

Progression in Creativity: Developing new forms of assessment
Background Paper for the OECD conference "Educating for Innovative Societies"

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Foreword

In Spring 2011, Creativity, Culture and Education (CCE) in partnership with the OECD Centre for Educational Research and Innovation (CERI) commissioned the Centre for Real-World Learning (CRL) at The University of Winchester to undertake research to establish the viability of creating an assessment framework for tracking the development of young people's creativity in schools.

After reviewing the literature on creativity and its assessment, CRL consulted expert practitioners using both structured interviews and adopting an appreciative inquiry approach (Cooperrider and Whitney, 2005). In the light of this preliminary investigative work we created a framework for teachers to assess the development of young people's creativity, and associated processes for trialling this framework in schools. We then ran two field trials in 12 schools, the first as a proof of concept and the second one exploring issues raised in the first trial.

Three overarching questions guided us:

1. Is it possible to create an assessment instrument that is sufficiently comprehensive and sophisticated that teachers would find useful (the proof of concept)?
2. Would any framework be useable across the entire age span of formal education?
3. If a framework is to be useful to teachers and pupils, what approach to assessment should it adopt?

This Background Paper has been written for the OECD Educating for Innovative Societies Event on 26 April 2012 at which the CRL research team presented its findings. The Paper describes the approach adopted by the CRL research team and the conclusions we reached. It includes a highly selective summary of a more extensive literature review (Spencer et al., 2012) and a description of the assessment tool we developed along with an analysis of its effectiveness.

We are very grateful to Francesco Avvisati for his extremely helpful detailed reading of an earlier draft of this paper. We invite research and practice communities in other OECD countries to explore further potential uses of our work in progress and share their findings with us.

1 **Why assessing creativity in schools matters**

‘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.’

Patricia Broadfoot (2000:xi)

1.1 **A creative challenge**

It is our contention that schools need to develop creativity in students just as much as they need to produce literate and numerate learners. Yet across the educational world there is no widely used definition of what creativity is, no agreed framework for assessing its development in schools and few assessment tools specifically designed to track learners’ progress.

If creativity is to be taken more seriously by educators and educational policy-makers then we need to be clearer about what it is. We also need to develop an approach to assessing it which is both rigorous enough to ensure credibility *and* user-friendly enough to be used by busy teachers. In this way we can add the kind of value referred to in the epigraph above.

In approaching this challenge, our working definition of creativity includes the following elements. Creativity, we believe is:

- complex and multi-faceted, occurring in all domains of life (Treffinger et al., 2002)
- learnable (Csikszentmihalyi, 1996);
- core to what it is to be successful today (Sternberg, 1996);
- capable of being analysed at an individual level in terms of dispositions¹ (Guilford, 1950); and
- strongly influenced by context and by social factors (Lave and Wenger, 1991).

1.2 **Some pros and cons of assessing creativity**

Both assessment and creativity are enormous subjects, each with extensive bodies of literature and each exciting strong opinions. An anecdote from early in our project illustrates this. At an appreciative inquiry session with teachers, creativity agents² and experts, those present strongly agreed with the proposition that it is possible (although not straightforward) to assess progress in the development of creativity in young people and that there are a range of ways in which this could be done. Presented with a circular, bulls-eye like matrix showing a number of levels of creative skill in a number of different areas, the group was entirely comfortable.

¹ The word Guilford actually used was ‘trait’. There are many near synonyms of which we are aware, each with slightly different nuances, including ‘characteristic’, ‘quality’, ‘attribute’, ‘habits of mind’ and ‘disposition’. We have chosen largely to use the word ‘disposition’ throughout this paper except when ‘trait’ has already become widely associated with a line of thinking. We prefer to refer to creative ‘dispositions’ because of the unequivocal connection with the idea that such aspects of any individual can be cultivated and learned, becoming stronger and deeper conveyed by ‘disposition’..

² ‘Creative agents’ is the term used to describe professionals from a range of disciplines funded to work in schools as part of CCE’s Creative Partnerships scheme.

But when exactly the same conceptualisation was presented in the form of a table, with progression levels explicitly numbered (as opposed to being implicitly graded in the bull's-eye figure, with 'higher' being shown by a larger wedge of shading), teachers and creative agents expressed anger, hostility and bewilderment!

The only difference was in the presentational format. The circle somehow only hinted at levels of 'progression' while the table looked all too much like the kinds of levels associated by teachers with attainment levels achieved in core subjects such as literacy or numeracy.

Thus we learned early on that the problem we faced was one not only of identifying a number of facets of creativity, each of which could be described in terms of a developmental trajectory; we had also to take into account the practicability, plausibility and acceptability of any such conceptualisation to teachers.

Despite the complexity of the task, the potential advantages of attempting to measure and/or track the development of creativity in schools are easy to see. They include:

- Indicating that creative-mindedness is seen as an important aspect of the formal curriculum in schools;
- Inspiring the development of curricula and teaching activities that foster creativity;
- Providing a way of articulating and evidencing the value of creativity (Hingel, 2009);
- Bringing schools into line with workplaces where assessment of creativity is practised (Adams, 2005);
- Helping teachers to be more precise in their understanding of creativity;
- Understanding more about different dimensions of pupils' progression and how teachers and others can support their mental development more effectively (Craft et al, 2007); and
- Providing formative feedback to pupils to enable them to develop their creativity more effectively (Black and Wiliam 2000).

Possible disadvantages or challenges associated with the assessment of creativity in schools include:

- Encouraging overly simplistic interpretations of what creativity is (as indicated by the anecdote earlier in this section);
- Potentially being confused pejoratively with a comment about a pupil's character, for example, being unimagative³;
- The risk that assessment 'scores' would be used inappropriately for summative comparisons of performance both between schools and within schools;
- Concerns about assessments being made without due regard to context (Koestler, 1964); and
- The practical difficulties inherent in measuring something which manifests itself in a range of school subjects.

1.3 The principles guiding our development of a framework and associated tool

We developed a set of guiding principles to help us balance the inevitable tensions between rigour and useability. These criteria (which we list on the next page) seek to combine scholarship with pragmatic common-sense.

³ This phenomenon can also be seen in other subjects notably mathematics where poor numeracy levels can be abusively seen as a proxy for being 'stupid'

The criteria suggested that our framework should be:

- Deliberately identifying those dispositions which the literature suggests are at the core of creativity (Claxton, 2006, Feist, 2010, Kaufman and Sternberg, 2010);
- Explicitly premised on the 'grow-ability' of creative mindedness (Lucas and Claxton, 2010, Perkins, 1995, Sternberg, 1996);
- As comprehensive in terms of existing research as possible; and
- Coherent internally and having distinct elements.

In addition we were determined (and strongly supported in this by our steering group⁴) that we should highlight both the social/contextual component of creativity and learning (Lave and Wenger, 1991) as well as the technical and craft aspects (Berger, 2003, Ericsson et al., 1993).

In describing these two 'choices' made, we are explicitly aligning ourselves to a broadly social-constructivist tradition within education, as well as drawing on a literature exploring the acquisition of expert performance and how individuals progress from novice to expert practitioners.

In England creativity is not a statutory element of the school curriculum (even if it is highly valued by many teachers and employers). Consequently any assessment activity undertaken by teachers in relation to their students' creative development needs to be seen by them as intrinsically valuable. In terms of principles, it was therefore essential that any assessment tools should be:

- Seen as useful by teachers;
- At the right 'grain' of analysis: neither too abstract to be directly observable, nor too detailed to become unwieldy;
- Clear and accessible in its use of terminology; and
- Applicable to a broad range of real-world types of creativity.

1.4 Creativity in schools

In England the status of creativity in schools has waxed and waned. In the first decade of this century in the years following the report by the influential National Advisory Committee on Creative and Cultural Education (National Advisory Committee on Creative and Cultural Education, 1999)⁵ creativity seemed to be in the ascendancy. Indeed for a recent period it seemed as if creativity was set to become embedded in the curriculum.

⁴ Steering group members were Dr Francesco Avvisati, Paul Collard, Prof. Anna Craft, Dr. David Parker, Naranee Ruthra-Rajan, Prof. Julian Sefton-Green, Prof. Jo Trowsdale, and Dr Stephan Vincent-Lancrin.

⁵ In 1999, the National Advisory Committee on Creative and Cultural Education (NACCCE) produced a report to the UK Government: *All Our Futures: Creativity, Culture and Education*. The committee's inquiry coincided with the review of the National Curriculum in England and Wales, and, thus, made recommendations for this review. It also included recommendations for a wider national strategy for creative and cultural education. The NACCCE report was a response to the Government's 1997 White Paper, *Excellence in Schools*, and it highlighted an undervaluing of the arts, humanities, and technology. Our literature review (Spencer et al., 2012) elaborates further on how the NACCCE report shaped the development of creativity within education in the UK.

As Jeffrey Smith and Lisa Smith put it: 'Creativity and education sit and look at one another from a distance, much like the boys and girls at the seventh-grade dance, each one knowing that a foray across the gym floor might bring great rewards but is fraught with peril.' (Smith and Smith, 2010: 251)

However, education policy in the UK is currently unclear about the value it places on creativity. While Personal, Learning and Thinking Skills (PLTS) in England (and their equivalent in Scotland, Wales and Northern Ireland) still exist as a framework, they are rarely referred to. The PLTS framework comprises six groups of cross-curricular skills, of which 'creative thinking' is one.

There are economic and social reasons why creativity might have a place within the school curriculum. Creativity is held as one of the most important competencies by 21st employers (Florida, 2002), and when creativity is acknowledged by and promoted through policy it is often in response to employability and competitiveness concerns. Education policy widely positions itself as putting creativity at the centre in order that pupils are able to solve problems and challenges beyond the classroom. For example, The Qualification and Curriculum Authority'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'.

From the literature it is clear that creativity can also be seen as a 'social good' (Banaji et al, (2010) and that it is important, therefore, for 'the social and personal development of young people in communities and other social settings'. There is often an 'economic imperative' involved as well. The National Advisory Committee on Creative and Cultural Education (NACCCE) explicitly argued that creativity in education enables a country 'to compete in a global market, having a flexible workforce, facing national economic challenges, feeding the 'creative industries' and enabling youth to adapt to technological change' (Banaji et al., 2010:35).

A central challenge for the cultivation of creativity in schools is their subject-dominated nature. Thus, while creativity spans all subject areas and is not limited to the 'arts', there are inherent conflicts in attempting to ensure assessment of cross-curricular concepts. The degree to which creativity in a particular context is truly context-free is ambiguous also. As Anna Craft (2008b) comments, this makes the decision about what exactly to assess (and indeed what not to assess) problematic. In developing our assessment framework we tried two different approaches, one in each of the field trials, to explore this further.

A further issue for schools in England is the overriding agenda of school accountability grades, assessment systems and their league tables, new pay regimes, a sense of reduced professional freedom in making curriculum choices locally that competes with serious attempts at fostering creativity (Menter, 2010). It may be that a formative assessment valuing creative dispositions is at odds with the performance 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'.

Yet a closer examination of research, for example into meta-cognitive processes, reveals clear evidence to suggest that the embedding of creative (and other learning) dispositions into lessons actually raises achievement, with attempts to enhance creativity and develop more

powerful learners leading to increases in measured test results (Watkins, 2010). The two agendas need not be mutually exclusive. It is certainly feasible both to cultivate creative dispositions *and* to raise achievement levels in subjects. Indeed, research commissioned by CCE into the impact of Creative Partnership on attainment (Cooper et al., 2011) found small but significant attainment gains, especially for young people at Key Stages 3 and 4.

Unsurprisingly, many teachers focus more closely on high-stakes state-mandated testing than on tracking the development of topics such as creativity (William et al., 2004). For in such a pressured environment it is easy to see why teachers can retreat to an unhelpful polarity – results or the development of creative learners – when the evidence suggests that they are not at all mutually exclusive. And the lack of any requirement to assess creativity in a national, summative way (or even formatively in class) also contributes to the undervaluing of creativity.

1.5 Assessing creativity in schools

Despite the difficulties, attempts to assess (Hocevar, 1981) creativity have a rich history (Plucker and Makel, 2010). Yet our review found no examples of widely used and credible methods of assessing creativity in schools, although it uncovered some noble attempts and experiments, many stimulated by CCE's own work.

The purpose of any assessment activity critically influences the selection of methods. Two fundamentally distinct choices have to be made. The first is whether the assessment is formative, helping pupils improve, or summative, enabling comparison (Boud and Falchikov, 2006: 401). Approaches to formative assessment in English schools have been shaped significantly by the Assessment for Learning (AfL) movement in recent years⁶. AfL uses a range of feedback methods to help learners achieve mandated levels of examined performance more effectively.

EU interest in assessing creativity remains particularly strong, and 2009 was designated 'European Year of Creativity and Innovation'. In their book arising out of that Year, *Measuring Creativity*, Saltelli and Villalba (2008:19) suggest that, for EU purposes, measurement provides insight for policymaking and also holds potential for allowing country-wide performance comparisons. They also acknowledge the considerable difficulty inherent in measuring creativity to produce provide useful comparable data.

⁶ In 1999 the Nuffield Foundation funded a piece of research called the *King's-Medway-Oxfordshire Formative Assessment Project* (KMOFAP). As a result of the project, Assessment for Learning (AfL) has become central to education policy in England and Scotland. AfL is any assessment that prioritises pupil learning first and foremost.

2 **Thinking about creativity and its assessment**

‘Despite the abundance of definitions of creativity and related terms, few are widely used and many researchers simply avoid defining relevant terms at all’
Jonathan Plucker and Matthew Makel (2010: 48)

This section introduces the theoretical foundations for our assessment framework, building on ideas introduced in 1.4 and 1.5 and drawing selectively on a much larger review of the literature (Spencer et al., 2012).

As the quotation from Plucker and Makel (2010) above suggests, the psychological and social components of creative performance are hard to disentangle. However, because our study attempted to develop a framework for assessment of individuals in schools, the literature review focused on the characteristics of creative individuals that might be assessable, rather than on exploring the nature of creative outputs and performances, or on environments that might support creativity more effectively.

This section begins by summarizing some tensions between different views of creativity, then brings together key conceptualisations about the dispositions that make up a creative individual, and considers the challenges presented for anyone seeking to create an assessment framework for creativity.

Inevitably in developing any assessment framework, choices have to be made with regard to earlier thinking about the subject. Informed by our literature review, the decisions we took with regard to assessing creativity can be summarized thus:

- a) We chose to describe creativity in terms of individual creative dispositions selecting a cohesive set of dispositions drawn from the literature. We chose consciously to focus directly on what is going on for the learner during acts of creativity, not on the environment in which this takes place nor on any creative products produced per se (although these may well be used by learners to indicate their own sense of progress.);
- b) While recognizing and valuing the social and collaborative nature of creativity, we focused on assessing creativity within individuals;
- c) We deliberately included one disposition which specifically acknowledges the collaborative nature of creativity;
- d) In selecting creative dispositions we explicitly aligned ourselves with a view of creativity (and of intelligence) that sees it as largely learnable rather than essentially innate;
- e) We sought to acknowledge the importance of context by valuing both creativity within subjects (in music and in mathematics, for example) as well as creativity in its more generalisable forms (such as being able to have good ideas in a range of domains); and
- f) We deliberately included an emphasis on the discipline of being creative as well as on the well-documented value of free-thinking.

2.1 Differing views of creativity

Craft's (2008a) model (see Figure 1) helpfully maps a range of views of creativity. These range from creativity as an *individualised* phenomenon to creativity as a *collective* endeavour. It also serves to point up the tension between creativity as *domain-specific* versus it being *domain-free*.

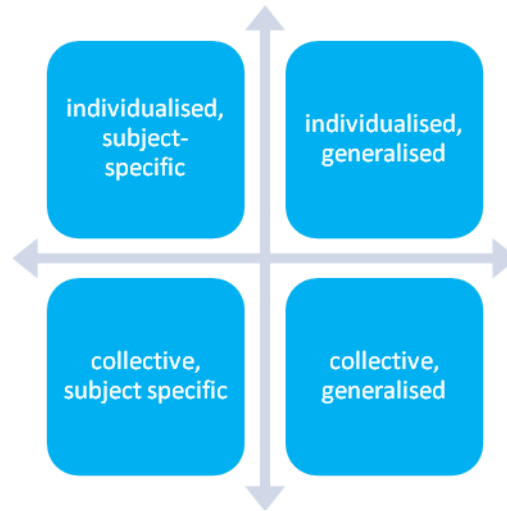


Figure 1 Creativity: Person and location

2.2 Describing creativity in individuals

Guilford was one of the first researchers to examine creativity from the perspective of creative dispositions, commonly referred to as psychological trait theory. Trait theory focuses on habitual patterns of mind and their associated behaviours to describe and account for different personalities. Guilford's 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).

There is increasing consensus about which dispositions might serve as indicators of the strength of creative-mindedness in individuals. In a comprehensive meta-analytical review of the creativity literature, Treffinger et al. (2002) compared 120 definitions of creativity in papers exploring the 'traits', 'characteristics', and other personal 'attributes' distinguishing highly creative individuals from their peers.

From these 120 definitions they compiled a list of creative dispositions (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'.

There have been several attempts to map the dispositions that underlie creative performance (e.g. Kaufman and Sternberg, 2010, Root-Bernstein and Root-Bernstein, 1999). Some lists of

creativity-related dispositions were simply too long for teachers to be able to find manageable. Root-Bernstein and Root-Bernstein, for example, list 13 such dispositions, all of which have a degree of both empirical and face validity. They are careful observation; use of sensory imagination; the ability to abstract essentials; recognizing patterns in information; forming new patterns; generating useful analogies; use of intuition and embodied cognition; empathy and shifting perspectives; mapping between different dimensional representations; creating and adapting models; playfulness with material and ideas; transforming ideas into different media; and synthesizing elements of thought into a coherent whole.

2.2.1 Individual versus social components of creativity

Treffinger et al.'s (2002) list of dispositions while a helpful starting point is incomplete as a framework for assessment in so far as manifestations of creativity are, to a degree, almost always the result of complex collaboration across social groups. The challenge of using such a categorisation to create an assessment framework is that such dispositions are not simply located within the individual, they are also a function of what the broader context affords. As the authors note, many definitions of creativity challenge the notion that dispositions 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'.

An early authoritative text on creativity was Arthur Koestler's (1964) *The Act of Creation*, which takes a broad conception of creativity and 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.

Regarding the social element many current approaches to creativity stress the social and collaborative nature of the creative process. John-Steiner, for example, tells us that:

The notion of the solitary thinker still appeals to those molded by the Western belief in individualism. However, a careful scrutiny of how knowledge is constructed and artistic forms are shaped reveals a different reality. Generative ideas emerge from joint thinking, from significant conversations, and from sustained, shared struggles to achieve new insights by partners in thought. (John-Steiner, 2006:3)

The challenge for anyone creating an assessment tool exploring individual creativity is to allow sufficient scope for the social element of creativity to be accounted for.

2.2.2 Subject-specific versus general creativity

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 (see 2.1.x), but that the creative side is nurtured and cultivated in the process of developing maturity and that it is likely to draw on experiences in different contexts.

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.

Anna Craft (2008a:7)

2.2.3 Learnable versus innate

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 (see above in 2.2.2) and in its ‘learnability’. This latter tension is presented graphically in Figure 2 below.

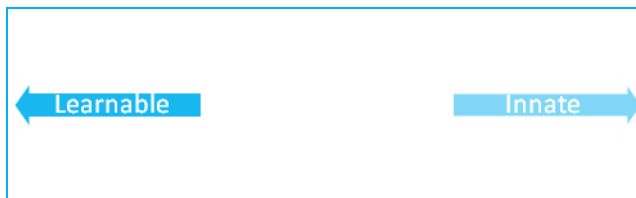


Figure 2 Creativity: Learnable or Innate

It is clear, for example, that every individual is creative to some degree (Csikszentmihalyi, 1996). Creativity also has levels, so that we can ask ‘how creative’ an individual is (Treffinger et al., 2002). Heindel and Furlong (2000) suggest that while Torrance believed that creativity could be taught like any other skill, Csikszentmihalyi believed that, while children could not be taught creativity, the right combination of personal characteristics and an encouraging environment could produce it. Perkins has made a powerful case for the learnability of intelligence (Perkins, 1995) including many aspects of creativity identified in the creativity literature.

2.2.4 Freeranging versus Disciplined

One important aspect of generalized creativity is ‘divergent thinking’ – the ability to generate many ideas from a range of perspectives without being limited by preconceived thinking. Divergent thinking is important, but it is not a proxy for creativity. Rather tests of it represent ‘estimates of the potential for creative thinking and problem solving’. Being imaginative can be seen as the divergent aspect, while being ‘disciplined’ is the convergent and important parallel one (Runco, 2010:424).

2.2.5 Assessing Creativity – a specific challenge?

In 1.5 we noted the difficulties others have found in assessing creativity. Here we briefly consider the specific challenges which assessing creativity in schools may bring as well as the wide issues of the purposes of any assessment.

At a very practical level assessing something like creativity, if reductionist, could give rise to ridicule, as we have observed elsewhere in a review of wider skills: ‘The idea that young people could come out of school labelled as a ‘level 7 imager’ or ‘grade C collaborator’ is

horrific – yet clearly some kind of evaluation of success is necessary’ (Lucas and Claxton, 2009:25).

Our quotation 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.

As we began to explore in 1.5, the paradigms within which formative and summative assessment sit are very different (Kaufman et al., 2008). 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.

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 (William 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.

The evidence for the use of formative assessment is strong. Black and William’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.

Leahy and William’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 William, 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).

William (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;

Our review found a variety of assessment instruments assessing the development of traits linked to creativity (Beattie, 2000, Hocesvar, 1981). In each case this necessitates an assessment instrument that captures instances of those dispositions in action. The literature has explored a variety of possible ways forward including:

- use of descriptive rubrics supported by examples (Lindström, 2006);
- assessment by peers;
- assessment using portfolios;
- assessment using mixed methods (Treffinger et al., 2002); and
- self-assessment.

3 Our prototype tool for assessing pupils' creativity in schools

'Genius is one percent inspiration and ninety-nine per cent perspiration'
Thomas Edison

Our prototype model of the creative individual resulted directly from what we learned from our interaction with practitioners and from the literature review we have summarized. It was further informed by the criteria we evolved with our steering group to help us gain maximum value from our two field trials (see page 5).

3.1 The Five Creative Dispositions Model

The five dispositions on which we decided to focus were arrived at after careful weighing up of the pros and cons of existing lists of creative dispositions in the light of our criteria. Our model explored the following five core dispositions of the creative mind:

1. Inquisitive. Clearly creative individuals are good at uncovering and pursuing interesting and worthwhile questions in their creative domain.
 - Wondering and questioning
 - Exploring and investigating
 - Challenging assumptions
2. Persistent. Ever since Thomas Edison first made the remark with this we start this section has been repeatedly emphasized.
 - Sticking with difficulty
 - Daring to be different
 - Tolerating uncertainty
3. Imaginative. At the heart of a wide range of analyses of the creative personality is the ability to come up with imaginative solutions and possibilities.
 - Playing with possibilities
 - Making connections
 - Using intuition
4. Collaborative. Many current approaches to creativity, such as that of John-Steiner (John-Steiner, 2006), stress the social and collaborative nature of the creative process.
 - Sharing the product
 - Giving and receiving feedback
 - Cooperating appropriately
5. Disciplined. As a counterbalance to the 'dreamy', imaginative side of creativity, there is a need for knowledge and craft in shaping the creative product and in developing expertise.
 - Developing techniques
 - Reflecting critically
 - Crafting and improving.

We chose to describe the five dispositions with relatively abstract adjectives, while using the gerund to indicate the sub-dispositions in an attempt to reinforce the action required to 'live' each disposition fully.

In terms of the different approaches to creativity summarized in Figure 1 in section 2.1, we sought to be inclusive, accommodating as many of them as possible within the context of the schools with which we were working. Our prototype, we believe, holds relevance within each area of the school curriculum, while recognizing that the way a particular disposition is expressed may be different depending upon context. Different approaches were adopted in different subjects, and, while there is not space to explore these here, a fuller description can be found in our Full Report on CCE's website⁷.

At the outset we assumed that it was at least worth exploring the use of the prototype tool across the age range 4-16, although in 3.3 we describe why this was not, in fact, possible given the strong performance culture prevalent at Key Stage 4⁸. We did not explore the ways in which learners of different ages demonstrate creative dispositions.

Our first field trial was planned as a proof of concept, aiming to show us how easily teachers could understand and use the tool at a moment in time to assess pupils. The second trial focused on self-assessment by individual learners. Throughout the project we have favoured a formative approach to assessment tool design, while remaining agnostic about potential summative uses, despite the design challenges raised by Villalba (2008:33). Villalba proposes that an instrument to test creativity, summatively would also be 'extremely challenging and difficult' and 'a long term project'. Its first step would involve agreeing on a working definition of creativity adaptable across all user cultures. He argues that 'it seems costly and maybe not very effective to use PISA or other international scale as a measure of creativity' for a number of reasons:

- Differentiation of creative thinking from knowledge proficiency might be difficult to achieve;
- Ascertaining whether 'correct' answering of questions is a true reflection of creativity rather than knowledge;
- Avoiding the unfair advantage some pupils have over others in traditional test conditions;
- Determining which items require more creativity than others (the test's reliability); and
- Accounting for the complexity of 'creativity' as a multidimensional, multidisciplinary concept.

The tool tested initially is shown graphically on the next page. The tool was designed so that development of each of the 15 sub-dispositions could be tracked along three dimensions:

- strength - this was seen in the level of independence demonstrated by pupils in terms of their need for teacher prompts or scaffolding, or congenial conditions;
- breadth – this was seen in the tendency of pupils to exercise creative dispositions in new contexts, or in a new domain; and
- depth – this was seen in the level of sophistication of disposition application and the extent to which application of dispositions was appropriate to the occasion.

⁷ <http://www.creativitycultureeducation.org/research-impact/exploreresearch/>

⁸ In England Key Stages of education sit within the National Curriculum framework of teaching. Key Stage 4 comprises school years 10-11, and children aged 11-14. Pupils are assessed at the end of KS4. This marks the end of compulsory education.

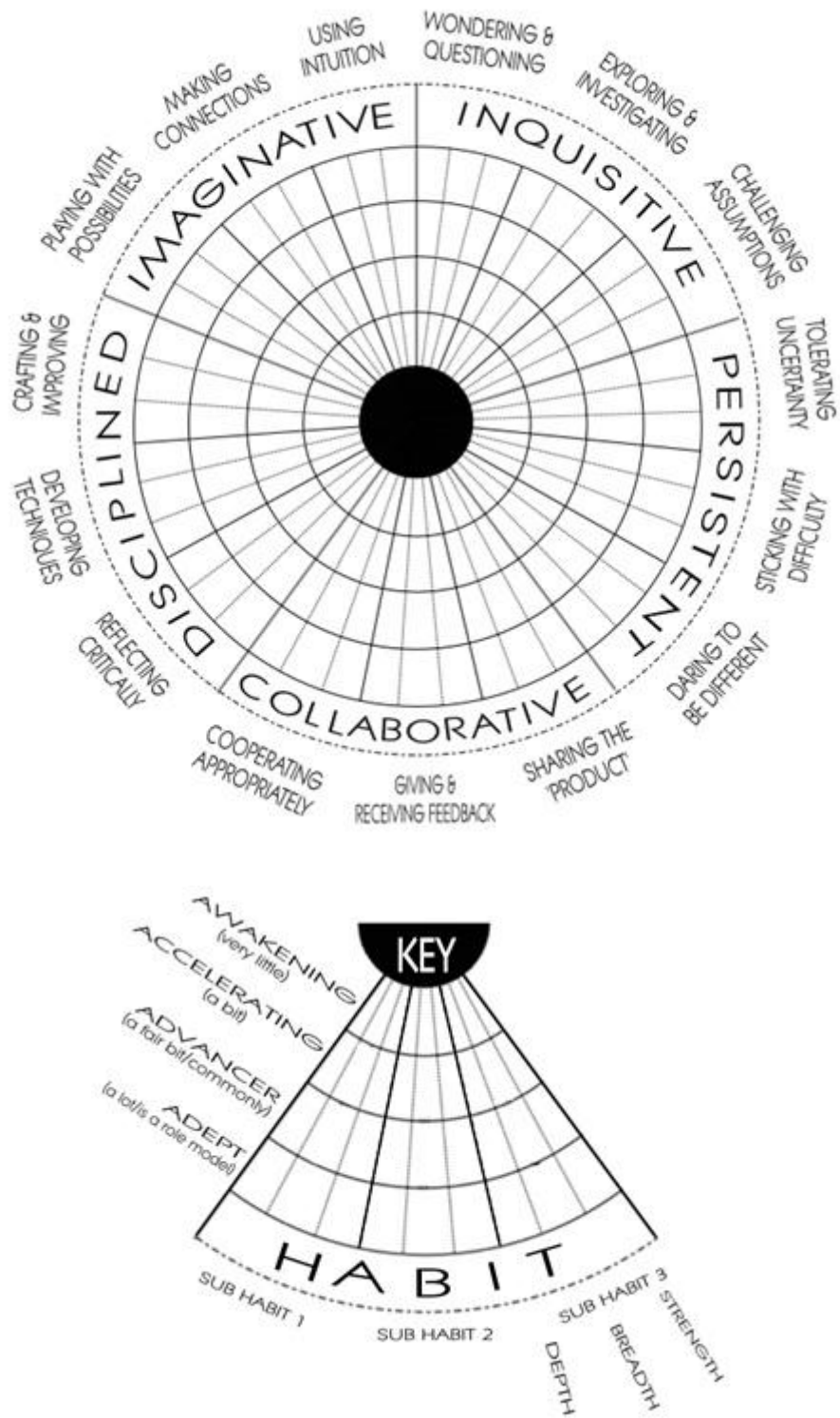


Figure 2 FT1 Tool

3.2 Trialling and refining the tool

'The project 'supported work already started, to make more explicit the importance of developing / exploring creative potential in all subject areas, and the 'danger' of compartmentalising creativity - and devaluing it - particularly in the current political climate. As it is, too many pupils write themselves off creatively because they "can't draw"

Secondary Teacher, Field Trial 2

'I have noticed that the children are far more aware of how and when they use their imagination and are now independently identifying this throughout lessons for themselves'

Primary Teacher, Field Trial 2

We started our research and development with three questions:

1. Is it possible to create an assessment instrument is sufficiently comprehensive and sophisticated that that teachers would find useful (the proof of concept)?
2. Would any framework be useable across the entire age span of formal education?
3. If a framework is to be useful to teachers and pupils, what approach to assessment should it adopt?

Here we give answers to these questions and offer some more finely grained reflections on what we found. Our Full Report can be found on CCE's website⁹.

1. It is possible to create an assessment instrument that teachers find useful and to this extent the concept is proved.
2. The framework seems most useable between the ages of 5 and 14. Post 14 the pressure of examinations and the pull of subjects seems too great. Pre 5 early years teachers already have excellent formative learning tools for use in a curriculum which is much more playful and into which the development of creativity already fits easily.
3. We are clear that the primary use of the tool is in enabling teachers to become more precise and confident in their teaching of creativity and as a formative tool to enable learners to record and better develop their creativity.

3.3 Findings in more detail

On the evidence of our field trials in twelve schools, the concept of an assessment framework for creativity in schools would seem to be valuable and relevant. Its value resides in its use as a formative assessment tool to track pupil creativity and as a prompt to teachers to enable them to maintain focus. The language of the tool provides pupils with a new (and sometimes stretching) vernacular with which to describe complex metacognitive activity and helps teachers consider the opportunities for creative development they provide. Among those we worked with we found no appetite for a summative creativity instrument.

As a proof of concept, this study shows us that it is possible for both teachers and pupils to assess pupils' creativity, and that the five habits have face validity. Our conception of

⁹ <http://www.creativitycultureeducation.org/research-impact/exploreresearch/>

creativity fits teachers' understandings of the traits of creativity that they would wish pupils to develop. The habits are said to be sufficiently distinctive and useful, and there is a strong sense among teachers that our framework encompasses a learnable set of dispositions.

While we had originally speculated that the framework could be of use between the ages of 4 and 16, the trials suggest that we should initially focus on the 5-14 age range, although some practitioners may find it useful with younger and older pupils. It is not currently of use at Foundation stage (age 3-5). There are two reasons for this. First, the tool always had a self-assessment element and this made it too complex for very young pupils. Secondly, early years practitioners have a range of useful formative assessment processes already for a largely play-based curriculum.

The tool is almost at the right grain of analysis: use of five habits appears to be sufficiently comprehensive and not unwieldy. Consolidation of the three sub-habits into one exemplar statement for pupils is too blunt an instrument to ensure they address all three aspects of the statement. To use the three dimensions of strength, breadth, and depth explicitly generates an assessment task that is too burdensome and complex, but by making them more hidden, some of the subtlety is lost. The tool is clear and accessible in its use of terminology and is applicable to a broad range of real-world types of creativity. The tool is sufficiently comprehensive, and internally coherent: no missing habits or sub-habits, or overlap of sub-habits, were identified during the trials.

Benefits of using the assessment tool are broad and relate to:

- The potentially powerful use of feedback material for formative use by pupils as it supports them in harnessing more of their creativity.
- The additional focus and precision which our research-informed synthesis of five dispositions afforded teachers in their classroom activities.
- The influence of the tool on teachers, and its help in refining their practice, helping them to think specifically how they could cultivate the full range of creative dispositions.
- The boost to the status of creativity afforded by our clarification and refining of a practically useful definition of creativity for those trying to argue its case. This is particularly pertinent in the current educational landscape as many 'creative' subjects are not to be found in the coming English Baccalaureate¹⁰. A more precise, research-led definition could be helpful in countering potentially negative impacts of a narrower curriculum upon creativity.
- The balance of simplicity and rigour. This project has attempted to span the gap between theory and practice, and has found that teachers will only use a tool that obtains this balance.
- The opportunity to build a repository of teaching and learning materials related to the development of creativity.
- 'Brokering' a community of practitioners interested in teaching creativity.

¹⁰ Introduced as a performance measure in the 2010 performance tables, the EBacc is a measure of where pupils have attained a grade C or above in a core of academic subjects (English, maths, history or geography, the sciences and a language). It enables comparison of schools in terms of their provision for the key academic subjects that are preferred or required for entry to degree courses.

3.4 Reflections on fieldwork in schools

Both field trials took just one of the five dispositions: 'being inquisitive' for the first trial and 'being imaginative' for the second. In the first trial teachers at six schools (3 primary and 3 secondary) were asked to focus on 6 to 12 pupils and attempt to map each child's profile onto a copy of the reporting tool at a single moment in time by shading in the appropriate 'strength', 'breadth', and 'depth'. They were given full instructions. From the first trial we received a report from each of the six schools, and copies of over 200 completed assessment tools.

For the second trial teachers at 11 schools (5 primary and 6 secondary) trialed a modified tool – this time for pupils to self-assess with – in one of their classes for a period of four to six weeks. Teachers implemented the project in a variety of ways, generally following the guidelines given by the project team. Most teachers showed an online presentation and video we had prepared that explained the concept of creativity, why its assessment would be beneficial, and how we planned for them to do this. The presentation and video were received warmly by pupils. Many pupils were given the opportunity to develop their own definitions of imagination, through various means including discussion, mind-mapping, and blogging. Teachers held 2-3 class sessions with the class prompting them to self-assess using the pre-formatted pupil reporting tool. They were asked to consider, from recent examples, how imaginative they had been in comparison with the exemplar statement on the tool. The exemplar statement can be seen on the tool in Appendix 1. They were to justify their self-assessment of how closely they fit the exemplar statement on the reporting tool. We received 25 teacher questionnaires, over 120 pupil questionnaires, and copies of over 180 pupil reporting tools from participants of the second trial.

Some teachers linked their introductory session explicitly to the piece of work the class would tackle that lesson. In one history class, for example, a discussion was held to develop the class' awareness of the role of creativity in history. A religious studies teacher used the introduction as a way of bringing in consideration of thinking skills to a topic containing 'big philosophical ideas'.

Pupils were asked to return to the tool during 2-3 lessons (at their teacher's discretion) over the course of around six weeks. To test this proof of concept (i.e. whether pupils could use the tool) they were asked to think about some concrete examples of when they were being imaginative recently. Teachers were told they could focus pupils' on to a particular lesson or project, but also to allow pupils to bring in evidence from other lessons. Pupils were asked to compare their own behaviour with the exemplar statement on the tool, ticking a box to show how 'like me' this behaviour was. They were required to seek evidence. For example, was their evidence in their written work?

As would be hoped, most pupils developed understanding of the key words and concepts used in the tool. Having used the tool, pupils were overwhelmingly more aware of when they were being imaginative; many were also seeking actively for opportunities to be more so. Those pupils who claimed that the tool had not made them more aware fell broadly into two categories. Some believed that they had sufficient awareness anyway. Others showed that they had held onto their original views that creativity and imagination could not be taught; that they were unable to be imaginative; or that creativity had too many meanings to try and define it. In one school in particular, pupils' responses indicated a lack of sufficient contact

time with the tool, but also that initial input from teachers had not been sufficient to develop their understanding. It is to be expected that these factors would be concurrent with a narrow view of what it means to be imaginative.

The majority of teachers involved with the trial told us that their experiences with it had impacted positively upon their practice. Three teachers talked of how the trial had broadened their awareness of creativity; the different forms it takes and places it emerges; and helped them to value and celebrate it. Another told us how she had benefitted from the narrow focus on just one aspect of creativity; planning to continue this focus by looking at a small number of 'skills' on a half-termly basis.

At five schools, teachers talked about impacts of the trial on their practice, such as more listening to (and questioning of) pupils in order to notice imaginative behaviour; more praise and encouragement of pupils; more time for reflection; and more planning for imagination. Planning opportunities for imagination into lessons and into wider schemes-of-work was the most common change teachers mentioned.

The vast majority of pupils told us that they found the tool accessible and evidence easy to gather and that the tool became easier to use as it became more familiar.

The quality of self-assessments varied, for a number of reasons. Some pupils just listed work they had done or, more broadly, lessons they had been present in where they had used their imagination. Detail was generally sparse and insufficient for teachers to give guidance for improvement although some pupils provided significantly more detail than others. On the whole, teachers were satisfied that evidence was reasonably justifiable and appropriate. Evidence tended to be better when it was concrete and sufficiently detailed, although a primary teacher told us that she found verbal evidence easier to agree with because her pupils were able to articulate better orally than in writing. Evidence from lessons other than the teachers' own was harder to judge.

Pupils often mentioned how much easier it was to gather evidence in subjects where they felt that their creativity was used more naturally; or where they were familiar with using their imagination in the way they had always understood imagination to mean.

Difficulties some pupils had related to: finding examples of when they had been imaginative; relating their examples to the exemplar statement; finding solid evidence; and deciding which of the 'like me' statements their evidence suggested they should tick. Putting thoughts into writing (particularly if pupils had limited vocabulary) was the most commonly expressed of all these issues, although several of the mentions were by pupils who claimed to find the tool easy to use. This suggests that it was only a minor issue for these pupils. In the school in which it was cited most frequently (by 15 pupils) however, the teacher only considered recording evidence to be an issue for the less able children.

In two schools reflecting and discussing with peers was more popular than noting experiences down while some pupils tried to include too much detail on their reporting sheet. For a formative tool to map progression, however, the question has to be posed regarding how useful this level of detail is. While a certain level of relevant detail is helpful in ensuing teachers understand pupils' evidence, reams of descriptive, uncritical narrative are unlikely to be read and absorbed by teachers with a view to assisting in the formation of deeper levels of creativity; and even less likely to be drawn on by pupils as they hit problems in the future or wish to reflect and decide upon their own personal development targets.

A common theme was that developing creativity in maths lessons posed some challenges. The teaching had to be conducive to pupils using their imagination; they needed confidence to believe they could be imaginative (particularly girls); and they needed hard evidence, which was less easy to obtain from looking at a piece of maths work. Pupils in one maths teacher's class claimed that the class did find it easier with practice.

3.5 **Refining the second field trial**

The first field trial highlighted some aspects of the tool that were burdensome or difficult to use for young students in a limited time. Field trial 2 therefore simplified the tool to make it more friendly and accessible. Key differences from the first trial were:

- Being 'imaginative' was the creativity sub-habit in focus, rather than being 'inquisitive'.
- The assessment tool was simplified in terms of process. The assessment tool was simplified in terms of content.
- Assessment was undertaken by pupils, with teachers taking a facilitative 'signing off' role.
- The assessment process was embarked upon over a period of time rather than carried out at a snapshot moment.
- The assessment tool accounted for 'strength' and 'depth' of the sub-habit through pupils' comparison of self with a single exemplar statement (rather than scoring against multiple measures of 'strength' and then 'breadth' and then 'depth').
- The 'breadth' dimension was accounted for by pupils considering examples and evidence from various contexts rather than as a separate score.
- Key Stage 4 (age 14 to 16) was omitted due to potential conflicts of statutory examinations. Schools were asked to focus on Y2, 4, 6, and 8, as well as at Foundation stage.
- Having trialled quite a complex approach to mapping creativity using dimensions of 'strength', 'breadth', and 'depth' in the first field trial, the second trial simplified the tool in this regard. Our approach to 'strength' and 'depth' involved the following criteria attached to the exemplar statement (seen in the tool in Appendix 1):

'I can do these things without being prompted. I am confident about doing these things'.

Following field trial 1, the concept of 'strength' was replaced with the more transparent idea of 'independence'; the idea of being able to do things without being prompted. Confidence was used as a proxy for 'depth'.

This consolidated approach to tracking strength and depth was only apparently successful at those schools where the tool was entirely unproblematic. At three schools, teachers were satisfied that pupils understood the requirement had no problem paying attention to both. At seven of the other schools, teachers themselves did not provide us with feedback relating to this specific question, suggesting strongly that the consolidated approach was too subtle or intangible for them to notice.

Having trialled a more complex approach to assessment of the three sub-habits of 'being imaginative' in field trial 1, for field trial 2 we developed a combined exemplar statement that

described what it would look like if an individual was doing all three sub-habits well. Pupils varied in the degree to which they evidenced one, two, or three sub-habits. In some instances pupils did not comprehend the question we asked regarding the number of sub-habits they had attempted to evidence. This suggests the consolidated approach was not sufficiently directive for some.

Of the three sub-habits, if one was given slightly more attention by those telling us what they found difficult, it was using their 'intuition' (being able to carry on even when you can't fully explain your reasoning). This said, difficulties with intuition were mentioned only infrequently. Not a familiar word to begin with, it became more so with practice and also with hindsight. Some found it less easy to notice when they themselves were being intuitive, although teachers told us pupils did use their own intuition. It is quite possible that the problem with intuition (if indeed there really was one) may not have been the wording, because teachers would have used different words to explain what it meant, but the concept itself. Intuition is perhaps inherently difficult to notice and, therefore, to evidence. As it is so intangible it is also harder to write about, even when noticed.

Teachers at two schools both expressed a preference to focus on capturing evidence for only one-sub habit at a time.

Our approach to 'breadth' involved asking participating teachers to allow pupils to bring in evidence from other lessons as well as their own. Pupils indicated to us whether they had drawn upon a single subject only; a narrow range of subjects; a broad range; a broad range and out of school examples. The range of subject examples drawn from was used as a proxy for breadth.

At this stage in the development of the tool, pupils were not led by the research team or teachers to be systematic about collecting their evidence and only around a dozen mentioned out-of-school evidence. This was expected, given the arrangement whereby pupils did this work with only one teacher. The trial was to see whether pupils *could* refer to other subjects. A common theme in this regard was selectivity, with the most overtly 'creative' subjects being considered more readily by some.

Remembering contexts outside of pupils' immediate experience was a problem for a few pupils; for some even recalling what they had done earlier in the lesson in which they were reflecting was a challenge. Subject silos also kept, to some degree, pupils' minds confined to the subject in which they were working. This suggests that a method of capturing thoughts that works on the spot would be best. Note, however, that a teacher at one school believed that not overdoing the reporting was a good approach.

4 **Next steps**

‘We need innovative practitioner research within the field of curriculum and assessment studies – research that will change assessment policy and creative learning practices within the classroom in different socio-cultural contexts.’

Pamela Burnard (2011:140-149)

The fact that, after recent years of considerable investment in promoting creativity in schools in England, there is no widely used assessment tool or framework has a number of possible explanations.

It could be that assessing creativity is just too difficult in schools. Or it might be a consequence of being in an over-tested education system. Or the subject-dominated nature of schools may simply throw up too many logistical barriers. Or, we suspect, as was revealed in the anecdote we cited on page 2, teachers who are interested in creativity may remain wary about assessing it.

The teachers who trialled our tool found the underlying framework both rigorous *and* plausible. They liked the tool and could see how they would use it. On the basis of this small-scale study, there would seem to be an appetite for a tool like ours to help teachers teach creativity better and to help learners develop their own creativity more effectively. But we are acutely aware that we are only at the very beginning of a larger process.

The teachers we worked with clearly preferred an approach to assessment which was formative not summative. We got the strong sense that there is little appetite for the creation of a complex summative matrix against which the creativity of pupils can be compared and cross-checked. If such a solution were a medical cure it might, as it were, be worse than the disease!

Thus far we have only tried the tool with teachers who declare an interest in creativity and only involved English schools. While the concept seems to be a useful one, the tool has only been used by teachers and pupils over very short periods of time. The assessment tool was a paper one rather than existing in online versions. Its design was simple and not specially tailored to the different ages of the pupils who used it.

4.1 **Further development trialling?**

We are left with a number of questions which we hope might be of interest to colleagues in other countries. These include but are by no means limited to this list:

- How might the tool be improved and refined?
- Does our approach to identifying creativity dispositions work in schools in other countries?
- Does our tool have only limited appeal (for those interested in creativity) or could it have a wider use?
- How best could an approach to the assessment of creativity like the one we describe be integrated into a school’s reward and reporting systems?
- How might our tool be helpful in improving the quality of teaching and learning creativity?

- What opportunities does the tool afford for broader professional development?
- How might technology help?
- Are we right not to try to develop a summative tool?
- What other questions does this preliminary research and development work suggest might be helpful to ask?

In the coming year, we will be focusing on one element on this list – the development of professional development materials.

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Appendix 1: Field Trial 2 – Assessment tool

Name:

Year group:

Not at all like me A little like me Quite a bit like me Very much like me

Your evidence and notes (don't forget the date)...

Being imaginative means:

...trying things out. It mean combining ideas from different places. It means being able to carry on even when you can't fully explain your reasoning.

If this is 'very much like me' then:

I can show that I can keep my mind open to ideas and that I don't narrow down my ideas too quickly. I can show that I look for links between facts and ideas. I use my own intuitions to come up with ideas. I can do these things without being prompted. I am confident about doing these things.