The development of a conceptual framework for embedding creativity in schools

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Abstract

Creativity and creative thinking are increasingly being cultivated in schools across the world. But while there is a growing evidence base with regard to, for example, curriculum, culture and pedagogy, our understanding of the leadership of creativity is still in its infancy. The lack of research in this area arises from a number of factors including the relative novelty of the field, the many myths about creativity, the lack of consensus about school-based models of creativity and the complexity of evaluating interventions which have many different components and are almost impossible to compare because of their differences.

Drawing on two decades of collaboration with schools and system leaders in Australia and England, this paper presents a conceptual framework for school leaders wishing to embed creativity. 12 dimensions of progress are described, each illustrated with a combination of evidence and practises. Two overarching concepts are suggested as the byproducts of any serious attempt to prioritise creativity in schools a rethinking of the purpose of school and a re-examining of the role of learners.

The draft framework is offered as a stimulus to all policy makers, researchers and practitioners in this emerging field.

Key words

Creativity - Creative Thinking - Creative leadership - Conceptual framework – Leadership for creativity

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1. Introduction

There is a growing sense of the importance of creativity and creative thinking[1] in schools (World Economic Forum, 2015; Care et al., 2018; Vincent-Lancrin et al. 2019, Lucas, 2022a), but our understanding of how this can best be achieved is still in its infancy. Various publications associated with the Programme for International Student

[1] Throughout this paper the term creativity is used to describe a concept which, in schools, is also referred to as creative thinking or creative thinking skills/habits/competences, the processes by which creativity is experienced and developed. Globally creativity is sometimes distinguished from critical thinking, sometimes as in the PISA 2024 Test, described as creative thinking (to include creativity and critical thinking).

Assessment (PISA) Creative Thinking results published in 2024 have provided a timely boost both to the reputation of the field and to our understanding of factors affecting implementation at a system level (OECD, 2022; OECD, 2023a; OECD, 2023b; OECD, 2024). But while there is some emerging theoretical understanding of the mechanisms by which creativity can be systematically and intentionally embedded (Lucas and Spencer, 2021; Lucas, 2023a, Lucas et al., in press) there is, as yet, no robust empirical evidence as to what works most effectively in schools.

There are a number of reasons why our understanding of how creativity is best embedded in schools is still in its infancy. These include:

- Creativity has only been identified in curricula in the last fifteen or so years, today appearing in some 20 educational jurisdictions (Taylor et al., 2020) and, even where it is included, creativity is only clearly defined in a small number of instances such as Australia (Australian Curriculum, n.d.)
- Only in one jurisdiction - Victoria in Australia - is creativity mandated, defined with progression mapped across the years of formal schooling, and tested at age 15 (Victorian Curriculum and Assessment Authority, n.d)
- Even in jurisdictions which do specify creativity as part of school curricula, accountability systems tend to continue to focus on conventional achievement metrics such as academic performance in core subjects (Beghetto, 2019)
- Where creativity is included in national or State curricula it is typically left to the discretion of individual schools to determine how or even whether to teach it Lucas, 2022a)
- Creativity in schools looks very different depending on the phase of education with early years approaches being largely content-free, where senior secondary approaches are increasingly fragmented, focused on a small number of subject disciplines and the demands of external assessment systems (Vincent-Lancrin et al., 2019)
- The historic association of creativity with the arts means that initiatives focusing on creativity in schools have tended to focus on arts subjects to the exclusion of, for example, science, maths and the humanities (Vincent-Lancrin et al., 2019)
- Beyond school the term creativity has acquired similar entrenched associations with phrases such as ‘the creative industries’ globally and as the title of research centres such as the Creative Industries Policy and Evidence Centre (Creative Industries Policy and Evidence Centre, n.d.), implying that only some aspects of working life are creative
- While our understanding of curricula and pedagogies for developing pupils’ creativity is growing (Vincent-Lancrin et al. 2019), there is less evidence as to the efficacy of different approaches to assessment and teachers’ professional development (Lucas, 2022a)
- There are still many myths surrounding schools and creativity (Karwowski, 2022) and this means that all those exercising leadership in schools require not just the kinds of leadership skills we know to be effective (Robinson et al., 2009) but an

additional set including bravery and a confident understanding of a topic that is not part of initial teacher-training and sometimes contested by teachers and policy-makers (Stoll & Temperley, 2009).

For all of the reasons above such sustained initiatives to embed creativity in schools are extremely hard to evaluate involving multiple factors and inevitably adopting many different perspectives. What is clear from decades of research is the critical role of leadership in bringing about any change in school (Harris & Jones, 2023) and of the many ways in which leadership practices can distributed within and beyond a school (Mifsud, 2023).

This paper begins to synthesise the limited literature associated with the topic as well as learning from the experiences of school leaders, both in formal positions and in specific roles with a mandate to make change, for example, as part of a project, in a relatively small number of cases where strategic attempts to embed creativity in schools have been made. In bringing together theoretical and practical considerations, a draft conceptual framework is offered along with some emerging principles of effective leadership practices.

2. Building understanding of leadership practices relating to creativity in schools in the UK and in Australia

This draft conceptual framework for embedding creativity in schools draws primarily on 20 years of study by the author working with schools and policy-makers largely in the UK and Australia, all the while supported by insights from wider international policy development, emerging research and promising practices. The draft framework is inevitably limited by the small number of these educational jurisdictions, but it is hoped that the fluctuating priority afforded to creativity in schools across these two countries is nevertheless illustrative of many of the challenges and some of the possible solutions.

2.1 The English experience, where creativity is not yet on the National Curriculum

At the turn of the century Sir Ken Robinson produced a seminal report defining creativity as 'Imaginative activity fashioned so as to produce outcomes that are both original and of value' (National Advisory Committee on Creative and Cultural Education, 1999, p.30). In the following decade there was a strong focus on creativity as part of the Creative Partnerships initiative. While not officially on the National Curriculum, creativity was one of six Personal, learning and thinking skills (PLTS) actively encouraged by the Qualifications and Curriculum Development Agency. With a change of government in 2010 these energies were dissipated and the PLTS were relegated to a government archive website (Personal, learning and thinking skills, 2011).

Early in the decade following 2010 the Centre for Real-World Learning (CRL) at the University of Winchester was commissioned to develop and test an evidence-based model of creativity specifically intended for schools, (Lucas et al., 2013), Figure 1:

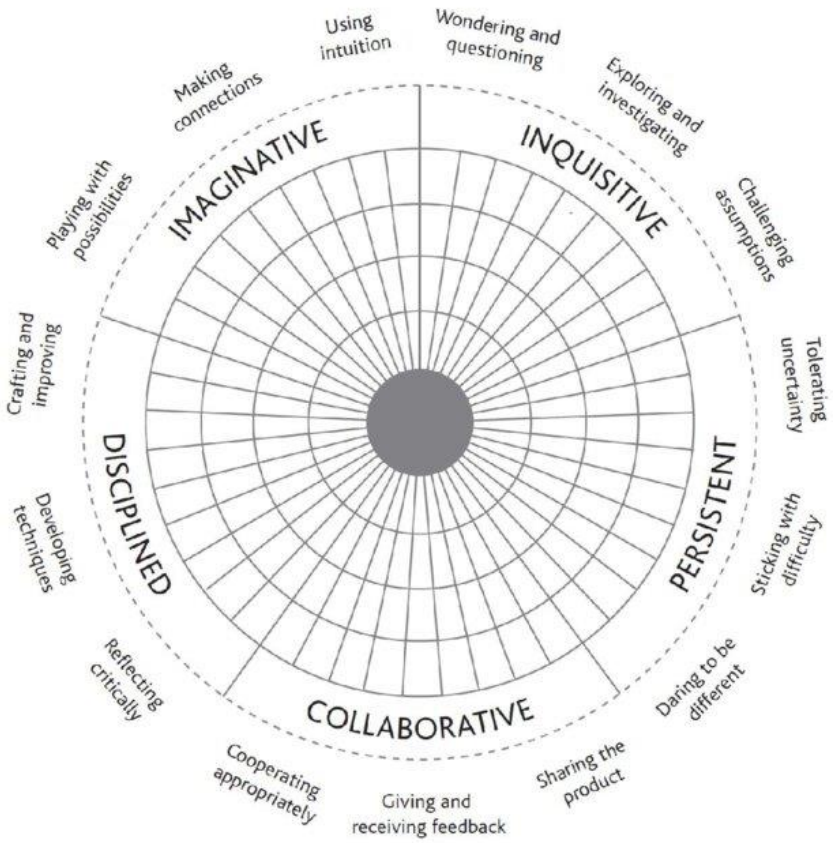

Figure 1. CRL's 5 habit model of creativity

The model was used as the starting point for a four year, multi-country study by the Organisation for Economic Cooperation and Development (OECD) (Vincent-Lancrin et al. 2019). While creativity has not featured explicitly in the English National Curriculum, over the last ten years the CRL model has been developed and refined by schools in England. It has also been used as the guiding model for more than 600 secondary schools as part of the Lead Creative Schools initiative coordinated by Creativity, Culture and Education with the Welsh Government and Arts Council of Wales (Arts Council of Wales, 2022). It is now in use across the world in more than 30 educational jurisdictions (Lucas, Spencer & Stoll, 2021).

Recently the Durham Commission on Creativity and Education (2019) has energised the field by recommending and then funding eight Creativity Collaboratives, clusters of 10-12 schools in different regions of England, to develop a deeper understanding of teaching for creativity in schools. The Collaboratives have been supported over a three year period by the author in the role of an expert critical friend in a peer learning network. This support has involved facilitating regular online learning sessions, school visits, coaching conversations, reflection on emerging data and input into professional learning within the Collaboratives.

Additional resources have been curated in a website (Creativity Exchange, n.d), explicitly to provide a space for teachers to learn from other teachers' experiences over time. To help school leaders in England and Wales and globally a new online learning

community for school, system and teacher leaders who want to nurture creativity was created in 2023 (Leading for Creative Thinking, n.d.). But despite this initiative, creativity is still notably absent from the English National Curriculum.

2.2 The Australian experience, where creativity is on the National Curriculum

In Australia creativity is located withing the country's national curriculum framework as a 'general capability' called 'critical and creative thinking' (Australian Curriculum, n.d). Critical and Creative Thinking is made up of four elements - Inquiring: identifying, exploring and organising information and ideas, Generating ideas, possibilities and actions, Reflecting on thinking and process, and Analysing, Synthesising and evaluating reasoning and procedures. How critical and creative thinking is organised in schools is a matter for individual States to determine, with considerable variety in terms of its definition and implementation.

So, for example, in Victoria, one of two States where the author has worked closely with schools and policy-makers, critical and creative thinking is further simplified to three elements - Questions and Possibilities, Reasoning, and Metacognition. For each of these three elements progression over the period of formal education is mapped out (Victorian Curriculum and Assessment Authority, n.d.). Over a period of three years the author collaborated with the Victorian Curriculum and Assessment Authority (VCAA) to develop curriculum resources and assessment materials while leading professional learning for school principals and their staff and developing case studies (Lucas & Spencer, 2017, pp.134-136 and pp. 147-149).

In Western Australia sustained activity to embed critical and creative thinking has been led by a not for profit organisation, FORM, with its Creative Schools Programme (FORM (n.d.a) over nearly a decade, using the model developed by the author and colleagues, see Figure 1). Fifty case studies featuring this work have been developed, (FORM, n.d.b.).

Many other States have supported schools to develop critical and creative thinking for which Victoria and Western Australia are simply illustrative.

3. Barriers to embedding creativity in schools

An emphasis on academic results, especially in reading, mathematics and science, alongside national accountability systems which favour success in these and other knowledge domains has created a climate in which it is challenging for schools to choose to focus on creativity. The barriers to creativity have been extensively researched (Harrington, 1990; Beghetto, 2010; Davies et al., 2013; de Bruin & Harris, 2017; Vincent-Lancrin et al., 2019; Lucas, Spencer and Stoll, 2021; Bullard & Bahar, 2023) and the list below is indicative of some of them.

> The continuing prevalence of various myths, for example, that creativity is too vague to be teachable, is inherited and not learnable, is uniquely the preserve of art subjects, is a distraction from achieving high academic standards, and is unconnected with domain knowledge.

The rigidity of the design and delivery of most school curricula which tends to stifle inter- and cross-disciplinary working.

Teachers' beliefs, including perceptions of their own lack of creative-self-efficacy, in a few cases outright hostility teaching for creativity and worries about possible pupil indiscipline when creative methods are used; in senior schools some teachers express concerns about an unwelcome shift in the balance of power if pupils have greater influence on their decisions about teaching.

A lack of teacher confidence and capability in selecting and using appropriate pedagogies and effective formative assessment approaches, coupled with a lack of awareness of appropriate resources.

Environmental constraints such as small classrooms, limited access to outdoor spaces.

School reporting and assessment systems which leave little or no place for the inclusion of creativity.

At the school leadership level a major barrier is a lack of understanding of the kinds of professional learning needed to develop teachers to deliver what is required, as indicated by the list above, and, specifically, to change engrained teacher habits.

Perhaps, most importantly, successful school leaders realise that to consider a choice between getting good academic results or embedding creativity is a false binary position; for as the recent PISA Creative Thinking tests results show (OECD, 2024) it is possible to be excellent in, for example, science, and also in creative thinking.

4. Towards a conceptual framework for embedding creative thinking in schools

There are many different ways of conceptualising conceptual frameworks and many different ways of developing them (Jabareen, 2009). For this purpose of this paper it is assumed that

- each concept plays an integral role in understanding the leadership issues relating to embedding creativity in schools
- each concept offers not a causal or analytical description but, rather, an interpretative approach to the social reality of school life
- rather than offering a theoretical explanation a conceptual framework helps to build understanding of the complexities of leadership for creativity in schools over time, from early tentative stages to more robust, systematic implementation.

Conceptual frameworks are, essentially, the products of qualitative processes of theorisation undertaken iteratively, with multiple sources of collaboration and feedback, in this case, through the mechanism of professional learning communities in Australia and England focused on understanding and improving approaches to the leadership of creativity in schools. Also contributing to its development have been conversations with scholars, policy makers and school leaders across the world.

The process has been an iterative one with the author playing a number of roles in the production of this knowledge. Such understanding of the field is drawn from working at depth with school and system leaders in more than18 countries, especially as a participant researcher while generating the CRL model with schools in England (Lucas, Claxton, & Spencer, 2013), as scientific adviser to a five year OECD study (Vincent-Lancrin, 2019) and as an adviser to the Durham Commission on Education in Education (Arts Council England, 2019).

Specifically it has involved synthesising existing knowledge, identifying gaps in research, helping teachers and school leaders better understand the relationships between concepts and practices, supporting leaders in developing hypotheses, analysing data, observing classroom practices, observing leadership meetings of many kinds and always seeking to extract learning through reflective conversations.

As a result of these interactions twelve dimensions have been identified as providing helpful indications of progress towards embedding creativity in schools. Each one of which is presented as a continuum from 'emerging' to 'strong', each one is, potentially, an issue for school leaders at all levels and of all kinds to consider, Figure 2). Each of the dimensions explores an aspect of leadership, while the twelfth one, which uses the word 'leadership' specifically, focuses on understanding the kinds of leadership which seem to be effective in embedding creativity.

Deciding on the number of elements in any framework is never a precise science. Here the author, in addition to considering the more general criteria listed a few paragraphs earlier, considered the following aspects:

- Its purpose as a useful guide for schools wishing to deepen their understanding and refine their practices, ensuring precision while not over-complicating the task. So, for example curriculum focus (science or history) is different from the issue of single versus multiple subjects;
- Its scope as an initial framework to stimulate reflection on current practice and the development of a school's strategy, but not as a detailed template for action;
- Its comprehensiveness, ensuring that any significant strand from recent research and emerging practices is included. Typically for example, the issue of assessment has been missing as have the implications for a school's systems;
- The equivalence in size and scope of each dimension, something considered in more detail later when two additional dimensions are singled out as being worthy of greater significance in determining the approaches taken by schools which are successful in embedding creativity.

It should be noted that our understanding of each dimension and the robustness of existing evidence is at very different stages. Understanding of some of these categories has drawn on specific experiences in England and Australia along with scholarly literature, while others have relied more heavily on existing generic literatures of effective change in schools, see Figure 2.

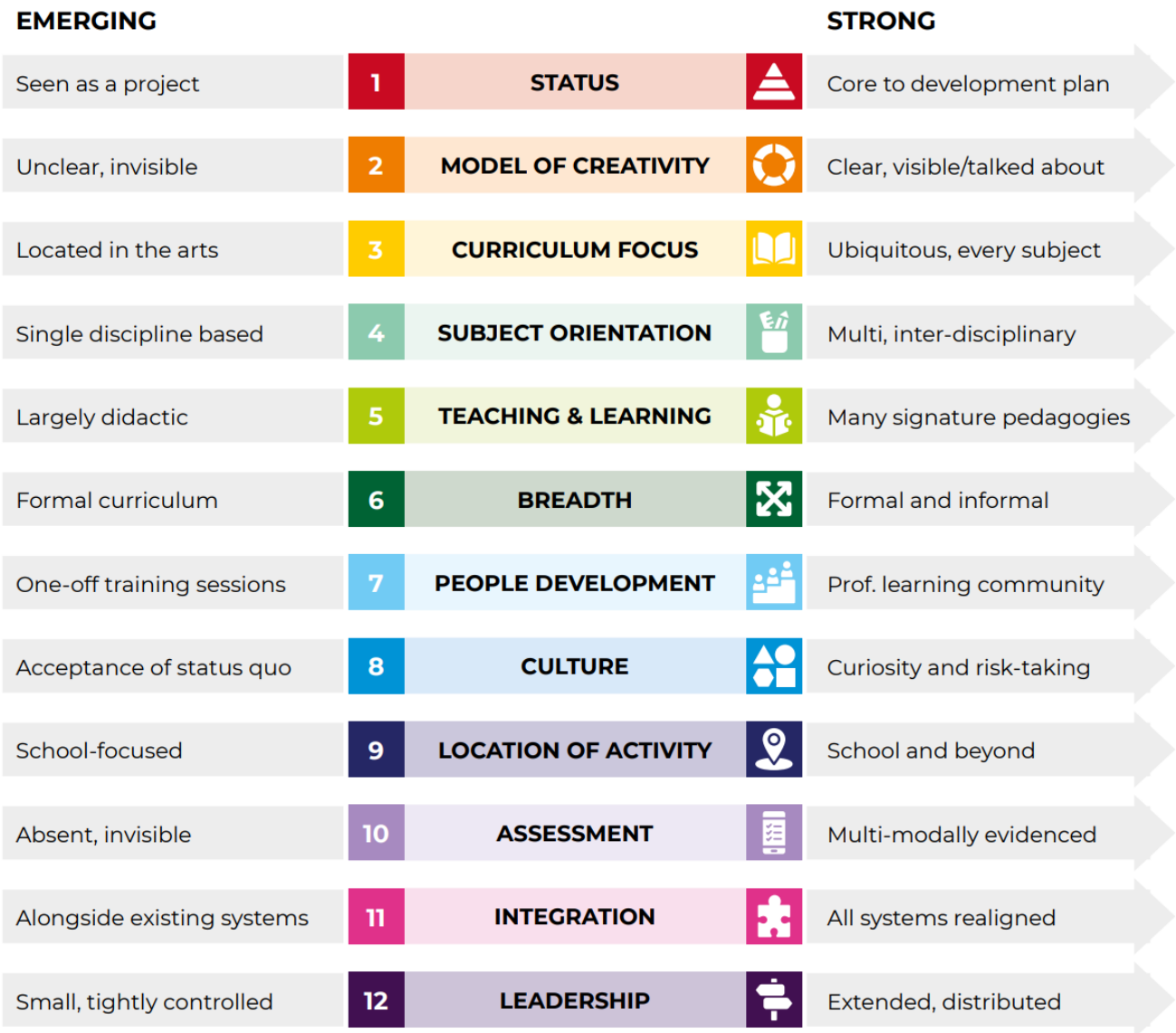

Figure 2. A conceptual framework for embedding creative thinking in schools

4.1 Status

School leaders who really value creativity ensure that it is embedded in their school's strategic plan, often referred to as a 'development plan', a document which brings together, clearly and simply, a school's priorities, what it will do to implement these, the resources set aside for these, the key outcomes it intends to achieve and how it will know if it is achieving these.

With any discretionary aspect of education such as an explicit focus on creativity it is easy for it to remain at best a project or at worst peripheral. It is widely acknowledged that unless a school has a clear implementation plan for any of its intentions, it is unlikely that it will happen (Sharples et al., 2024). With the case of creativity as can be seen from the other 11 elements of the framework, there are many moving parts in the change process. As a school moves from an explicit focus on individual subjects within

its curriculum to one that considers the ubiquity of creativity and how it can be manifest in every aspect of a school's curriculum and wider life. Commitment to a clear theory of action or detailed strategic plan is essential if changes are to be sustainable over time (Koh et al., 2023, Lucas et al., 2023).

A systematic literature review of creative learning environments stresses the importance of clearly distinguishing between the roles of one-off events - projects, themed weeks, work with outside agencies etc - and the ongoing, intentional establishment of creative classroom practices and environments. The review reminds us that much 'creative' work in schools is linked with special initiatives which do not necessarily influence ongoing practices (Davies et al, 2013, p.89).

Investing in the necessary culture shift to reorient a school's focus towards creativity requires a period of time, in the author's experience at least three years. A key issue for school leaders is to ensure that there is a period of sustained focus and that the endeavour is not seen as just another example of the 'latest thing in education'. It is important that the decision to focus on creativity is not a case of 'projectitis', a tendency of some schools to undertake too many novel activities for very short periods. The evidence suggests that institutions need to be prepared to commit to a systematic on embedding creativity focus over time.

4.2 Model(s) of creativity

School leaders who really value creativity ensure that there is a clear understanding of what creativity is, that this is highly visible and that a common language develops around this.

Today there is a deep reservoir of scholarship about creativity and a large degree of consensus that it involves some combination of novelty and value, and that it exists both as an individual and social phenomenon (Sternberg et al., 2002; Glaveanu, 2010; Sawyer, 2012). In terms of its expression in schools, it is also helpful to think of it as 'little c' or 'everyday creativity' (Craft, 2001; Kaufman and Beghetto, 2009) rather than as the rare genius variety. In this strand of thinking the Four C model of creativity is a particularly helpful way of understanding progression in creativity and focusing on those aspects of everyday creativity which can be developed in schools (Kaufman et al., 2022).

But, until 2013 when the author and colleagues developed one (Lucas et al., 2013), there was no model of creativity explicitly developed and then trialled in schools to explore ways in which it could intersect with the curriculum, with pedagogies and with assessment practices.

As part of its review of practices in England the Durham Commission (2019) developed definitions which clarify the distinction between the abstract noun 'creativity', the processes by which creativity is enacted in schools, 'creative thinking', and a focus on the intentionality required in 'teaching for creativity'.

Creativity: The capacity to imagine, conceive, express, or make something that was not there before.

Creative thinking: A process through which knowledge, intuition and skills are applied to imagine, express or make something novel or individual in its contexts. Creative thinking is present in all areas of life. It may appear spontaneous, but it can be underpinned by perseverance, experimentation, critical thinking and collaboration.

Teaching for creativity: Explicitly using pedagogies and practices that cultivate creativity in young people. (Durham Commission, 2019, p.2)

Add to this the Australian national and Victorian State definitions already encountered alongside helpful development work more widely (Kaufman et al., 2022) and it becomes clear that school leaders wanting to develop creativity intentionally in their schools are increasingly able to draw on more detailed descriptions than were hitherto widely available.

There are two notable examples of how the CRL model has been developed to encompass language, thinking routines and pedagogies at depth and which have been widely imitated globally, Thomas Tallis School, London, England (Thomas Tallis School, n.d.) and Rooty Hill High School in Sydney. Both schools have a longstanding headteacher/principal who has developed the thinking of their staff over a decade, along the way featuring in various publications (Lucas, 2016; Lucas and Spencer, 2017).

A recent example from the Creativity Collaboratives in England, Figure 3 shows how the CRL five habits model can be developed to encompass a process approach (Sawyer, 2013):

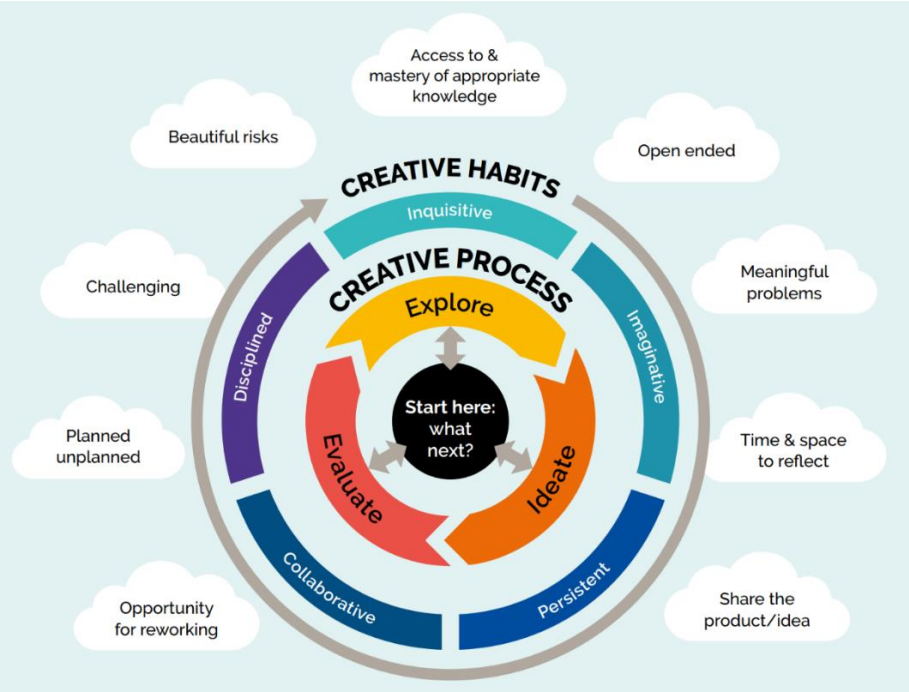

Figure 3. A habit and process model of creativity in schools (Sowden et al., 2023)

A key issue for school leaders is the selection of a model of creativity that best fits their context and determining the best ways of getting staff buy-in to this. In the hundreds of schools with which the author has worked this is often helped when the school adopts a highly visual and graphic communication strategy.

4.3 Curriculum focus

School leaders looking to embed creativity holistically realise that it has a place in every subject of the curriculum and is an opportunity for every teacher to be actively involved.

The fact that creativity is ubiquitous, present in almost every aspect of life and school, is widely acknowledged (Kaufman & Baer, 2005). But this presents challenges for leaders who will need both to value the work done in arts subjects at a time when (in England especially) uptake in these is declining in secondary schools while at the same time encouraging teachers of maths and science and humanities, for example, to become involved.

There is an extensive literature indicating how schools can embed creativity across the school curriculum (Lucas, 2001; Beghetto, 2010, Beghetto & Kaufman, 2010, Lucas & Spencer, 2017; Vincent-Lancrin et al., 2019) and multiple examples of how creativity can intersect with individual subjects, for example, an app with lesson plans arising from OECD research (OECD, n.d.), a curriculum toolkit developed by Penryn College, one of the Creativity Collaboratives in England (Penryn College, n.d.) and a range of whole school curriculum resources developed by the State of Victoria in Australia (Victorian Curriculum and Assessment Authority, n.d.c). Two examples of advocacy for embedding creativity across the curriculum, Cragside Primary in Newcastle, England (Cragside Primary School, n.d.) and Donnybrook District High School in Perth, Australia (Creative Schools, n.d.c.) are illustrative of holistic approaches to curriculum.

It may help school leaders to be aware of an ongoing discussion about the degree to which creativity is domain specific or domain general, that is to say whether, for example, being creative is different in maths or drama or geography. There are arguments on both sides of the debate (Baer, 2010). Those arguing for domain specificity remind us that creative people are not creative in all subjects or domains. While the alternative view is that creative thinking skills can be learned in one domain and transferred to another with practice. School leaders will want to acknowledge the complexities of these perspectives as many researchers have done (Kaufman & Baer, 2005). In the school context it may be helpful to suggest that as well as existing in every walk of life creativity has different forms of expressions in different domains.

It may also be useful to reflect on the idea of creativity being a number of habits (Lucas et al., 2013) such as being inquisitive, persistent, collaborative, disciplined and imaginative. The subject 'neutrality' of these habits can be useful in preventing arguments about, for example, whether creativity is or is not the preserve of the arts by presenting it, instead, as a series of ways of seeing and being in the world. There has been similar work in mathematics (Cuoco, Goldenberg, & Mark, 1996) which has been reframed as a set of habits such as pattern-sniffers, experimenters and tinkerers. If you

think like a mathematician then, as well as enjoying fractions and multiplication you are always playfully looking for new patterns in the world. If you think and act creatively, you are constantly exercising your inquisitiveness, imagination and persistence, and so forth.

For school leaders curriculum design presents a particular challenge. One way of addressing this, now widely used in many of the examples mentioned so far, is to use what is increasingly referred to as split screen teaching. Split Screen teaching invites teachers to describe two worlds, the disciplinary subject matter of their lesson and the creative habit on which they are also focusing. Split screen teaching requires split screen planning, with lessons envisaged for both their subject content and the aspects of creativity which are interwoven into this. The technique is advocated in articles and evidence-based guides developed by the author and colleagues, and in use across the world where these resources have been adopted, for example in C-Create, (Stoll, 2024).

A key issue for school leaders is the freeing up of time for teachers to plan their lessons and schemes of work effectively to embed creative habits in their content.

4.4 Subject orientation

Leaders who embark on a journey of embedding creativity in their schools rapidly realise that creativity is no respecter of subject boundaries! A new idea in science can easily lead to exploration in geography and connections with a wide range of literature. While creativity can be cultivated in an individual subject, it frequently invites teachers and their students to look across disciplines (West, 2016). For innovation and original thinking often sit between subject boundaries.

Recognising the need for multidisciplinary, interdisciplinary and transdisciplinary learning is a move towards more authentic, real-world learning. For the most pressing problems of our age such as climate change, mass migration and religious disharmony will require contributions from many disciplines if we are to make progress. Miranda Jefferson and Michael Anderson helpfully unpack these approaches. Multidisciplinary learning they suggest occurs when there is a common theme with a focus on individual disciplines, interdisciplinary learning requires the curriculum to be organised around concepts such as creative thinking, and transdisciplinary learning, arguably the most demanding of these, involves organising the curriculum around students' concerns and questions and applying skills in real-world contexts, (Jefferson and Anderson, 2017, p. 37).

Interdisciplinary work invites multiple perspectives and sits well with collaborative projects where many viewpoints can be expressed. This process of integrating disciplines encourages learners to be able to 'cross boundaries, build bridges and speak many languages' Gardiner (2020, p. 8).

A key issue for school leaders is creating a culture for teachers in which their specific subject expertise is valued while at the same time encouraging them to think beyond the boundaries of their own discipline and collaborate with other colleagues.

4.5 Teaching and learning

School leaders who value creativity realise that, while the curriculum is the means by which pupils' lives are organised, it is the way that it is 'delivered' that really shapes the experience of young people; the pedagogies teachers choose have the largest influence on learners' experiences in the classroom. While we have known the power of pedagogy for more than half a century (Torrance, 1963) it remains one of the most difficult aspects of school life to change.

There are at least two reasons for this. The first has to do with our attitudes to school and schooling, that it should be about what is certain, known and rooted in our history as opposed to what is complex, ambiguous and future-oriented. The second is to do with the authority of the teacher, that this requires them to be in control didactically, with methods of sharing knowledge that can be traced to the earliest days of schooling where teachers stood at the front of a classroom transmitting information to their class.

There is strong evidence to show how closely aligned creativity is with possibility thinking. In a classroom context the kinds of pedagogical processes that a classroom context might encourage to enable possibility thinking to flourish include posing questions, being playful and taking risks (Cremin et al., 2006; Glăveanu & Beghetto, 2022).

The second tradition which is deeply rooted in classrooms relates more specifically to the relationship between teacher and pupil, specifically who asks the questions and who answers them, and how the sequencing of activities is determined, whether be a pre-ordained syllabus or in response to learners' curiosity. Teachers of creativity tend to favour pedagogies such as problem-based, project-based and inquiry-led learning over those which are more obviously transmissive, (Lucas & Hanson, 2021).

Drawing on the idea of signature pedagogies developed by Lee Shulman (2005), the author and colleagues have mapped 'families' of pedagogies against each of the five habits in the CRL model of creativity (Lucas & Spencer, 2017, Lucas et al., 2021), Figure 5.

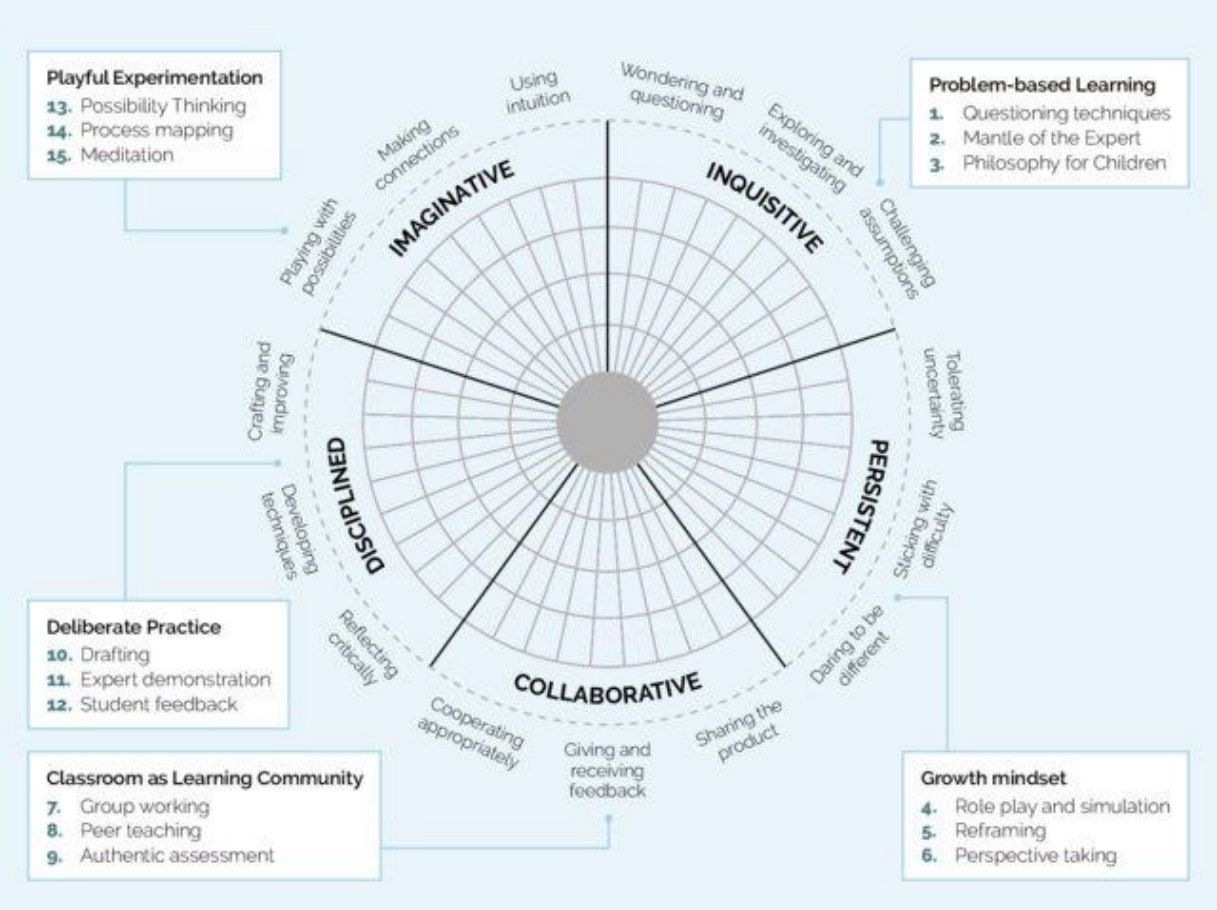

Figure 4. Signature pedagogies for creativity (Lucas et al. 2021, p.15)

Research by the OECD (Vincent-Lancrin, 2019) found a very similar set of signature pedagogies to be powerful in fostering creativity adding, in addition, creative partnerships (the involvement of adults other than teachers in the classroom), design thinking, dialogic teaching, Montessori practices and the use of metacognition.

There is growing evidence that signature pedagogies such as the ones listed above need to be part of a teacher of creativity's repertoire. In a systematic review of creative pedagogies (Cremin & Chappell, 2019), drawing on studies from 1990–2018, the authors identified six interrelated features characterising creative pedagogical practices - generating and exploring ideas, encouraging autonomy and agency, playfulness, problem-solving, risk-taking; co-constructing and collaborating. and teacher creativity. Interestingly they also identified a seventh factor of relevance here, the teacher's own creativity, their confidence in adopting and modelling creative processes in the classroom.

Of particular interest with regard to embedding creativity in schools is a finding from a four country study of creative pedagogies in practice:

> Perhaps the biggest obstacle to developing creativity in our classrooms is not just allocating sufficient time, or appropriate and thoughtful testing, but subduing the fear of failing - a mind-set prevalent in students, teachers, school administrators, and policy shapers (Harris & de Bruin, 2018, p.15).

In institutions where high performance is the dominant currency of success it is always going to be challenging to balance risk-taking with worries about failing.

A key issue for school leaders will be the need to encourage teachers to develop a repertoire of different pedagogical approaches, to avoid becoming caught up in simplistic discussions about which methods are traditional, which contemporary, and maintain a focus on the evidence of what works best in fostering creativity.

4.6 Breadth

It is easy for leaders to focus on the formal aspects of school life. But it is important to remember that a significant amount of time, some 20-22% of a child's time at primary school in England, is spent in informal learning settings during playtimes (Ardelean et al., 2019). Even in secondary education pupils have significant opportunities beyond the formal curriculum to undertake self-directed learning during breaktimes and in after-school activities.

Long before children go to school, they exist in make-believe worlds of fantasy and pretending, experimenting with possibilities, developing new connections and exploring the boundaries of risk. There is a longstanding of body of evidence connecting creativity with play (Ardelean et al., 2019; Lego Foundation, 2020; Russ, 2023). Similarly the positive benefits of self-directed learning on the development of creativity is well-documented (Morris, 2020).

There is a growing evidence base illustrating the positive benefits of specific kinds of play in cultivating creativity, for example, through board games (Mercier & Lubart, 2021) and online (Doering & Henrickson, 2015). Playful experimentation or 'tinkering' has also been shown to have wider benefits to learners, for example in the development of engineering (Bianchi & Chippindall, 2018).

A key issue for school leaders, especially those in secondary schools and especially as pupils get to the stage of their schooling when public examinations take place, is to continue to create opportunities for playful experimentation both within and beyond the classroom, maintaining a breadth of types of learning.

4.7 People development

Most school leaders trying to make significant changes in their school see the essential role of professional learning in changing hearts and minds and building staff capability and confidence as part of a long-term process rather than a one-off session.

In his review of research undertaken as part of England's Creative Partnerships Programme between 2001 and 2011 David Parker notes the value of 'a sequenced and sustained approach to professional development' (Parker, 2013, p.102). In the eleven country study of critical and creative thinking conducted by the OECD a key finding was that, regardless of different national contexts, professional development was most effective when it took place in collaborative professional networks with extensive opportunities for peer dialogue, allowing teachers to 'find solutions to common

problems as well as share knowledge, experiences and best practices' (Vincent-Lancrin et al., 2019, p.176).

There is a growing evidence base for what makes effective continuous professional development and learning (CPDL). The process involves schools building new knowledge and skills in teachers, motivating staff to participate, providing materials from credible sources to support their learning, developing new teaching techniques, observing new practices and practising these with feedback before embedding in their own practices, learning to recognise prompts and cues for them to use new skills and repeatedly practising these in their contexts – all with appropriate social support (Collin, & Smith, 2021).

But while this all makes sense rationally, experiences from schools making significant attempts to embed creativity suggest that the task is more complex. A review of progress in creative thinking in schools for the Global Institute of Creative Thinking (Lucas, 2022) found that, while significant progress had been made in advocacy, curriculum, curriculum design and pedagogy and assessment, our understanding of effective initial and continuing professional learning and development is less secure. Currently creativity is largely invisible in initial teacher training and, in terms of CPDL in schools, dependent on a small number of university, commercial and not for profit training providers, often connected with a centre of excellence such as CREATE in Sydney (Create Centre, n.d.), FORM in Perth (Creative Schools, n.d.), Creativity, Culture and Education in Newcastle (Creativity, Culture & Education, n.d) or A New Direction, London (A New Direction, n.d.).

The OECD has published a draft professional learning framework for teachers and leaders (OECD, 2023b) and the author and colleagues have researched the contents of a leadership programme school leaders (Lucas and al, 2021; Lucas et al., 2023). Such programmes require leaders and their staff to understand the essence of creativity and how it fits with the values and goals of their institution, understand the change process, explore different approaches to creativity and debunk the myths surrounding it, develop a whole school culture conducive to creativity, consider the roles of pupils in implementing new approaches, learn new approaches to curriculum design, develop the capability of staff in terms of pedagogies and assessment methods, pedagogies, identify and collaborate with external partners, rethink school systems and work beyond their school in the wider educational eco-system. Cochrane and Cockett (2007) remind us that creative journeys are non-linear, iterative ones and complex. Ron Beghetto (2016) challenges school leaders to 'sit with uncertainty' as they exercise their creative leadership, 'taking the time to acknowledge the uncertainty surrounding the problem, recognise that a new way of thought and action is needed' (p.18).

There is strong theoretical evidence that, where complex change is required, professional learning communities - groups of a group of educators who meet regularly to shares expertise and work collaboratively to improve an aspect of their practice - are an effective way of achieving this (Bolam et al., 2005; Istance & Stoll, 2013; Tam, 2015; Huijboom et al., 2021). Across the world, and especially in Australia and England where

sustained efforts have been undertaken to embed creativity in schools, this model has been widely found to be powerful.

A key issue for school leaders will be to establish and sustain professional learning communities focusing on aspects of embedding creativity.

4.8 Culture

In a business context it has often been suggested that culture 'trumps' strategy. Leaders seeking to embed creativity rapidly find that this is also true of schools where curiosity and risk-taking are essential to the development of creativity. There is a growing understanding of the kind of cultures that facilitate creativity in schools (Beghetto & Kaufman, 2010; Lucas & Spencer, 2017; Vincent-Lancrin et al., 2019; Lucas et al., 2021) of which the list below is indicative:

1. Learning framed by engaging questions which have no one right answer
2. Space for activities which are curious, authentic, extended in length, sometimes beyond school, collaborative and reflective
3. Opportunity for play and experimentation
4. Opportunity for generative thought, where ideas are greeted openly
5. Opportunity for critical reflection in a supportive environment
6. Respect for difference and the creativity of others
7. Creative processes are visible and valued
8. Students actively engaged as co-designers
9. A range of assessment practices are integrated within teaching
10. Space is left for the unexpected.

Anyone who has worked in schools, especially with older pupils, will immediately see how many of the elements above run counter to the culture of schools where performance is the dominant feature. Ophélie Desmet and Robert Sternberg elegantly capture the shift required:

> Such a culture is not just an arrangement of desks and chairs; rather, it is a dynamic ecosystem that fosters the emergence of innovative ideas and transformational thinking. Such an ecosystem needs psychological safety for its participants, whereby students feel free to explore their creative impulses and allow their ideas to flourish and evolve without fear of retributive judgment. It is a space where risk-taking and experimentation are championed, and which acknowledges that failures are stepping stones toward breakthroughs. (Desmet & Sternberg, 2024, p.4)

With Guy Claxton the author has described cultures for creativity as 'creatogenic' and undermining ones as 'creatocidal' (Claxton & Lucas, 2007, pp. 176-195).

A key issue for school leaders is how build on existing creatogenic habits and routines and notice those creatocidal ones which run most counter to the desired state, over time, eradicating them.

4.9 Location of activity

Just as informal learning complements the formal, so learning beyond schools complements what takes place within schools. But across the world as educational jurisdictions find themselves in the spotlight for their performance in core subjects, school leaders can find themselves under pressure to focus their attention within school on these.

Whether through such performativity pressures or by dint of socio-economic factors or in the aftermath of COVID19, opportunities for learning beyond the classroom have diminished (Nolan et al., 2023). At the same time the value of creativity as a skill for work and life is increasingly acknowledged as is the importance of learning beyond the classroom in acquiring it (Foundation for Young Australians, 2017).

One of the strongest lessons of the Creative Partnerships initiative in England was its emphasis on partnership working (Parker, 2013):

> The planning processes and partnership approach to delivering projects meant that teachers were engaged with new and different ways of thinking and delivering in relation to their pedagogy. (p. 96).

More recent evaluations and studies of schools which prioritise creativity repeatedly confirm this (Joubert, 2018; Durham Commission, 2019; Lucas et al, 2021; Crickmay, et al., 2023; Sowden, et al. 2023).

A continuing issue for school leaders is managing the inevitable tensions between discretionary off-site activities which provide authentic, real-world opportunities for cultivating creativity and the formal demands of schooling.

4.10 Assessment

Once some of the basic steps are in place to prioritise creativity, school leaders realise that, unless they can evidence the progress of pupils the endeavour will not be seen as rigorous and. More importantly, they will miss out on a range of opportunities for improving teaching and learning.

Creativity is often linked with other competences such as critical thinking, collaboration and communication and, like these, is not assessed in the majority of jurisdictions. In a comprehensive overview of this field (Thornhill-Miller et al., 2023) it has been suggested that, to raise their status, creativity needs to be labelled or certified by a trusted third party, an idea also being explored by New Metrics for Success in Australia (University of Melbourne, n.d.) and Rethinking Assessment in England (Rethinking Assessment, n.d).

While ways of assessing creativity in the workplace have been well-researched over many decades, understanding and use of assessment in schools is a more recent phenomenon (Spencer et al., 2012). Since 2015 the State of Victoria in Australia has routinely assessed the creativity of a sample of 15 year olds using online tests, (Victorian Curriculum and Assessment Authority, n.d.b). The decision by the OECD to focus on Creative Thinking in a new test in 2022 has been a catalyst for developments in

research, policy and practice since it was announced in 2017 (OECD Directorate for Education and Skills, 2019). Earlier work published by the OECD (Lucas et al., 2013) contributed to new guidance on formative assessment methods (Lucas & Spencer, 2017) and an OECD study specifically explored the development of teacher-friendly rubrics to facilitate assessment in the classroom (Vincent-Lancrin et al., 2019).

In the last decade, working with schools in Australia, the author has developed a field guide to assessing creativity with a range of formative assessment methods (Lucas, 2022b), Table 1.

Pupil	**Teacher**	**Real-world**	**Online**
Real-time feedback Photographs Self-report questionnaires Logs/diaries/journals Portfolios	Criterion-referenced grading Structured progress interviews Performance tasks Capstone projects	Expert reviews Gallery critique Authentic tests e.g. displays presentations, interviews podcasts films Exhibitions	Apps Digital badges E-portfolios

Table 1. A repertoire of assessment methods for evidencing creativity

A recent small-scale exploratory study showed that, even within the constraints of the English National Curriculum, it was possible for teachers to be trained to use a small range of assessment methods - pupil self-reports combined with teachers' criterion-referenced judgments all collected together in portfolios and moderated by teachers - over the period of a school term (Krstic, 2024). From this research and from work with schools in Australia and England the key processes which need to be undertaken by schools include at a minimum:

- Agreeing a definition/model of creativity
- Developing a clear rubric/progression model to exemplify what creativity looks like as it develops over the years of primary and secondary education
- Identifying a small number of assessment methods to track the progress of pupils
- Training teachers in the use of assessment methods
- Establishing systems within the school to record pupils' progress in creativity.

It is increasingly clear that, when teachers meet to moderate their judgments on the progress of their pupils, these sessions are very effective professional learning helping to deepen teachers' understanding of creativity and how it is demonstrated, both in terms of the 'products' pupils produce and the processes they use as they do so. Effectively teachers are doing what Teresa Amabile described four decades ago as the 'consensual assessment technique' (Amabile, 1983):

> ... creativity can be regarded as the quality of products or responses judged to be creative by appropriate observers, and it can also be regarded as the process by which something so judged is produced. (p. 33)

The old reliance on high-stakes paper examinations is waning and there is a growing interest, especially in the UK, Australia and the USA, in how complex competences such as creative thinking can be better evidenced in digital learner profiles (Lucas, 2021; (University of Melbourne, n.d.; Rethinking Assessment, n.d.).

There are a number of issues for school leaders with regard to the assessment of creativity including the language used (some teachers balk at the idea of assessing a pupil's creativity and respond better to the idea of teachers evidencing a pupil's progress in developing their creative thinking skills), providing the training necessary to develop teachers' assessment literacy, ensuring the school's reporting systems are geared up to incorporate creativity, and, as ever when introducing new tasks, having an eye to teacher workload.

4.11 Integration

What if our schools were reorganised so that the development of creativity in pupils was as much of a priority as the teaching of all the subjects on the curriculum? This is the kind of question with which those tasked with organising schools have to grapple. For if the development of creativity really is to be seen as the core purpose of a school, then almost all of its systems will need to be realigned.

Where there are promising signs of research or practices or both in each of the previous dimensions of the draft conceptual framework, there is, as yet no school that the author has encountered which has wholly integrated its practices and systems. In this section the potential re-alignment of some school systems is posed as a series of questions with some tentative answers drawing on promising school practices in Australia and England.

> How can creativity be made visible? School websites have clear statements of its importance (Australian Christian College, n.d.). and classrooms have posters of the model (Thomas Tallis School, n.d.).
>
> How can creativity be integral to every subject of the curriculum? National and State education department websites map creativity against every subject of the curriculum where creativity is on the curriculum as in Alberta, Canada, (Alberta Education, n.d) in jurisdictions where it is discretionary clear guidance is provided by school websites (Penryn College, n.d.b).

How can a school encourage interdisciplinary teaching? While individual schools can showcase their activities it is helpful when universities begin to reassure schools that such approaches are academically rigorous and in demand in society (London Interdisciplinary School, 2022)

How can a school rethink its approach to pedagogy? In England and in Australia XP schools have begun to rethink their approach to pedagogy to make expeditionary and project-based learning a core approach (XP School, n.d).

How can a school rethink its approach to assessment? Minimally schools need to have clear statements of progression in creativity available for staff to learn and then use along with systems for capturing progress data and simple systems for reporting on progress to parents. Where creativity is part of the National or State Curriculum, this is widely available (Victorian Curriculum and Assessment Authority, n.d.a), where not it will need to be developed (Krstic, 2024, pp.32-34).

A key issue for school leaders will be balancing longer-term system integration with shorter term consolidation of progress, with different considerations for primary and secondary settings.

4.12 Leadership

As has become clear as each of the earlier dimensions of this emerging framework is explored, leading for creative thinking in schools is a multi-faceted, complex task. In 2023, as part of its research in connection with the recent PISA Creative Thinking Test the OECD published *Supporting Students to Think Creatively: What education policy can do* (OECD, 2023a) including the results of a survey with education jurisdictions to understand their perceptions of the barriers to creativity in schools. The top nine barriers were, in descending order:

1. Overcrowded curriculum
2. Lack of assessment focus on creativity
3. Lack of teacher training or pedagogical resources
4. Lack of appropriate facilities, equipment and/or materials
5. Lack of system level guidelines such as learning progressions for creativity
6. Focus on preparing for high-stakes exams
7. Financial constraints
8. Unclear evidence supporting the integration of creativity in education
9. Lack of political will of high-level strategy. (OECD, 2023a, p.27).

Leadership paradigms in school are evolving. In the dynamic, fast-changing world of education the idea of a strictly hierarchical model of leadership with the headteacher or principal tightly devolving responsibilities to deputies or assistants is increasingly unhelpful. One such evolving model, distributed leadership, redefines leadership as a collaborative activity with multiple stakeholders involved in decision-making and an explicitly cooperative approaches (Nadeem, 2024). It is becoming clear that, for more

complex issues, school leadership can have an especially positive impact on outcomes when it is distributed, (Leithwood et al., 2019, p.13).

In the schools in Australia and England with which the author has been collaborating leadership practices are increasingly not just distributed but extended, (in the sense that they are encompassing new activities and coining new descriptions of their activities). Such extended roles might be obviously relevant to creativity (Creative Learning Lead, Director: Creativity) or more generically aware of the importance of a kind of leadership that is about advocacy and facilitation (such as Creative Champion, Catalyst for Change). These more extended approaches are part of what Louise Stoll talks of as 'creating capacity for learning' (Stoll, 2020) with individuals and teams acting as catalysts for change.

> Creative leadership learning will also support them [school leaders] in exploring and developing conditions in which colleagues feel able to take risks, inquire into stubborn problems, explore potential learning strategies, experiment, innovate, fail and use failure for learning. (Stoll, 2020, p.427)

School leaders embarked on a journey to embed creativity have an opportunity to apply fresh pairs of eyes to all that they are doing - culture, curriculum, pedagogy, assessment CPDL and the leadership roles and approaches they choose to adopt.

5. Two overarching concepts

When schools actively embrace the idea of creativity something significant begins to happen. As leaders and their staff consider how they will proceed they almost always find themselves pausing to consider why they are doing what they currently do and what kinds of relationships between teachers and pupils is most appropriate. For a decision to make creativity a central aspect of a school's focus requires it to make a case for its importance alongside the more accepted emphasis on the acquisition of subject knowledge or of skills, and of success in whatever public examinations are to be taken.

5.1 Rethinking the purpose of school

In the 1990s educators started talking about twenty-first century skills and twenty-first century schools, and articulate what they saw as a paradigm shift in education. Of course they were right to acknowledge the extraordinary impact of the Internet and online learning as well as changing skills needs as the world changed rapidly (Lucas & Venckutė, 2020). The four generic terms increasingly used to encapsulate the focus of this shift (Care et al., 2018; Taylor et al., 2020) were creativity, critical thinking, collaboration and communication. With such potential alternatives to the building blocks of, say, mathematics, science, drama and history, it was inevitable that school leaders would ask deep questions about the purposes of school. Should they be teaching pupils to become versed in mathematical concepts or to generate new ideas and think critically? Most are concluding that this is not a binary alternative between knowledge or skills/competences. Most also explicitly see the importance role of school in developing pupils' character and their metacognitive skills (Lucas, 2019). But

the act of asking such questions is a fundamental one for leaders at all levels and kinds within a school.

5.2 Re-engaging authentically with pupils' voices

We saw earlier when exploring conducive cultures for creativity that the role of pupils as co-designers of the learning process is increasingly being acknowledged, just as when we explored pedagogy there was a shift towards enquiry alongside instruction. Indeed the development of inquisitiveness, of wondering and of curiosity, is at the heart of creativity.

Across the world schools that are embracing creativity are finding new ways of actively listening to their pupils and actively hearing their voices in the creative process. But, just as when considering the purpose of school it is important to recognise today's complexities, so with any consideration of the role of pupils it may be helpful to be creatively open-minded. Centuries of tradition suggest that teachers' voices should be the dominant ones. And it is, of course, the case that teachers have clear duties and responsibilities and also know more about the world than pupils. Nevertheless schools embracing a new creative order are finding ways of maintaining their duty of care while at the same time opening their ears to pupils' voices.

6. Limitations of the framework

This emerging framework is offered as a work in progress to a field of scholarship and practice increasingly considering the issue of how to embed creativity in schools. While the author's experience spanning some two decades of collaboration with scholars and practitioners across the world has enabled him to consider new research from many cultures and observe at first hand hundreds of schools, the empirical data in this paper draws on direct evidence from two English-speaking countries, Australia and the UK.

7. Conclusion

The conceptual framework for leading creative thinking in schools in this paper is offered to all those in the emerging field of creativity in schools as an early prototype, especially for the many individuals and teams who find themselves in any kind of leadership role.

It is the author's hope that the framework will encourage dialogue and act as a spur for developments in practices and policy, all the while stimulating further research.

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