CREATIVE SCHOOLS FOR A THRIVING ECONOMY

Thought Brief by Roisin Ellison and Joe Hallgarten, RSA

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INTRODUCTION

"It is undeniable that the exercise of a creative power, that a free creative activity, is the true function of man. It is proved to be so by man's finding in it his true happiness." - Matthew Arnold, 1864

This thought brief discusses how school systems can best be designed to develop all students' creative capacities during their formative education years, so that young people are better equipped to succeed in the 21st century economy.

The brief aims to inform the Next American Economy project's deliberations and policy recommendations, and also to marshal the Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA)'s own thinking on this issue as we develop our new education mission to close the creativity gap. The appendix summarizes our emerging thinking.

The sheer scale and complexity of the challenges that societies now face are forcing a shift in understanding of how change happens at all. Global challenges such as climate change, an aging population, community cohesion, demographic shifts, and deep inequality all demand creative solutions and render single, simple interventions ineffective. While national and local government continues to perform vital functions, businesses, nonprofits, and indeed each of us—as

TABLE 1	
Beyond the scope of this brief	**Within the scope of this brief**
Creativity has intrinsic and non-economic value for individuals and communities. Developing everyone's creative capacities throughout life is a precondition for an inclusive and adaptive society.	The economic imperative for a more creative workforce.
There are economic imperatives for young people to achieve a broader set of outcomes that go beyond both test scores and creative development.	The specific development of students' creative capacities (although creative capacities may be particularly valuable in the face of a volatile labor market if connected to resilience and adaptability).
The development of our creative capacities begins at birth and can continue through adulthood.	Creative development during the years of compulsory schooling (c. ages 5–18).
Children's outcomes are only partially shaped by their schooling; peer, parental, and community effects are all powerful influences.	The potential of schools as engines of, or barriers to, the development of students' creative capacities. Schools have a particular opportunity and responsibility to create the conditions for creativity.
Creativity can and should be prized by all school systems.	The context in more economically developed nations with strong existing state-funded school infrastructures.

citizens, consumers, workers, parents, and students—all have a part to play, too. More than ever before, finding ways of galvanizing these different actors around social challenges will be essential to creating the kind of society in which people aspire to live.

These challenges come at a time when human capability and appetite for creativity is dramatically rising and more people are prioritizing what the World Values Survey calls "self-expression" values. Disruptive technologies are also providing new opportunities for creativity, and the Internet is enabling easy access to information and tools for communicating, trading, and collaborating. In both the world of work and people's everyday lives, dramatic change is afoot, creating a rising demand for a creative citizenry.

The RSA recognizes that original and valuable ideas are in ever-greater demand but a vast resource of creative potential is going untapped. We believe that this potential can be captured through a combination of new leadership, cultural change, and renewed institutions based on a strong sense of shared purpose: building "creative communities with a cause." The Society's basic premise is that it wishes to understand and strengthen individual agency and collaborative power to create the world we want and need. Our emerging worldview, which we call the "Power to Create," is made substantive, progressive, and distinctive by its emphasis on inclusion, imagination, practical tools, and concrete innovation.

This brief has a very specific focus; the table below therefore outlines the issues that are crucial to any discussion of creativity and learning, including those that are beyond the scope of this brief.

SITUATIONAL ANALYSIS

"[In a fast-changing world, producing more of the same education will not suffice to address the challenges of the future…Routine

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cognitive skills, the skills that are easiest to teach and easiest to test, are also the skills that are easiest to digitize, automate and outsource. A generation ago, teachers could expect that what they taught would last for a lifetime of their students. Today, where individuals can access content on Google, where routine cognitive skills are being digitized or outsourced, and where jobs are changing rapidly, education systems need to place much greater emphasis on enabling individuals to become lifelong learners, to manage complex ways of thinking and complex ways of working that computers cannot take over easily. Students need to be capable not only of constantly adapting but also of constantly learning and growing, of positioning themselves and repositioning themselves in a fast changing world. These changes have profound implications for teachers, teaching and learning as well as for the leadership of schools and education systems." [1]

WHAT IS THE RATIONALE FOR A FOCUS ON CREATIVITY?

There is an increasingly strong economic rationale for our schools systems to prioritize the development of students' creative capacities. Although cognitive and developmental psychologists have long argued for the importance of fostering creative capacities in young people, their justifications around preparation for a changing future have increasing traction in the current and predicted economic environment.[2] Dramatic four-decade shifts in the global economy have put a premium on informational and interactive capabilities (especially skills and aptitudes that can't be automated). To stay competitive, countries will need to redesign their education systems to support these broader outcomes.

With regard to knowledge and skills, these now have "ever-diminishing half-lives".[3] The knowledge and skills needed in the future may not even be known at the time a person attends school, so institutions cannot limit themselves to the transmission of set contents. Instead, they need to promote flexibility, openness to new ideas, ability to adapt, and courage in the face of the unexpected.[4] For individuals, greater resilience and adaptability will be needed to cope with volatile labor markets and circular career paths, while businesses also emphasize the need for a more creative, rounded, self-motivated workforce.

Employers around the world, as part of a broader dialogue around the skills gap (especially between the number of job vacancies and the number of young people worldwide—1-in-8, or 75 million—who are out of work), consistently assert this need for a more creative workforce.[5] Whenever they are surveyed, businesses often claim to put a premium on creativity and argue that the school system should do more to harness it.[6] Further to this, OECD's survey of Adult Skills shows that adults who reach the highest level of proficiency in problem-solving have access to those occupations where most new jobs were created over the past 15 years.[7] Today's young people who lack advanced problem-solving skills will have to compete for occupations in which opportunities will become rarer.

There is also a developmental rationale for an increased and sustained focus during the adolescent years. Emerging research, in particular from neuroscience, creates a rationale for a sustained focus on adolescent creativity. In *Brainstorm,* Daniel Siegel identifies "creative exploration" as one of the four qualities set up by neurological and physiological changes during adolescence.[8] The foundations for creative exploration—conceptual thinking, abstract reasoning and reflective capacities—are generally lacking in the pre-teenage years, but combine powerfully during adolescence with an increased drive for reward and propensity to take risks. "Creative exploration," Siegel writes, "may be the primary work and purpose of the adolescent period – the essence of adolescence."

The hypothesis that adolescence is a developmental phase of flexible adaptation optimized for adaptive behavior is supported by Stevenson et al.'s study which found greater increases in originality and

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uniqueness in adolescents than in adults during an intense period of creative ideation training.[9] As they highlight, such evidence has important implications for educators: "The present results imply that adolescence is an advantageous period to enhance 'out of the box' thinking and creative processes… educators should take advantage of this sensitive period to improve divergent thinking skills." A recasting of adolescence as the key period for creative development or stultification could have profound implications for how teenage pupils are taught, assessed, and organized, as well as affecting youth work, mentoring, and parenting itself.

Further, there is an educational rationale for creativity as a means to raise overall achievement and to close achievement gaps. There is some evidence that creativity-focused education programs have also been successful at increasing student academic achievement and that students entering college with higher levels of creative thinking perform better, even when prior attainment (GPA and SATs scores) is controlled for.[10] [11] There is further evidence that such approaches are particularly effective at improving the engagement and achievement of low-income students and those most vulnerable to underachievement For example, Baum, Renzulli, and Hébert examined the effect of creative productivity to reverse underachievement with 17 gifted students (8–13 years old) who were underachieving in their school performance.[12] Eighty-two percent of participants made positive gains as a result of the intervention, and most were no longer underachieving in school as a result of the program.

Whole-school approaches appear especially effective in comparison to specific interventions. England's school inspectorate Ofsted's review of creative approaches to learning found positive impact on standards, personal development, motivation, and attendance in schools where creativity was combined with good teaching and careful curriculum planning. Also in England, Creative Partnerships was the world's largest creative program, working with over 5,000 schools over 10 years until 2012. The program's evaluation and inspection found higher achievement and lower pupil absence rates (which became more powerfully evident the longer the association of the partnership with the school). The program was also found to make a positive contribution to parental involvement as well as pupil engagement.[13] A social impact report demonstrated that Creative Partnerships generated a net positive economic benefit of just under £4 billion. Expressed as a ratio of the benefits to the costs, researchers estimated that £1 invested in the program delivers £15.302 worth of benefits.[14]

Other studies have found that participants taking part in problem-solving programs reported an increase in math and reading scores, as well as improvements in confidence and motivation which, as Jones and Lord's report on creativity and socially excluded young people highlights, "could be seen to impact positively on young peoples' educational inclusion." [15] [16] However, the evidence base is relatively insecure, especially in the context of an ever-rising "evidence bar" in education. For instance, very few, if any, interventions have been subject to randomized controlled trials.[17]

IS A CREATIVITY FOCUS WORTH THE EFFORT?

There is an emerging consensus, particularly from developmental psychologists, that creativity is innate in all of us and learnable in different ways in specific knowledge domains. Past rhetoric focused on an "elitist" view of the concept, posing it as a special and rare quality reserved for a select number of geniuses who have made a difference to the world. However, consensus has shifted to a more "democratic" view of creativity in which creativity is for everyone and, as it does not require genius, is thus teachable.[18] Importantly, large-scale surveys, e.g., European Commission and smaller qualitative studies, also consistently reveal that most teachers believe that creativity is a fundamental skill that schools can and should develop in their pupils (although they are more skeptical about assessment). [19]

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The rhetoric of democratic creativity referred to above is strengthened by evidence that schools and other education institutions can successfully teach creativity, especially in the development of the distinction between so-called "mini-C" and "little C" creativity, which distinguishes a more everyday type of creativity from that found both in the arts and in inspirational individuals.[20] Creativity appears as a trainable competence that can flourish in educational institutions (see Appendix 1 for more information). Research is also demonstrating the interplay between the development of creative capacities and other cognitive and non-cognitive outcomes. In particular, significant content knowledge, intrinsic motivation, and long-term memory in any domain are emerging as key foundations for creative development.[21]

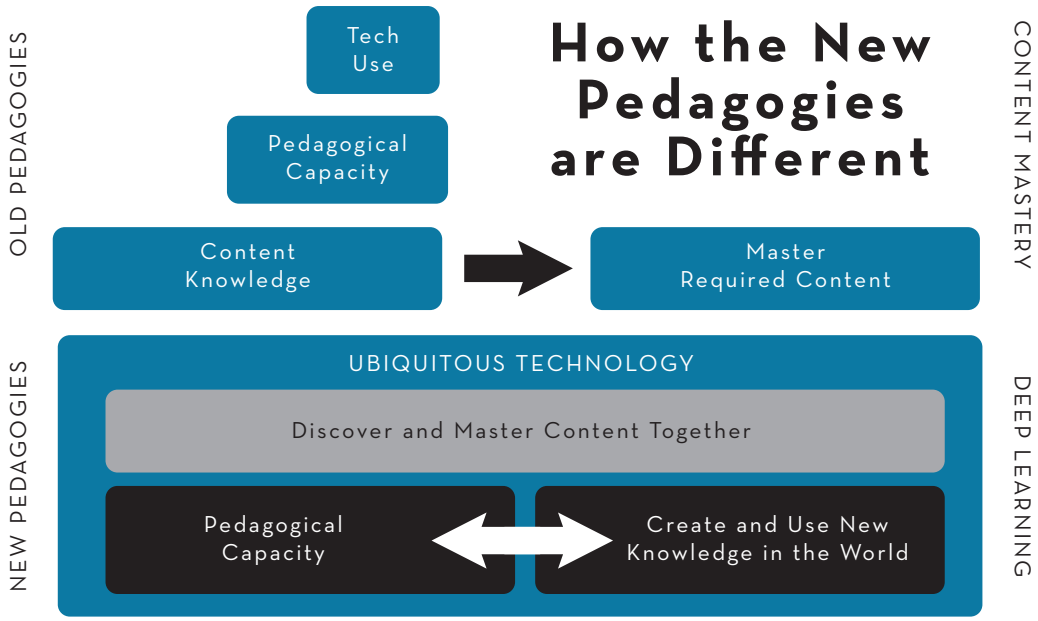
WHY IS NOW THE TIME FOR A CREATIVITY FOCUS?

New technologies offer untapped potential, both as a way of delivering more traditional outcomes more effectively and thus leaving space for creative development, and to offer tools that support such creative development. These new technologies are changing what people need to learn and how people are learning, as well as access to and management of learning. Big data is changing our understanding of learning outcomes and use of analytics. However, there is little evidence to suggest that the potential impact of e-technologies is being realized or that increased investment in e-technology is resulting in improved learning outcomes. Hence, we need to move from the question of how and what technology is being used to whether it is being used most effectively—the "pedagogy of the application of technology." [22]

We suggest that the creative potential of new technologies can only be realized through an application of new pedagogies: approaches based on strong learning partnerships between and among students and teachers which combine the learning of knowledge, collaborative application of that knowledge to real and important problems, and the use of technology as a tool for collaboration, research, and monitoring progress.[23] The teacher's role also needs to fundamentally shift from just delivering content to also proactively learning alongside their students, using technology to grapple with real-world problems with "authentic audiences well beyond the boundaries of their schools." [24]

Figure 1: How the New Pedagogies are Different (from Fullan and Longworthy, 2014)

Diverse, more outward models of schooling, often supported by civil society and businesses, offer possibilities for new models of teaching, learning, and school organization that could spawn successful, replicable practices. There has been an increasingly significant concentration on devolving powers to individual education providers by governments in the U.K., U.S., Australia, and New Zealand, with international evidence suggesting that schools perform better when given more freedom.[25] This movement toward decentralized education systems



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should enable both schools and new school providers to innovate and diversify their offerings, especially with young people themselves having increasing expectations that schools should enable their creative flourishing. However, the accountability systems that can come with decentralization can stifle innovation and maintain cultures of conformity and compliance.

WHAT IS THE BASELISE FOR CREATIVE FOCUS?

The evidence on whether young people's creative capacities have improved or declined over time is mixed and inconclusive. Research that has concentrated on measuring the increase or decrease of creativity based on divergence tests, such as the Kim's 2011 study, has found that creativity has decreased among American children despite SAT and IQ scores continuing to rise.[26] However, there is competing evidence. Russ and Dillon found that children's use of imagination in play and their overall comfort and engagement with play activities has increased over time.[27] Even though children today have less time to play, Russ and Dillon theorized that children may be developing their creative imagination from using technology, or possibly through daydreaming.

Other evidence suggests that rather than an increase or decrease in creative capacities, we may be seeing a shift in the domains in which we are creative. Weinstein et al.'s qualitative study of creative writing and visual artworks found that the decline of creativity may be domain-specific as creativity in the visual arts has increased between the '90s and 2011, while creativity in writing has declined.[28]

Although there is no evidence that young people from lower-income groups have less creative ability or potential, we also need to recognize the significant (and in some cases growing) inequalities in power, resources, and opportunities between people in different social and economic positions, which affects their ability to put ideas into practice and make change happen. This is what the RSA calls the Creativity Gap.[29]

The impact of technology on our creative capacities is especially confused and rarely moves beyond polemicism. Unprecedented technological advances have allowed a far broader section of society (including young people, at whom most new technology is aimed) to become producers, creators, and distributors of creative artifacts. However, it is not yet clear whether similar advances are actually reducing young people's creative capacities, or of the quality of the artifacts they are producing.[30] Shorter attention spans, the "outsourcing of our memories," and other factors may be having negative effects, although empirical data is not yet forthcoming.

Similarly, schools are often pathologized as "creativity killers" even though there is limited evidence of this. The rhetoric of schools as "creativity-killers" is pervasive in the mainstream media, rooted in educationalists such as Ken Robinson arguing that the way schools are structured is killing creativity from a very young age, with worsening effects as young people progress through the system. However, policymakers and academics argue that this accountability system is linked to improved performance in the so-called "basics" that lay the foundations, in terms of pupil attainment and school culture, for creativity. As Beuke asserts, "The idea that formal education reduces creativity appears to be supported largely by anecdotes rather than scientific evidence, although it is sometimes cited as if it were a well-established fact." [31]

COMPLICATIONS

> *Very roughly, creativity comes from two rather distinct sources: knowledge, memory, fast native intelligence, perseverance, strategy, attention; unusual connections and daydreams made by the brain when it is at rest."* [32]

DEFINITIONAL

The definitions of creativity and creative capacities

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are continually contested, within and beyond the education system. Creativity is often used as a "condensation symbol," signifying general unease with a so-called "industrial" model of schooling and the narrowing of school's priorities and provision for students. As a result, definitions of creativity often become overloaded with a baggy set of skills, behaviors, and expectations. On the other hand, creativity can often be conflated reductively with problem-solving.[33] Problem-solving is a necessary but not sufficient foundation for creative thinking. We may need to accept, as Treffinger et al. highlight, that creativity will always be a "complex and multi-faceted phenomenon, which prevents promotion of a universally accepted definition." [34] [35] If so, the RSA's notion of creativity as a "family resemblance" (see Appendix) may help creativity to become better accepted and embedded across school systems.

The lack of consensus on definitions is partly responsible for a lack of progress in the assessment of creativity. As Spencer, Lucas, and Claxton write, "No single model or approach has, to date, become established widely in educational settings, suggesting that assessing creativity is challenging and that there may, potentially, be a number of deep-rooted challenges to overcome." [36] This matters, as robust, common assessment mechanisms would raise creativity's status among decision-makers, enable a better understanding of the impact of specific interventions, and, most importantly, support pupils' metacognition of their own creative capacities and how to improve them.

POLITICAL

In virtually every education jurisdiction around the world, curriculum, assessment, and accountability regimes offer minimal, and possibly declining, incentives for schools to focus on the creative development of their students. The historical marginalization of arts and cultural learning across education systems in the dominant "subject hierarchy" means that most schools struggle to offer sufficient time, expertise, and resources to arts subjects.[37] The current hierarchy of valued outcomes is remarkably similar across the world, tending to prioritize the academic over the vocational, knowledge recall over application, and problem-solving over problem-finding.[38] Political opposition to creativity is subtle; it is rarely argued that creativity is an undesired outcome. More common is an argument that creativity cannot be taught, or that the development of creative capacities will emerge organically through a high-quality traditional, knowledge-centric approach to learning.

Two decades of an increased culture of "performativity"—high-stakes testing, performance management, and accountability—in the U.K. and U.S. has weakened most schools' capacities to prioritize creativity among their students.[39] A cross-section of European experts supports this, concluding that teacher training focuses on transmission styles of teaching, and the overwhelming focus of schooling is on summative testing.[40] Further, a review of studies looking at the impacts of high-stakes assessment found evidence that such environments mitigate against both the initiation and sustainment of creative teaching approaches.[41]

Although some countries have attempted to raise creativity's status, most have lacked the stamina to sustain interest or investment. Singapore's curriculum development moved rapidly from a superficial and counter-cultural focus on creativity to a safer notion of character development. Australian states' attempts to define the "new basics" are being undermined by the introduction of a more narrow set of national core standards. Scotland, through its Curriculum for Excellence, appears on paper to have maintained its interest, yet the jury is still out on how this has translated into changed classroom practices.

PROFESSIONAL

The dominant professional culture of schools leaders and educators has become increasingly risk-averse

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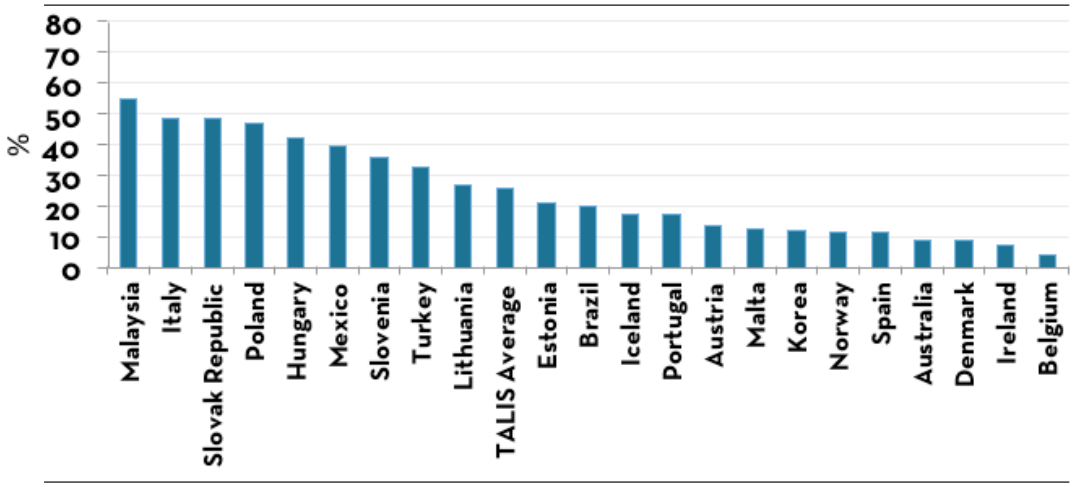
and constrained. Although creative teaching does not necessarily lead to the development of students' creativity (see Appendix 1), 74 percent of teachers in OECD's 2008 TALIS teachers survey *did not agree* that they would be rewarded for more innovative teaching (see Figure 2). Therefore teachers are giving limited opportunities to model creative thinking and behaviors. A further study that surveyed teachers across Europe found that three-quarters of surveyed teachers believed did not feel they had institutional support to focus on creativity.[42] Moreover, while almost all surveyed teachers believed that creativity should be fostered in schools, around half did not employ any multi-disciplinary or self-directed learning in their classroom—activities that have been linked to fostering creativity (summarized and supported in Jeffrey and Craft 2004). [43] This may be because, as Cropley (2001) suggests, teachers often link creative behaviors with disruptive trouble-making—a claim supported by several studies (Westby and Dawson 1995; Scott 1999; Runco and Johnson 2002). [44] [45]

Figure 2: Incentivizing Innovative Teaching Practice



Percentage of lower secondary teachers who agree or strongly agree with the statement: "In this school, if I am more innovative in my teaching I will receive increased monetary or non monetary rewards"

Source: OECD, TALIS 2008 Database, Table 5.9

Faced with a generation of young people, described recently in the U.K. as "generation citizen", who are more ambitious, entrepreneurial and community-minded, but also expect their future workplace to offer them opportunities to vent their creativity, more developed nations may continue to face shortages of teachers whenever their economies grow again.[46] As the OECD (2012:4) asserts, "countries that have succeeded in making teaching an attractive profession have often done so not just through pay, but by raising the status of teaching, offering real career prospects, and giving teachers responsibility as professionals and leaders of reform. This requires teacher education that helps teachers to become innovators and researchers in education, not just civil servants who deliver curricula."[47] And although many head teachers and senior teachers argue that the younger generation of teachers has fewer abilities to teach creatively or teach for creativity, one small study (Kwang and Smith 2004) suggests that the opposite may be the case.

SOCIETAL

Although parents, employers, and the broader public are generally supportive of a broad education that goes beyond "the basics," there has been very little upward demand for schools to focus on creativity. The "elite" view of creativity is no longer a dominant societal attitude, there is a residual belief among teachers (and policymakers) that the nurturing of students' creative capacities should be confined to the most gifted students, or should be developed only after the culmination of—and never at the expense of—knowledge acquisition.[1] However, the demand may be latent, and therefore possible to harness. Adobe's 2012 global survey of creativity found that only one in four people felt that they were living to their creative potential and three-quarters believed that there is an increasing pressure

1 The former English Education Minister Michael Gove claimed recently that "creativity depends on mastering certain skills and acquiring a body of knowledge before being able to give expression to what's in you…[for instance in music] you need first of all to learn your scales."

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to be productive rather than creative at work.[48] More than half felt that creativity was being stifled by the education system. Further to this, employers rarely back up rhetorical calls for a creative workforce with sustained action and, when probed, often revert to more traditional expectations for graduates—for instance, literacy, numeracy, and punctuality.[49]

TACTICAL/STRATEGIC

Those who advocate creativity rarely apply the latest research on learning and creativity forensically to their practices. Interventions have often proceeded without the necessary rigor to understand impact, leading to advocacy-heavy and evidence-light evaluation reports. Some of the rhetoric and TED talks, in exaggerating the problems without offering practical solutions (for instance, claiming that "schools kill creativity"), may have prevented a more meaningful dialogue with the more skeptical or cautious parts of the education sector.

The problem is that the role of creativity in learning remains a highly contested space, caught between broadly progressive and more traditional views of educational aims and practice. Not everyone (especially those on the traditional side of the debate) is convinced that creativity can be taught, learned, or assessed. We therefore need to break through unhelpful divisions between "progressives" and "traditionalists" and make a compelling case for promoting creative capacities, based on rigorous evidence rather than advocacy-heavy or unsubstantiated claims.

QUESTIONS

"Whereas 'islands of innovation' may emerge within existing systems, the education system of the future will need to develop a systemic capacity to innovate… All schools and colleges will need to experiment with original approaches or become early adopters of cutting edge practice elsewhere, so that they can get better at responding to changing needs more quickly than ever before." (RSA/British Council 2013) [50]

Given the current situation and the complications outlined above, what questions do we need to answer?

I. **LEARNERS:** What types of pedagogies and broader learning experiences will do most to improve the creative capacity of learners while also narrowing achievement gaps and supporting a broader set of outcomes?

II. **TEACHERS:** How can we best recruit, train, and develop teachers so that they have the capacities, motivation, and opportunities to practice disciplined innovation and inquiry-based teaching?

III. **INSTITUTIONS AND SYSTEMS:** How can we re-engineer institutions and systems (including accountability levers) to drive systemic capacity for innovation and a sustained focus on creative teaching and learning, as part of a wider culture of inquiry, design, and disciplined innovation?

IV. **SOCIETY:** How can we transform public, professional, and political attitudes so that the development of creative capacities is actively encouraged and prioritized (in schools, families, workplaces, and other learning institutions) and where increased effort and interventions to develop capacities and activity are targeted at those from low-income families and communities?

ANSWERS: TWELVE DESIGN PRINCIPLES FOR SCHOOL SYSTEMS

"Creative capacity building should not be misrecognised as the reiteration of an oft-repeated call to a more student-centred approach. Rather, it signals a fundamental shift towards a more complex and experimental pedagogical setting….Creative capacity building still languishes in the too-hard-basket for many in mainstream education. It will

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not happen simply by being hoped for despite our systems of formal education, nor can it be left to 'arty' types or IT gurus to develop 'at the margins. There is no doubting the exciting teaching and learning that is now emerging in some quarters of education. It is not a matter of finding examples of such capacity building and parading them on awards nights, but of understanding the new principles through which relevant pedagogies can be made scalable and sustainable at an institutional, and indeed, systemic level." [51]

The questions above are connected and interlocking. Therefore, rather than answer each question in turn, we have drafted a set of twelve design principles. These principles can be used by anybody with influence over student learning—policymakers, superintendents, school board members, school leaders, and teachers. They are configured to apply across any education jurisdiction. So while they are not in themselves policy recommendations, analysis of these principles in a particular context could generate recommendations for policy and practice.

1) **Model creativity across and beyond your institution**

   Case Study: Schools of Creativity, England

   Schools of Creativity was part of the Creative Partnerships program run by Creativity, Culture, and Education. The 55 schools involved in Schools of Creativity developed innovative, creative programs in their own schools and provided leadership and support to a network of local schools, as well as influencing at the national level. These schools were across all phases of education located across England and had been chosen because they displayed outstanding practice in creative teaching and learning.

   There were three aims for the schools involved Schools of Creativity program:

1) To develop practice – to develop their own schools through cutting edge creative practice

2) To influence practice – to help transform other schools through innovative dissemination and partnership work

3) To lead practice – for Schools of Creativity help transform educational practice nationally through their role with Creativity, Culture and Education (CCE)

   From: http://www.creativitycultureeducation.org/evaluation-of-the-wider-impacts-of-the-schools-of-creativity-programme

2) **Lead the push for creativity by both demonstrating and enabling creative behaviors**

   Case Study: Teach Less, Learn More, Singapore

   The Teach Less, Learn More (TLLM) initiative in Singapore gave increased autonomy to schools, providing them with the flexibility to innovate their own pedagogical approaches in order to promote critical and creative thinking and problem-solving skills. The Singapore Education Ministry also reduced the curriculum content by 10–20 percent to allow for time in a schools' schedule (known as "white spaces") to develop their own unique learning programs (Ministry of Education 2005).

   From: http://www.moe.gov.sg/corporate/contactprint/pdf/contact_oct05.pdf (p. 3–5)

   Case Study: Creative Learning Networks, Scotland

   In order to ensure that young people have access to the best possible creative learning experiences and opportunities, Education Scotland and Creative Scotland are supporting local authorities across Scotland to develop Creative Learning Networks (CLNs).

   The Networks encourage collaborative working across the education, culture, and communities sectors and bring together those with an interest in children and young people's creative learning.

   From: http://www.creativescotland.com/what-we-do/major-projects/creative-learning-and-young-people/creative-learning-networks

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3) **Enable creative professional development for all educators throughout their career, especially those in the early stages**

Case Study: CapeUK Professional Learning Programs, England

CapeUK is a nonprofit organization based in Yorkshire, but with a national remit. One of their aims is to place creativity at the heart of inspired teaching and leadership; they do this partly by offering creative Continuing Professional Development (CPD) events and workshops for teachers at all stages of their career. Their Professional Learning program looks to "help participants to: grow new ideas and behaviours, drive change and sustainability, enable creative development, introduce analysis, understand creative processes, experience creativity, think systemically to bring about change, be engaging… and more." One successful intervention included a bespoke program for Advanced Skills Teachers in Creativity.

From: http://www.capeuk.org/current-work/professional-learning

Case Study: Creativity Action Research Awards, England

Creativity Action Research Awards was commissioned in 2004 and enabled creative partnerships for action research in schools across England. The partnership brought a teacher and creativity professional together to co-develop a creativity project, evaluate it in relation to students' learning, and collate evidence to share with others.

From: http://www.capeuk.org/wp-content/uploads/2010/05/CARA-Building-Creative-Futures.pdf. See also http://www.capeuk.org/capeuk-resources/learning-to-enquire.html

4) **Build coherent and progressive provision across the curriculum, informed by the best research about how creative development differs from childhood to adolescence**

Case Study: Key Life Skills from The Central Board of Secondary Education, India

The Central Board of Secondary Education is a Board of Education for public and private schools under the Union Government of India and recognizes that the transition from childhood to adolescence is pivotal to creative development. As such, it suggests teaching secondary-aged students the 10 key life skills outlined by the WHO and provides a framework of techniques to use to teach the skills as well as key steps in application. *From: http://www.cbse.nic.in/cce/life_skills_cce.pdf*

5) **Mind the Gap, concentrating efforts and interventions on students from low-income families, connected to broader achievement-raising and community-building strategies**

Case Study: Kent School District's One-to-One Computing Program, USA

This computing program is intended to address equity issues in the district, aiming to reduce dropout rates and help keep students engaged. Due to the program, students are no longer expected to show their knowledge only through tests but also in creating movies, writing a blog, or sharing content knowledge with students thousands of miles away.

From: http://www.intel.com/content/www/us/en/education/it-managers/resources/kent-washington-education-case-study.html

Case Study: Pilot Enquiry School Programme, England

Arnold Nursery School applied to take part in Creativity, Culture, and Education's Pilot Enquiry School Programme. Located in a socially and economically deprived part of South Yorkshire, the children's language and communication skills were very low. The school wanted to develop students' language skills through an exploration of their environment and also by involving

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parents. The idea was that language skills would be developed through shared visits to look at sculpture.

From: http://www.creativityculturereducation.org/wp-content/uploads/Changing-Young-Lives-School-Case-Studies-2012.pdf (first case study)

6) **Develop subject-specific pedagogies to support the knowledge-rich development of creative capacities**

Case Study: Design-Centered Curriculum, USA

The Charter High School for Architecture and Design is a Philadelphia public school founded in 1999 with a design-centered curriculum. The school connects design thinking with math, science, English, and social studies. The school staff realize that not all the students at the school will go on to be designers or architects, but they think the design thinking that students learn can and should be applied to any discipline.
From: http://www.chadphila.org

Case Study: STEM Initiative, Wellcome Trust, England

The Wellcome Trust in England provided a small grant to a small number of schools and allowed them complete freedom to design projects specific to STEM (Science, Technology, Engineering, and Mathematics) with the aim of developing STEM subject knowledge but also increasing enjoyment of the subjects by allowing both students and staff to be more creative. The latter goal was partly met by schools introducing the new STEM curriculum through holding a "creativity week," with students involved in various activities such as building and racing radio cars and designing and flying kites.

From: http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_peda/documents/web_document/wtvm055664.pdf

Case Study: Key Skills, Australia

Australia's new curriculum encompassed seven core skills students are expected to develop (Literacy, Numeracy, Technological Capability, Critical and Creative Thinking, Personal and Social Capability, Intercultural Understanding, and Ethical Understanding). Australia's curriculum also still has the traditional domains of subject knowledge, though linked with the seven key skills so teachers can see how to develop these skills within specific subject topics. As such, the Australian curriculum promotes both traditional subject knowledge and a broader set of skills and also allows teachers to see how they can be combined.

For more information see http://www.australiancurriculum.edu.au

7) **Prioritize the arts and cultural learning as a unique and crucial canvas for creative development**

Case Study: Creative Education Arts Team (CREATE), Scotland

Dumfries and Galloway Council in Scotland established the Creative Education Arts Team (CREATE) in 2004 to work with a well-established network of local, national, and international cultural professionals, bringing them together with educational practitioners to enable engaged, meaningful and enjoyable ways to learn.

As part of this aim, the report "Making Connections: A Policy Statement of Creative and Cultural Education" explores Curriculum for Excellence (Scotland's curriculum framework) to showcase best examples of cultural partnerships. Examples of partnerships include the involvement of professional writers in art and design, dancers in language classes, musicians in pre-school education, and theater companies working on all aspects of school productions.
From: Education Scotland. 2013. Creativity Across Learning 3-18. Available at: http://www.educationscotland.gov.uk/Images/

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Creativity3to18_tcm4-814361.pdf

8) **Create structured, sustained, and rigorous opportunities for project-based, inquiry-oriented learning**

Case Study: The Future Problem Solving Program (Global)

The Future Problem Solving program involves immersing young people in a variety of realistic problem-solving efforts at the individual, team-based, action-based, and community level. It also provides opportunities for involvement in actual community issues so the problems are real and relevant.

From: http://www.fpsp.org. The website also provides the link between this program and National Curriculum Standards: http://www.fpsp.org/Standards.pdf

Case Study: REAL Project, Innovation Unit, UK

REAL projects are designed for project-based, inquiry-oriented learning, which is developed by both the teacher and students based on real interests and questions that have meaning in the "real world" and are then tested for validity by other staff members before being taught in the classroom. This approach was originally designed by HighTech, a group of charter schools in California; now Innovation Unit has adopted this approach to develop the practice in the UK.

From: http://www.innovationunit.org/real-projects

9) **Develop clear and consistent processes to assess the creative capacities of your students, including opportunities for self and peer assessment**

Case Study: Assessment Processes at Turning Points Schools

Turning Points is a New American Schools middle school reform model. In Turning Points schools, teachers develop a wide array of assessments that include portfolios, exhibitions, theses, and demonstrations, and students are required to show understanding, analysis, synthesis, evaluation, and application. These are assessed by external panels of reviewers.

From: French, D. 2003. "A new vision of authentic assessment to overcome the flaws in high stakes testing." *Middle School Journal* 35(1):14–23. http://www.ecs.org/html/Document.asp?chouseid=5388

10) **Engage with resources and opportunities beyond the school gates**

Case Study: City Connects Program

City Connects is a student support intervention program that addresses the out-of-school factors that can limit academic achievement. The organization works together with school staff to contextualize the needs for every child involved in the program to develop tailored interventions and enrichment experiences within their local community. Because the program connects in- and out-of-school factors, they are able to see all factors affecting the student and thus design specific interventions that allow them to stay in, and succeed at, school.

From: http://www.bc.edu/schools/lsoe/cityconnects

Case Study: 'Lunch and Learn' Sessions at North High School

North High School in Des Moines, Iowa, uses community partnerships to expand student horizons. The principal runs "Lunch and Learn" sessions with parents, businesses, and community organizations.

From: http://www.p21.org/exemplar-program-case-studies/1282

11) **Design tough-minded evaluation processes that aim to understand, rather than demonstrate, the impact of specific interventions**

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Case Study: Creative Partnerships' Creative School Development Framework, England

Creativity, Culture, and Education developed an assessment framework that not only enables the tracking of the development of creativity in young people but also attempts to understand impact at a whole-school, strategic level. This was published as part of a research report, "Progression in Creativity: Developing New Forms of Assessment," that also provides a literature review, information on the field trials conducted, and case studies of schools using the framework.

From: http://www.creativitycultureeducation.org/wp-content/uploads/Progression-in-Creativity-Final-Report-April-2012.pdf (see p. 114 for framework)

Case Study: Education Endowment Foundation Toolkit, England

The Education Endowment Foundation has developed a toolkit that brings together a summary of educational research on the topic of improving the attainment of disadvantaged pupils. The toolkit summarizes research based on average impact on attainment and strength of the supporting evidence. This toolkit is effective in providing evidence-based guidance for teachers and could equally be applied to creativity education research.

From: http://educationendowmentfoundation.org.uk/toolkit

12) **Foster upward demand for creativity, especially from parents and employers**

Case Study: Creative Communities at Thomas Tallis School, England

In Thomas Tallis School, they are committed to fostering creative learning across the school and beyond. Their Creative Communities program looks to establish links with members of the local community and develop their creative potential, alongside teachers and students. Each year, the school plans a variety of activities with different members of the community including other schools, youth clubs, businesses, arts organizations, local residents, and more.

From: http://www.creativetallis.com/creative-communities.html

Case Study:
Edge in Education Parent Group, Prague

The International School of Prague has formed a Parent Group to enable effective communication and collaboration about learning. The aim of the Parent Group is to allow participation from all stakeholders, so that, as the school highlights, they can "truly *re-envision* our schools to meet the needs of Twenty First Century learners."

From: http://school21c.org/2012/03/08/parent-focus-group-and-project-based-learning

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