio assessment.
- In an environment where subject-based teaching predominates, a framework needs to have resonance within each area of the curriculum while recognizing that the way a particular disposition is expressed may be different depending upon context.
- A 'ubiquitous' view of creativity may mean that a framework focuses on 'everyday' creativity, seeing potential for creativity in all aspects of life. On the other hand, it is likely to be sympathetic to the 'economic imperative' view of creativity that sees creativity as critical for developing a flexible, adaptable, workforce.

Part of the wider issue with creativity is the education system, the purpose of which, 'throughout the world is to produce university professors' (Robinson, 2006). Robinson makes the point that the subject hierarchy still in use is based on the old needs of industrialism so that high-status subjects were those that would enable school leavers to get a job. This functional approach to education also ensured that 'useful' skills such as manual dexterity were emphasised, influencing the status given to some arts subjects over others (Fleming, 2010). The world has moved on leaving the education system behind. Robinson's (2006) statement: 'my contention is that creativity now is as important in education as literacy and we should

treat it with the same status' alludes to the magnitude of the change needed.

Claxton *et al*. (2008:168) point to the importance of interpreting and handling the notion of creativity successfully, and the ease with which it is 'wasted if it simply translates into occasional bursts of 'light relief' leaving a dull and unimaginative curriculum in place'. Creativity is an important issue in schools: one that, attended to correctly, can make lasting impacts on the lives and development of children. In *What's the Point of School?* Claxton (2008:168) reminds us of how Assessment for Learning, a well-intentioned bundle of classroom practices, became distorted by politicians misinterpreting its purpose. In developing a progressive framework for assessment of creativity, the evidence from experience would suggest that we need to be careful it does not become 'a justification for ever more surveillance of learning, and even more detailed record-keeping about every child'.

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Appendix 1
Treffinger's 14 definitions representing the breadth of thinking

Treffinger *et al.*'s meta analysis identified fourteen definitions representing the breadth of thinking. Full details are given in their report (2002: 24-26) but here we list the key contributors and abbreviated quotations, as laid out by Treffinger *et al.*:

1. Teresa Amabile's view of creativity involves an interaction of three components: domain-relevant skills, creativity-relevant skills, and task motivation.
2. Erich Fromm: creativity is 'the ability to see (or to be aware) and to respond'.
3. Howard Gardner: 'The creative individual is a person who regularly solves problems, fashions products, or defines new questions in a domain in a way that is initially considered novel but that ultimately becomes accepted in a particular cultural setting'.
4. William Gordon's approach emphasises the use of metaphor and analogy for 'connection-making'.
5. J.P. Guilford's view emphasised that 'problem solving and creative thinking are closely related. The very definitions of these two activities show logical connections. Creative thinking produces novel outcomes, and problem solving involves producing a new response to a new situation, which is a novel outcome'.
6. Joe Khatena: creativity is 'the power of the imagination to break away from perceptual set so as to restructure or structure anew ideas, thoughts, and feelings into novel and associative bonds'.
7. Donald MacKinnon: creative responses must be both novel and useful. Creative people are frequently characterised by inventiveness, individuality, independence, enthusiasm, determination, and industry.
8. Abraham Maslow described creative, self-actualising people as bold, courageous, autonomous, spontaneous, and confident.
9. Sarnoff Mednick: creativity involves combining mutually remote associates in an original and useful way.
10. Mel Rhodes: 'Creativity cannot be explained alone in terms of the emotional component of the process or in terms of any other single component, no matter how vital that component may be'.

11. Carl Rogers emphasised three major ‘inner conditions’ of the creative person: (a) an openness to experience that prohibits rigidity; (b) ability to use one’s personal standards to evaluate situations; and (c) ability to accept the unstable and to experiment with many possibilities.
12. E Paul Torrance: creativity is ‘a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so on; identifying the difficulty; searching for solutions, making guesses, or formulating hypotheses about the deficiencies; testing and retesting these hypotheses and possibly modifying and retesting them; and finally communicating the results’.
13. Donald Treffinger, Scott Isaksen, and Brian Dorval: creative thinking involves ‘encountering gaps, paradoxes, opportunities, challenges, or concerns, and then searching for meaningful new connections by generating many possibilities, varied possibilities (from different viewpoints or perspectives), unusual or original possibilities, and details to expand or enrich possibilities’.
14. Graham, Wallas: four major stages in the creative process: preparation (detecting a problem and gathering data), incubation (stepping away from the problem for a period of time), illumination (a new idea or solution emerges, often unexpectedly), and verification (the new idea or solution is examined or tested).

Appendix 2
Beattie's suggestions for assessing creativity

Summary of Beattie's (2000) suggestions for assessing creativity:

Construction and content of the assessment should focus on tasks/problems/projects that:

- Are student driven rather than exclusively tester designed;
- Are not definitively defined and structured, requiring formulation, and therefore cannot be solved without decisions by the student who must add his or her own information;
- Enable students to choose the domain in which they demonstrate their creativity;
- Permit a wide range of possible responses;
- Are multilevel and can assess various dimensions of creativity;
- Are situational and based on life and culturally relevant experiences;
- Require experimentation;
- Are interesting, challenging, motivating, enjoyable and assist students in learning new things;
- Represent a broad variety of formats and are administered over time, enabling ample opportunities for creativity to emerge and be observed;
- Can be performed adequately and without evidence of large variability in individual differences by all members of a given population (i.e. tasks should not rely heavily on such constructs as verbal fluency, drawing skills and the like);
- Include motivational warm-ups and rich cues; sensory stimulation followed by a period when sensory stimulation is minimal. Brainstorming does not necessarily encourage creativity;
- Provide adequate time structure for intense focus ('think time') on a problem;
- Manifest a creative format and structure (i.e. applying what is known about creativity to craft the assessment per se and determine task requirements);

- Include opportunities for students to demonstrate and document a well-specified search heuristic;
- Include opportunities for students to formulate and state a problem rather than always find a solution;
- Include opportunities for students to ask new questions or revisit old ones from a different perspective;
- Include opportunities for students to apply a new theory or belief to old images;
- Include opportunities for students to establish goals, determine what types of goals to set and if they are met;
- Include opportunities for students to identify gaps or missing pieces in a problem or a domain;
- Include opportunities for students to apply knowledge outside a domain to help solve a problem within a particular domain (i.e. to use analogical and metaphorical thinking across domains) and to solve a problem in a way not common or intrinsic to a domain (e.g. visually instead of verbally);
- Include opportunities for students to demonstrate strong self-evaluation and intuitive skills;
- Include opportunities for students to revise or refine products; and
- Include opportunities for students to use creative language.

May 2012

Creativity, Culture and Education
Great North House, Sandyford Road,
Newcastle upon Tyne, NE1 8ND
Phone: 0844 811 2145
Email: webmaster@cceengland.org
Registered Charity no: 1125841

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Printed by HPM www.hpm.uk.com
Designed by Tangerine www.tangerinelimited.com

ISBN 978-1-907264-11-5
© CCE May 2012

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Childhood, Culture and Creativity (Jackie Marsh, Sheffield University – 2010) analyses the literatures exploring the relationships between childhood cultures and creativity of young children.

Arts in Education and Creativity (Mike Fleming, Durham University – 2010 – 2nd edition) offers an historical and theoretical overview of arts education over the last 120 years and its relationship with creative learning and creativity in education.

Consulting Young People (Sara Bragg, Open University – 2010 – 2nd edition) highlights why young learners should be listened to, and explains how to go about it to generate genuine dialogue and collaboration.

The Cultural and Creative Industries (Justin O'Connor, Queensland University of Technology – 2010 – 2nd edition) is a history of the formation and definition of the creative sector from its roots in artistic practice to more recent developments under New Labour.

'Art Works' – Cultural Labour Markets (Kate Oakley – 2009) examines the policy literature and sociology describing the nature of work in the cultural industries.

The Visual in Learning and Creativity (Carey Jewitt, Institute of Education, University of London – 2008) offers an historical and theoretical overview of the 'turn to the visual' and the communication landscape in late modern society.

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