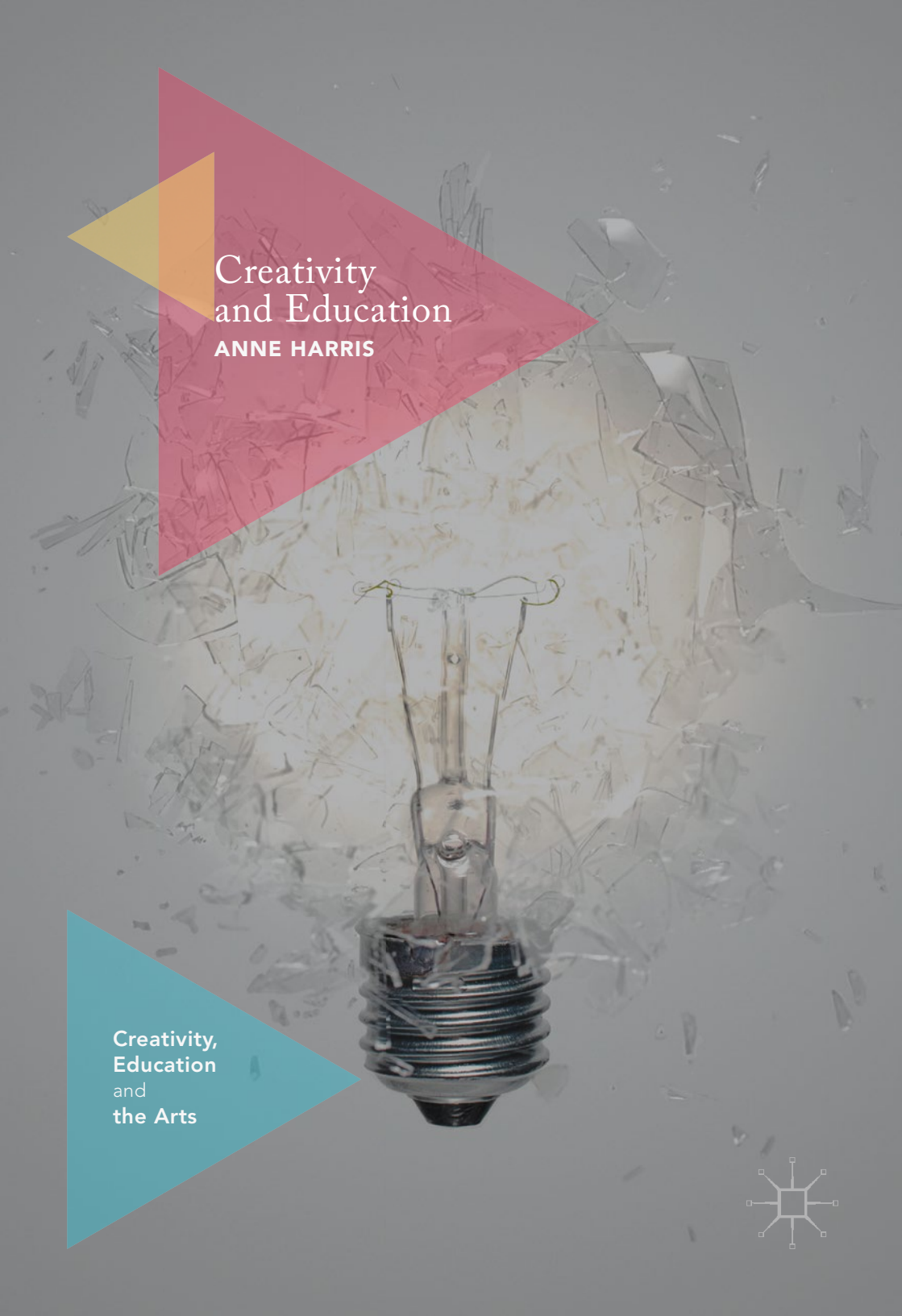
Creativity and Education

ANNE HARRIS



Creativity, Education and the Arts

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Series Editor

Anne Harris
Monash University
Melbourne, Australia

This series emerges out of recent rapid advances in creativity- and arts-informed research in education that seeks to reposition creativity studies within (and in conversation with) education as a multi- and interdisciplinary field.

This series takes as its starting point the interrelationship between arts-based research and a growing neuroscientific, cultural and economic discourse of creativity and creative industries, and the need for education to play a larger role in these expanding discourses. It also takes as a priori an invitation to creativity scholars to move more robustly into theorizing the work of arts- and creativity-based research work, bridging a historical gap between 'science' and 'art', between 'theoretical' and 'applied' approaches to research, and between qualitative and quantitative research paradigms.

The following are the primary aims of the series:

- To publish creativity research and theory in relation to education (including schools, curriculum, policy, higher education, pedagogy, learning and teaching, etc.).
- To put education at the heart of debates on creativity, re-establish the significance of creativity for learning and teaching and development analyses, and forge links between creativity and education.
- To publish research that draws on a range of disciplinary and theoretical lenses, strengthening the links between creative and arts education and geographies, anthropology, creative industries, aesthetics and philosophy, history, and cultural studies.
- To publish creativity research and theory with an international scope that explores and reflects the current expansion of thought and practice about global flows, cultural heritage, and creativity and the arts in education.

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Anne Harris

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palgrave
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Anne Harris
Faculty of Education
Monash University
Melbourne, Australia

Creativity, Education and the Arts
ISBN 978-1-137-57223-3 ISBN 978-1-137-57224-0 (eBook)
DOI 10.1057/978-1-137-57224-0

Library of Congress Control Number: 2016943404

Cover illustration: © Cultura RM / Alamy Stock Photo

Printed on acid-free paper

This Palgrave Macmillan imprint is published by Springer Nature
The registered company is Macmillan Publishers Ltd. London

This book is dedicated to the work and memory of a landmark scholar who has influenced the way so many of us think about creativity scholarship and its possibilities in the world, both critical and educational, and who was taken far too soon.
Anna Craft (1961–2014)

Preface (About This Book)

I didn't understand it. I didn't understand it. I didn't get it. Finally I took the mask on a bike ride one day and it all fell apart and then I wrote about it and I think that was the beginning of me to open up the area of process is so important. Maybe I was too goals driven, so I think through this course it allowed me to slow down and I think that's what creativity is to me now, is more understanding the process and engaging the kids in the process, not just the beginning and the end. It can be ugly in the middle and that's okay. So I think that's where my definition of creativity changed and it gave me permission to do those things and understand that if the mask falls apart and it's in a million pieces that's okay because you've still got something out of it. It's not about the mask. It's the process. I think that's the thing. (Vancouver teacher)

Craft et al. (2008), in one of the last great books addressing creativity in a holistic manner from inside education, explored a clear trend toward a closing down of productive risk in secondary schools, despite a growing attention to creativity. The new data informing this text does the same, and picks up where theirs left off, drawing on the voices of secondary school teachers, students, and school leaders who suggest directions for the next generation of creative teachers and learners in a rapidly evolving global education landscape. It also extends the urgent need for critical commentary regarding creativity and culture championed by Leong and Leung (2013) in China/Hong Kong/Taiwan, and Neelands in the UK.

Creativity is ubiquitous today, in both scholarly discussions and more popular contexts such as industrial workplaces, community arts, and, more recently, education. As Anna Craft noted, 'Creativity is experiencing

a global revolution. Since the 1990s, in many countries, it has assumed increasing importance in the school curriculum, contrasting strongly with previous approaches to creativity in education' (2005, p i). In this short book I want to summarise some of the main debates in creativity and education that are raging today, but also look toward a future in which we might be less concerned with defining creativity and more committed to integrating it into our multi-sited lives, in all its diverse meanings and definitions.

To do so, I will address the kinds of views argued by education and other scholars who unfortunately too often binarise arts versus creativity, and 'good' creativity versus 'bad' creativity. This is one set of dichotomies I confronted for the first time when I was writing my book *The Creative Turn* (2014), emerging as I was from careers as both a professional artist (playwright) and high school teacher (drama, media, and literature). In this book I will revisit the temptation of those dichotomies, in part to address some common misreadings of *The Creative Turn,* but also as a way forward in suggesting to newer scholars that it might be more productive to move beyond such simplistic binaries and toward a more celebratory approach to this new incarnation of creativity, even in its so-called commodified forms. But there is another binary that plagues this discussion, which O'Connor has been highlighting for some time, that of the split between the cultural and creative economies, and art. The value of his argument for reintegrating them can be seen in the commentaries of the teachers and school leaders' voices in these pages that:

> There is a need for a reframing of culture as an object of public policy—not merely in the objectives set and tools used but in terms of the public value it brings to society. The arts remain one of the areas where these arguments still persist—but they remain closely linked to accusations of elitism, are based on public subsidy and have representative institutions which are rarely concerned with wider cultural economy aspects. (O'Connor and Gibson 2014, p 44)

It is the task of those of us who work in the arts—be it professional arts industries, arts education, or creativity industries—to help reintegrate them. So part of the aim of this book (and indeed this book series more generally, of which this is the first volume) is to find ways in which creativity and the arts in education might make peace with one another, and together reassert the value of culture in schools.

I do this here primarily by drawing on the preliminary findings of a three-year international study I am still in the midst of, which investigates creativity in secondary (high) schools in Australia and three other countries: Canada, the USA, and Singapore. The findings are drawn from the principals, teachers, and students who constitute the material work of creativity in education, and you will encounter their voices here. This book is not, like *The Creative Turn* was, a philosophical, reflective, or theoretical text. It is practical, pedagogical, and owes a great debt to those who have laid the groundwork for this current era of creativity in education, primarily Professor Anna Craft, with whom I spoke several times about this study, this work more broadly, the challenges of doing educational work in creativity, and creative work in education. My deep regret is that we never met as scheduled in mid-2014, due to the illness that took her on August 11, 2014, at the young age of 52, when she had so much more to offer and this field had such need of her expertise, especially at this pivotal time for creativity in education. Nevertheless, you will see the influence of her thinking and her long commitment to this subject between these covers, both directly and indirectly.

Drawing on Flew, Cunningham, Massumi, Bourdieu, Giddens, and others regarding creative industries, affect, habitus, field, and forms of creativity that bridge institutional and public education, its context, its short- and long-term benefits, and transferable value, creativity is being debated and defined by just about everyone in education. This is the kind of debate and differentiation for which Anna Craft laid extensive groundwork, and referred to as the distinction between 'little c creativity' and 'big c creativity' (Craft 2002, p 49). To me, this is good news. Until recently, it seemed to me that everyone *but* those of us in education was debating the merits and dangers of creativity (and innovation, and curiosity, and imagination, and critical thinking, and industry). Today, teachers, student teachers-in-training, and teacher-educators in higher education are deeply concerned with what it is and how its impact will affect them. The good news as I see it is that it is no longer necessary to try convincing my peers in education that creativity and its 'turn' is indeed impacting us; rather, we can now move on to the business of discussing how.

While this is the 'good' news, there is still some less-than-good news. Firstly, creativity in its current 'economic' or neoliberal incarnation in schools is often seen as superficial or misguided. This is a dangerously inaccurate and dismissive reading of the global economic forces at play, which are currently 'trickling down' and appearing as 'creativity and

innovation' in curriculum documents, educational vision statements, and in school mission statements. Some education scholars continue to treat this new view of creativity quite flippantly, suggesting that it is based on misunderstandings and strange appropriations of 'real' art, art education, and artistry. As scholars (again led by Craft) have debated for over 20 years now, this is problematic because it misses the fact that economic drivers have always been at play in curriculum and pedagogy reform, as they are in this instance.

> *Creativity happens spontaneously. You have to build relationships. Humour is absolutely crucial. That, to me, is the number one creative approach that can be best utilised. I'm not a fan of the textbooks. Textbook is a guide for the child when they are at home. In class, textbook is a waste of time. You can do that anywhere, anytime. I've seen the teachers that struggle. There's a common theme in our school: the classrooms that have the most behavioural problems are usually the ones with the teachers that go by the textbook, that don't write their own lesson plans, don't brainstorm. They go online and they take somebody else's lesson plan and implement it, because, quite frankly, it's a lot quicker and easier. (Upstate New York special education teacher)*

A second common rejoinder of the creativity naysayers has to do with the difficulty of teaching generalist arts education subjects within teacher education courses in higher education, and this is a problem for which I share concern through my own frustrating experiences. However, it is a separate issue which is linked only by the frustrating popularity of neoliberal creativity and the resistant and perpetual unpopularity of arts education. It's like the unpopular younger sister of the prom queen—being unpopular is barely survivable, but once your close relative gets all the glory you are missing, it is unbearable. Many scholars conflate these two occurrences and in doing so risk robustly arguing about the dangers and/or benefits of either.

So while I celebrate education and more broadly educators coming to the creativity table, as it were, there is a danger in attempting to link frustration at the resistance of many pre-service teachers, in-service teachers, and students toward the arts in education, and simultaneously inconsistent definitions of creativity in education and the detrimental effects of that on arts educators. I wonder whether these separate issues (both important) benefit or suffer from being analysed together. For example, arts education has been devalued in schools since long before the current flourishing of creativity discourses.

Some scholars argue that it is a misunderstanding of the kind of creativity evident in arts practices or discipline-based arts education (as opposed to creative coding, creativity in mathematics, and other areas of the curriculum) that results in the devaluing of arts subjects in education/schools. I do not agree, although I do see evidence of an appropriation of creativity by scholars in other areas in both secondary and tertiary contexts. Yet it is only very recently that a creativity discourse or what some have called 'the creativity problem' has appeared in schools and curriculum documents. Previously arts education was more common (but has historically struggled for status, as well-noted by Eisner, Barone, Heathcote, Gardner, Manning, and others), and creativity is almost completely absent since the 1980s. However, even when arts education was the lingua franca of the day, it was largely devalued in education systems that were, to greater or lesser degrees, focused on 'getting a job' as the ultimate outcome of the education journey (as well-documented by Ken Robinson, Pat Thomson, Julian Sefton-Green, Anna Craft, and others). Therefore, in this book I wish to challenge readers to consider that contradictory and vague definitions of creativity only contribute to its appropriation by economic and other actors/agents, and operate almost wholly separately from the continuing devaluation of arts in education. The workplace/marketplace/economic drivers of pedagogical, curricular, and systemic educational trends have always been unfavourable to arts education (as Anna Craft and Jonothan Neelands in particular have shown), and the current neoliberal turn has only accentuated that trend, not started it.

Some readers may have misread my analysis of 'the creative turn' (2014) and its commodification by suggesting that I view art education and its promise of democratic creativity for everyone as not a valuable pursuit. That is not what I claimed in that book, but it does point toward a common (what I would argue is a defensive) stance of many arts educators: that is, that if I (or anyone) see a kind of value in the ubiquity of creativity across the curriculum, and acknowledge that not only arts educators but that other subjects (such as science, maths, history, and technology) might 'do' creativity just as well if not at times better than arts subjects, that I am somehow anti arts education. This could not be further from the truth. I have been an arts educator for nearly 20 years now, and before that was a professional playwright and playwriting teacher from the age of 18 years. But what I was trained to believe is that every arts discipline (in my case playwriting and screenwriting) requires mastery. Mastery takes time, and repetition, and master training—not just exposure and not

just participation. This is the ethos and approach of the conservatorium in music, and the playwriting education I received followed this model. Therefore, as I have noted in *The Creative Turn*, I believe in the beauty and rigour of that kind of training, and both the aesthetic and technical skills demanded by it. This training is at odds with the ethos of arts education, which aims for something different—that is, for an 'arts experience' for all its students, in a generalist and usually fairly superficial manner. The philosophy here which found its most thorough and famous proponent in John Dewey is that all humans benefit from this kind of exposure and engagement in the arts as part of their overall education, and I believe in this too. However, these two kinds of training are not the same, have different goals, and usually different outcomes. The contemporary creativity discourse represents, I think, a third kind of artistic training. It is one that claims that creative thinking will also benefit all humans in their overall development, but unlike Dewey's justification that art education allows both the expressive and socially critical citizen to form (Dewey 2004), the new creativity claims to be democratic and transferable, not for the good of the whole person or society (as in Gardner's terms), but for the good of the consumer model, or at best for the good of the individual versus the collective.

So those who complain that creativity is killing the arts are crying wolf to my mind because nothing has ever killed the arts and its concomitant 'making' approach to schooling, nor will it now. We are experiential beings and as such we seek out opportunities for tactile and embodied experiences of the new—this will not end. But inherent in this argument is the suggestion that what Gough (1979) calls 'creative personalities' (1979) are somehow now going to be all of us, and that the old elitism of the 'artist' is no longer welcome or necessary. This too is an age-old trope that exists because there have always been those who conduct social critique through the power of symbolic and ritualistic art-making. The new parlance of 'creatives' is only creative industry-speak for 'artist', the main difference being that twenty-first-century creatives sound like they will be able to make a living at their craft, while 'artists' do not, especially not in globally financially critical times like these.

Therefore, I do take issue with those who would suggest that creative capital is here for everyone, and those who harken back to a different kind of art-making are romantic, nostalgic, and out of touch. These are two unhelpful ends of the same spectrum, and surely the answer is somewhere in between. While there *are* artistically gifted (creatives) who do and will

continue to distinguish themselves from the rest of us in their ability to make unusually beautiful or interesting or disruptive work that 'has value' in the social collective known as 'culture', not all of us have that talent, or are what is referred to as 'gifted' in the New York City theatre scene in which I was raised. This is not unlike the 'gifted and talented' approach to creativity studies in education that typified the latter half of the twentieth century, such as the psychometric giftedness validated survey tools from Guilford, Torrance, and the like.

Yet of course there remains a need for a generalist, non-specialised arts or creativity education. Indeed I would argue there is a need for both. I think it's fantastic to imagine those non-arty students who find 'flow' in doing mathematics equations and see the artistry in scientific classroom experiments as 'just as' creative as those starring in the drama production, making animations, or playing virtuoso violin. It is not an either–or question.

The quicksand of such debates worries me because it wastes time that could be spent making education more creative *and* artful. It suggests that the arts are somehow the inheritance of the elite, or the left-overs of the at-risk. There are large bodies of scholarly literature on the arts and educational aspiration, engagement, and also the benefits of master study in the more traditional performing and visual arts for those students who wish to (and have the aptitude for) this kind of tutelage. This literature is well-developed and well-documented (including the work of Greg Dimitriadis, Jenny Sandlin, Jake Burdick, and others, and within Australia this literature includes my own and also Kate Donelan and Angela O'Brien).

Lastly, I am concerned by arguments put forward by arts educators that assume (or rearticulate) that those of us in arts disciplines 'do it best' when it comes to creativity. While I share their frustration about the skills and capacities of creative arts being appropriated by others newer to the game and less knowledgeable about some aspects of it, again I assert that these are two different arguments and must not be conflated. Claiming that a priori arts education does creativity better than any other field of endeavour is arrogant and in some cases just patently wrong. Indeed my current study in four countries and across a range of high school subjects proves just this. Wouldn't it be more productive for those of us working in arts education to talk as peers and collaborators to our colleagues in other disciplines to find out how we might enrich their creative endeavours, and how they might reinvigorate ours? We have much to learn from one another if we can put down the guns for a moment and approach our

interdisciplinary and cross-curricular work as collaboratively and creatively as we approach our own.

Some scholars suggest that the combination of economics and creativity that currently has taken shape as 'creative industries' ignores the complex evolving discourses and global economics of cultural and creative industries. It is not only due to Richard Florida's (highly critiqued) creative economies scholarship, or to misunderstandings about professional arts industries or arts education, but to a larger, evolving global economic flow that many scholars seem to ignore or not know about (see, for example, O'Connor, Flew, Cunningham, Ammabile, Seelig, Neelands, and to some degree Julian Sefton-Green).

In this book I will continue the project that I started in *The Creative Turn*, of setting a more comprehensive historical context to the current 'creativity problem', because it is (in its current form) neither new nor unanalysed, and in order to save ourselves the pain of reinventing (or reanalysing) the wheel, it is important to remember this clear and foundational work—which can be typified in part by the extensive work of Anna Craft, to whom I will primarily turn.

Some scholars are seeking to schematise an approach to defining and by extension packaging creativity by using a systems approach that includes static definitions, practices, and assessment approaches. I understand their desire for such a schematic, and while I agree that we can (and should) certainly work hard to enhance current understandings of creativity and its practices, I disagree completely that it can be schematised. Such an approach is contrary to the practices of creativity, and indeed its principles and sociocultural need. Structuralism cannot explain the ineffable, and while there are commodified aspects of this contemporary creative turn, its value is still its ability to shape-shift and offer alternatives to the already-known. Some scholars have accused me of falling into the nostalgia trap regarding creativity, or romanticising a kind of 'real' creativity versus the commodified creativity that now pervades education and economics. Not true. I do articulate a distinction between artists who study for technical mastery of their instrument or creative field, and creative educators whose aim is to make creativity accessible for all—two very different goals, both of which are worthy. Yet one of the characteristics of contemporary creativity is that it would be all things to all people. I still argue—as do some of the teachers I have been interviewing across the globe—that creativity itself is universal, and can (and should) be enhanced by all educators, yet artistic giftedness is rare and is less likely to be nurtured by an education

system obsessed with standardisation and comparison. Yet these are the times we live in, and both kinds of creative expression, skills and capacities, are valuable and have a place here. In *The Creative Turn*, I talked about the artistic kind of creativity that is harder to find, and then I pointed only cursorily to the kind of 'commodified creativity' that I argued typifies this era. In this book, I will focus mainly on the democratic creativity that bears the characteristics of commodification and mass production. This kind of creativity is what twenty-first-century educators must learn to nurture, and it is of increasing interest to educators the world over. This book will look at the ways in which we have arrived at such a definition of creativity, what the teachers, students, and school leaders have been saying in response to this move toward 'creative skills and capacities', and how policy and vision statements are asking us to consider creativity differently since *The Creative Turn* was published at the very beginning of this creative curve or turn.

My aim with this book is primarily to be of use to principals, teachers, and students who wish to enhance creativity in their schools. It may also be of interest to teacher-educators who are unclear about how to improve their training of tomorrow's teachers knowing that creative skills and capacities are essential for new teachers, but not how to get there. It holds at its core the central tension between being able to apprehend creativity enough to offer some guidance about how to improve understanding and practices, but not lock into rigid models that are not flexible enough to meet the needs of every unique school that wishes to use it. For this reason, I share emergent views of those in the trenches, and the best practice models from those using globally recognised approaches—yet I will stop short of making one-size-fits-all 'recommendations'. Readers will have to take the data on their own, and make their own recommendations for their own unique contexts, drawing on expert advice and models. This, I believe after my 22 years of creative education and master-trained artistic practice, is the most honest and effective way forward.

This is no silver bullet. Those who are looking for one will find many texts on the market that promise a one-size-fits-all approach to creativity in education, and I encourage them to try such approaches. They do not work. If they worked, you would not be reading this book. The truth is, even in our time-poor need for expediency in educational contexts, teachers more than almost anyone recognise the need for student-centred approaches, and school-centred approaches. So here you will find some frameworks, some outlines, and some best-practices lists. Enhancing

creativity in your workplace or school is not easy, and it is not one-dimensional. Lately, in my work consulting with schools mentioned earlier, I have had to tell principals that it will not suffice to build a new Creativity Hub, or simply conduct a professional development day. The need now for flexible, adaptable, and creative students and workers is immediate. It is no longer the philosophical TED Talk that Sir Ken Robinson offered so few years ago. Educators now know we need to change our kinds of education in order to effect different kinds of thinkers, citizens, and workers, and yet most educators are still looking for short-cuts. This book is in some ways the antithesis of that—it suggests that there are no short-cuts, and yet a consolidated approach that incorporates teaching, learning, place, and time will have the desired results. I encourage you to continue reading.

A book drawing from empirical data of a contemporary study of creative schools was always going to be the sequel to *The Creative Turn*. This book draws not only from my Australian Research Council-funded three-year study of creativity in high schools in four countries, but from a body of literature that spans most significantly the areas of creative economies and workplace practices (O'Connor and Gibson; Amabile; Seelig), and creativity in schools (Craft; Neelands; Lucas; Koh). But it also draws on the new OECD report concerning creativity, the Welsh Government (2015) *Creative Learning through the Arts* strategic plan, Fleming (2010) for the Creative and Cultural Education series, and other recently emerging data. Those data will continue to emerge as this book goes to press. It is not important to be absolutely current (although I have tried my best), as scholarly and popular literature on important issues is always emerging, and rightly so. What the proliferation of these data tells us, though, is that the matter of creativity in education is a contemporary concern; it is in the zeitgeist in a way it was not even three years ago, when I was writing *The Creative Turn*. Our job is not to tame creativity, but rather to celebrate its moment, and figure out how to ride its wave, to celebrate its quirkiness, to cut it free rather than tie it down. We are our own best creations, and creativities. We know creativity because we *are* creativity. The fact that today's education community has invited creativity in and wants (like everything else) to measure it, assess it, and reproduce it, does not have to be a reason for distress or intense uncreativeness. Rather, it is the ultimate invitation to do education more creatively. Not to educate creativity to death. As Rebecca Solnit says,

> The self is also a creation, the principal work of your life, the crafting of which makes everyone an artist. This unfinished work of becoming ends only when you do, if then, and the consequences live on. We make ourselves and in so doing are the gods of the small universe of self and the large world of repercussions. (Solnit 2013, p 53)

How Did We Get Here?

> *I think that there should be an understanding between the cyber and the real world and that these things work very differently when you touch them and manipulate them, but I think that Mac computers for every child is indispensable. That a child does not—that not every student in my classroom does not have a computer to me is criminal and I don't blame the principal. I blame our priorities here in our school systems that we're so underfunded in the Bronx. I think about the way I work and I've noticed that my art has developed with the computer. So why wouldn't you give it to a kid right away. I find that it would also be cost effective because then kids can work out a lot of their problems in the computer whereas now kids work out their problems with these materials and so much gets wasted. It's criminal. (John, the Bronx)*

What is clear in considering how to enhance creativity in schools—particularly secondary schools—is that thinking needs to change, more than anything else. As dance and creativity scholar Erin Manning has suggested, 'Thought propels creativity as the activity of the in-between that makes relation felt, activating the "how" of the event, inciting inquiry, curiosity, play' (2009, p 225). The interrelationship between thinking-doing-place too often goes unremarked in education scholarship. We think in terms of pedagogy, or teaching and learning, or even curriculum alone. Yet breaking down walls—literal and figurative—in making the conditions for enhancing creativity is how we must begin to move forward. The research in this book shows that at least as far as students, teachers, and school leaders are concerned, enhancing creativity in schools is eminently affordable, if we have the will to do so. Rather than major financial investments in new buildings, new frameworks, and new resources, what most involved in education practice are calling for is more time and more cross-curricular collaboration. If creativity in the twenty-first century is a *way of thinking* more even than doing, then creativity in education also requires a shift in thinking before any change in doing can occur.

> Certainly there have been interlocking dominant discourses on creativity studies over the last fifty years and more, in a range of disciplines. What distinguishes this creative turn from earlier ones is the convergence of these discourses in unprecedented ways. The similarities between searches for definition, teachability, transferability and measurability are closer than ever. The products, however, remain widely divergent. Within education, the 'creative turn' represents not only a shift from process to product (outcomes), but also from aesthetics to a capitalist ethics of production. (Harris 2014, p 79)

Design Thinking is one way to marry up these dual needs of a shift in thinking and in doing, toward creative rather than reproductive approaches. This book and the new international comparative data that it draws upon, shows how schools can self-assess their creativity levels using more traditional student-centred creativity measures but combine them with Design Thinking approaches in order to gain a more accurate 'whole-school' creative change. One scholar who has been working on creativity specifically in secondary schools is Professor Bill Lucas.

Like Anna Craft, Bill Lucas has played a major role in creativity education in secondary schools in the UK, and for this reason I have used his work extensively, including in the research design for this study. For Lucas, the recent Wiltshire curriculum review from October 2014 was a major negative setback (not unlike our own national curriculum review in Australia, in August of 2014), as some also see the US's Common Core during the time of this study. In addition, the recent addition of the OECD creative problem-solving national test, influenced by the work of colleagues in Melbourne, has tilted the international view (both educational and economic) of creativity and creative industries. The influences on creativity in education are not singular, and this is a strength not a weakness of current events. Yet to minimise the economic rationalist influence on educative directions is not my intention either—the negative implications are clear and present, and I don't intend to minimise them. They are simply not the focus of this particular study, or this book. Lucas and others – bolstered by recent reports from CBI (Confederation of British Industry) – are using this 'employer voice' to extol the value of these kinds of broader creativity, resilience, and problem-solving capabilities. There are similar developments occurring in the USA, Canada, Singapore, and Australia where this study was conducted, but also very clearly in Korea, China, the ASEAN block countries, and elsewhere. Creativity and its concerns are global.

It is with cautious satisfaction then that I note the increasing concern with creativity in education over the past few years. It seems as though creative skills and capacities are finally trickling down from tertiary courses that focus on creative industries and the economies of creativity into secondary schooling. The creative lifecycle from early childhood through primary, secondary, and tertiary years into work contexts seems finally to be joining up, filling in the secondary years' gap that has called out for attention for some time. This book focuses on these crucial secondary years, and offers a practical approach to the problem of how to enhance creativity in secondary education.

In Chapter 2, I introduce the international study upon which this book draws, and let the data suggest ways forward for readers in schools wishing to do a whole-school readiness audit for creativity, or what design thinkers might call 'finding patterns'. Whether you are a school leader, teacher, or student in a secondary school wanting to help enhance the creativity in your school community, this chapter will offer practical ways of approaching the problem of defining, identifying, and addressing whole-school creativity.

Building on this information you have gained, Chapter 3 leads readers through the process of enhancing the conditions for creativity in your school. Drawing on Stanford University's widely adopted *Design Thinking Model*, and the emergent findings from my own three-year study, this chapter distinguishes between formalising how-to creativity in schools and points instead to simple but effective ways that educators can shift the thinking-doing-place relationship to optimise their school community's creative quotient. This chapter similarly offers a Top 10 Creativity Skills and Capacities list based on a comprehensive review of contemporary creativity literature, in order to offer educators a tangible and easy-to-use guide.

Chapter 4 addresses the ever-controversial topic of assessment of creativity, and the reasons why we do in fact need it and why it's possible. Chapter 5 finishes the book with practical tools for whole-school creativity enhancement. Taking a macro-creativity approach, the Harris Creativity Index, together with the Whole School Audit, the Top 10 Creative Skills and Capacities List, and the Creative Education Checklist, provides one consistent and measurable approach for fostering creativity across the education workplace.

In short, this book is not primarily a theoretical text, nor does it schematise creativity in education. This book and the study it draws upon are interested in how better to make the conditions for creativity, not a list of how to do it. I do not believe a structuralist approach will work toward

enhancing creativity in education, nor do most of the creativity scholars in its many fields. But I hope in these pages you will find a toolbox of some of the key elements that must be present—adapted to your own unique contexts—in order for creativity to flourish.

Anne Harris
Melbourne, Australia

Acknowledgements

Curiosity is kind of like the root of all creativity, isn't it? I mean, it just gets them thinking, and 'I want to know more. I want to see more', that kind of thing. To me creativity is taking imagination and making it concrete. (San Jose IT teacher)

Firstly let me thank the students, teachers, and principals who have shared their creative thoughts, concerns, passions, and failures with me from around the world—now over 800 in number, from four different countries, three distinct regions of the globe, and united in a desire for education systems that do creativity better. It has been an immense honour and privilege to have the time to sit and talk with these people, some of whom are at the beginning of their journeys with education in Year 8, and some of whom are nearing retirement. They have all inspired me and just when I would lose energy or enthusiasm or hope that anything will ever change in calcified educational systems, their day-to-day commitment to finding creative ways to love the work of education demanded that I recommit. I thank you all, most especially: Mary Ann Hunter, Sean Tobin, Robyn Ewing, Greg Meissner, Clare Hall, Michael Anderson, Georgina Barton, Alexandra and Stuart Cutcher, Shauna Colnan, Rita Morabita and the learning community at Sydney's International Grammar School, Roger Page and all at Nossal High School, Adam Jefford, John Thornberry and their innovators at Pimpama State Secondary College, Rita Grima and all at Marian College, Nicole Quesnel and team at Our Lady of the Sacred Heart in Alice Springs, and all the school leaders who said yes when asked if I could come—I'm grateful for your generosity and

I value this passionate creative education network that we have spontaneously become. In addition, I would like to thank my expert team who have kept me on track and been stalwart collaborators: Project Manager Alice Tinning who I can only describe as a miracle-worker regarding all things difficult, logistically impossible, or professionally overwhelming, and Joy Whitton, a most excellent and capable Research Assistant (throughout this three-year study). It has been pleasurable and exciting working with you on these creative and imaginative wanderings and I thank you both deeply.

It would not have been possible to do the three-year study from which this emergent data is drawn had it not been funded by the Australia Research Council Discovery Early Career Researcher Award (DECRA) scheme, and I thank them for the immense privilege; especially in times of research funding cutbacks, I want to restate the value, both to myself and to the field, of the ability to do this kind of work. Please don't cut this scheme. I also thank the Faculty of Education at Monash University, and my smart and generous colleagues there who have provided me an academic home now for the past few years and have supported me to pursue my educational and academic interests, and have generously shared their scholarly and creative passions and conundra with me as well. Thanks especially to Trudi Brunton, Paul Richardson, Jenny Ho, Vincent Zou, Mayur Katariya, Sigfredo Gatuz, Lesley Nathan, Rondinne Hills, Prue Madden, Anna Sutjiadi, Jamuna Krishnamoorthy, Marian Macdonald, and all in the Research and Finance Offices at Monash who have worked so hard and thanklessly to support me and forgiven me my inefficiencies.

I would like to thank my two editors at Palgrave—Eleanor Christie and Andrew James—both of whom are a joy to work with, and to whom I am grateful for the opportunity to publish this book and also to edit the series *Creativity, Education and the Arts* which this book launches. Thanks to those who have had an impact on or contribution to the content and ideas in this book. In particular: Stefanie Scherr, who worked as a research assistant with me on the assessment tools chapter of this book; friend and colleague Clare Hall who continues to inform my thinking on Bourdieu and forms of capital overall; Pamela Burnard (University of Cambridge), Jonothan Neelands (University of Warwick), Justin O'Connor (Monash University), and other contemporary creativity in education scholars who have offered me friendship, inspiration, and expansion of my own thinking about creativity, culture, and education on a daily basis. Respect and thanks to Bill Lucas for his many years of expert and collaborative research,

and also these past three years for his collegiality and generosity – all core characteristics of creativity and maker culture. And to Anna Craft, whose work inspired me in the early days of my engagement with this topic, and does still. Anna found a way to bring scholarship, artistry, heart, and cultural awareness together in a way that has left a legacy amongst the rest of us, and her ever-presence in most contemporary books on creativity attests to our great debt to her. I hope this book extends her work honourably, and straddles that important middle way between theoretical extending and practical application, at which Anna was so adept, and which the education sector so badly needs right now. It is my hope that this book is of use to those wishing to foster or enhance creativity in our own sites of learning, with some historical and theoretical underpinning to contextualise our efforts. I also want to thank the wonderful service women Sandy and Marg, who brought me extra powdered coffee, milk, clean towels, and checked to make sure I wasn't dead as I was holed up in the Hobart, Tasmania Best Western hotel for five solid days finishing this manuscript.

Finally, thanks to Stacy, Haddie, Luna, Murphy, and Tasha who educate me about the links between creativity and love every day, some of which I hope comes through in these pages.

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CHAPTER 1

Research

… I think all kids are creative, and I think unless I approach them with a respect for their epistemic experiences, and a respect for their creativity, then I'll fail. I used to clutch to curriculum. It took me a while to free myself, creatively, as a teacher, and be more deliberate about my teaching and ask myself, what am I trying to accomplish? What kind of kids am I trying to support? I don't want kids that can fill out multiple choice questionnaires. I'm more interested in allowing them to explore their own thought processes and feel supported.

(Toronto public school teacher)

Creativity Scholarship Comes of Age

The search for understanding creativity and its expressions and processes is not new, not even in education. Since before John Dewey, but probably not as well as he did, educators have been trying to find better ways of bringing not only creative *doing* but creative *thinking* into the work of education. Its mercurial nature and cyclical appearance/disappearance have come to a crisis point in the last few years with creative industries redefining creativity in education and the workplace, and our need for it. In an ever-accelerating capitalism that demands innovation, adaptation, and flexibility, in our global economic shift from production industries to knowledge circulation and curation, creativity was bound to shift from being a pursuit to a way of thinking.

A. Harris, *Creativity and Education*,
DOI 10.1057/978-1-137-57224-0_1

Writing 30 years ago in 1985, Michael Mitias notes that,

> any human quest or endeavour—whether it is in art, religion, business, politics, science, philosophy, social interaction, or personal satisfaction—is creative activity; that is, any meaningful achievement in any of these domains requires a creative effort, i.e., (1) an original idea, design, rational intuition, or a vision as a plan of action, (2) a will to actualize this plan, and (3) a skill, or artistic ability, to implement this plan….The essence of this potentiality… and the actualization of this content as a form, or pattern, that can guide a possible experience and produce what we call human satisfaction, hence meaning. (1985, p 1)

Mitias is linking creativity and spirituality here, but his words have use for linking creativity and education too. While it is impossible to standardise creativity, inside or outside of the education system, we still need—indeed, crave—a form, pattern, or plan of action in order to instrumentalise the enhancement of creativity in our approach to education.

Certainly the sociocultural role of creativity has changed in recent times, due to marketplace concerns and the effects of an increasingly precarious global workforce. Until recently, those from the professional arts professions, arts education, and creativity scholars have defined and conceptualised creativity in significantly different ways. Today when students and scholars say they are using 'creativity theory' I always push them further to identify what kind of creativity theoretics they are in conversation with. Just as ethnography, sociology, and other disciplines before, creativity scholarship is now reaching an evolutionary stage where it is branching into different lineages with different bodies of literature and different approaches to 'doing creativity'.

Creativity is certainly impacting contemporary work practices in both formal and informal economies and contexts, yet until recently it had made little progress into compulsory education. While the creative industries sector continues to act as a strong driver for introducing creativity as a key skill and capacity into twenty-first-century common parlance (and educational aspirations), it has clear marketplace overtones—which is not the same as claiming that creativity is being viewed as a static commodity (which some have misunderstood me to be arguing). The fact is that creativity has taken on an increasingly commodified and marketplace value in contemporary economics (and education) discourses. This is not all bad, and it's not completely severed from more traditional 'artistic' notions of creativity. It does signal a complex and

important shift, though, in how creativity is viewed as 'having value' in popular culture. While some are encouraged by new national curricula that use the (albeit genericised) language of creativity in which creativity, critical thinking, and innovation are conflated, others see it as dangerous sloganeering that leads to a dilution of the master skills of teaching. The Australian Curriculum now highlights creativity as a core capability and skill of twenty-first-century learners, yet the US' new Common Core does not mention it explicitly at all. Yet most countries that are pursuing standardised curricula of any kind are aligning with the kind of creative economic drivers that Richard Florida proposed in *The Rise of the Creative Class* in 2002, and which was roundly criticised.

In the USA, following a series of relative failures at standardising approaches to raising student achievement—the 2001 No Child Left Behind policy, the 2009 Race to the Top which led more rapidly to standardised testing and teacher evaluation, followed in 2013 by Common Core—not much has changed except teacher satisfaction. The outcome, some education commentators claim, is that 'academic creativity has been drained from degraded and overworked experienced teachers. Uniformity has sucked the life out of teaching and learning…the average teaching tenure has dropped from approximately 15 years of service in 1990 to less than five in 2013' (Greene 2014, para 15). Proponents of both the Common Core and Australian Curriculum claim that despite a lack of explicit attention to creativity in their approaches (although the Australian Curriculum fares better here), these national frameworks provide plenty of opportunity within the standards to *allow* students to be creative—that is, they don't explicitly prohibit the enhancement of creativity, beyond the fact that time has become so short in classrooms that there is little time to complete the set curriculum, much less the core components of creativity (explored in detail in Chapter 3).

While the Australian Curriculum does advocate for the importance of fostering creative and critical thinking for innovation skills and capacities, it remains focused strongly on digital technology as does the creative industries literature it draws from. Justin O'Connor has warned against such emaciation of creative industries scholarship and investment, and suggests instead the need for a return to a reintegrated creative and cultural industries model, one which is more sustainable educationally, culturally, and economically. Expanding the overfocus on digital technologies is a crucial part of seeking more consistent ways of understanding the sociocultural role of creativity and how to nurture it. Lev Manovich (2001), like

O'Connor, cautions that standardisation may be the ultimate side effect of digital technology and its role in the evolution of meaning-making:

> What to make of this modern desire to externalize the mind? It can be related to the demand of modern mass society for standardization. The subjects have to be standardized, and the means by which they are standardized need to be standardized as well. Hence the objectification of internal, private mental processes, and their equation with external visual forms that can easily be manipulated, mass produced, and standardized on their own. The private and individual are translated into the public and become regulated. (2001, p 60)

There is a growing body of scholarly work which explores how creativity is situated amidst education, the economy, everyday practices, and environmental issues. Not only do these suggest lineages within creativity studies that are growing and differentiating, but they can also assist educators wishing to consider ways into creativity in different curricular areas. For example, an area of exploration which investigates the interrelationship between creativity, education, and the economy (e.g. Peters and Besley 2013; Peters et al. 2009) provides strong accounts of the role of creativity, institutions, and knowledge in contemporary advanced economies, but stops short of linking economic perspectives with cultural ones. Similarly, some scholars are introducing us to new ways of thinking about creativity through exploring making cultures, multi-sited creativity, and everyday practices (e.g. Gibson 2012; Gauntlett 2011; Harris 2014). These authors examine the diverse locations and practices of creativity, how it can occur in unexpected or informal places, the role of Web 2.0 and social relationships, plus its changing contexts and meaning, an area with rich untapped potential for compulsory schooling and education policy. Others are moving toward an ethics of creative education that takes into account the need for better connections to place, and better continuity throughout the educational and working lifespan. Such scholarship has identified the interrelationship between creativity, education, and ecological awareness (e.g. Barnett 2013; Craft et al. 2008). These books effectively examine knowledge creation and how it impacts on the environment and public good, but insufficiently consider the role of technology in how we can shape social-ecological change. While these authors explore emergent aspects of creativity in compelling ways, none brings these understandings into compulsory years of education in a way that offers real-world ways forward for changing formulaic schooling

and testing to better host and germinate creative thinkers and critical citizens.

Yet synthesis and digital cultures remain at the centre of creativity in education. To understand how creative minds would need to cope with the data overloads of an ever-expanding internet, Howard Gardner (2006) asserted that a core characteristic of such a mind is a synthesising ability. In Chapter 5, I compare three main approaches to enhancing creativity in secondary schools that hold sway today—one is the *Design Thinking Model* (from Stanford University) which I foreground as my preferred model in Chapter 3; one is the Five Minds of Gardner as above; the last is the STEAM (Science, Technology, Engineering, Arts, Mathematics) approach that has motivated school leaders and teachers around the world in the last year or so. They all offer aspects that are useful for going forward, depending on your own school culture and context. Yet they also represent in part the obsessive desire right now within education to find a 'silver bullet' for solving the 'creativity problem' which we hope will take us into a prosperous new era. The benefits of this fear-driven push are that those of us who are passionate about creativity see others in diverse fields taking note, and that policy toward institutional patterns of standardisation might change. Yet in our zeal for expert guidance, we must be cautious about not standardising our investigation and conceptualisation of creativity itself.

Creativity as an area of study is as diverse as neuroscience. A neuroscientific (including neuropsychology) approach to creativity studies is only one way of approaching the topic, and indeed it is unsurprising that a scientific, largely positivist field would gain more attention for its creativity research than the arts-based scholarship, or the arts education scholarship into creativity which preceded it. A significant challenge for education is the synthetic or interwoven approaches and sites by and in which creativity thrives. Secondary schools increasingly have the resources and permeable boundaries with outside providers and knowledge creators that water the seeds of creativity, but the rigid structures of schools—intensified in Years 11 and 12 by the lead-up to high productivity and university-entrance exams—counteract these fertile conditions. Schools are already sites in which digital technology, collaboration, and participatory/DIY cultures thrive, but they don't impact significantly on these later years of testing. Young people are increasingly impatient as their teachers become increasingly overworked trying to remain at the centre of secondary learning practices. Digital technology and changes in thinking within

global cultures and online/offline lifeworlds suggest that teacher-driven and standards-driven education is a thing of the past. The final chapter of this book looks more closely at networked cultures and how creativity is spontaneously present in such communities of practice, suggesting that a straining education system will benefit from participating in these networks rather than remaining aloof from them. Curatorial practices and creative thinking are already becoming core skills of the new workforce, and yet seem still far removed from compulsory schooling in the secondary years. How then will our students and creative citizens make up for these educational omissions when they enter tertiary or workforce sites of engagement that are based in collaboration, improvisation, and digital mastery? While there have been (and are quickly proliferating) texts on digital creativities and the more-than-human potential of digital cultures that go beyond capitalist, consumer-driven, and economic concerns, the lack of integration of cultural industries concerns into creative industries discourses still ten years on raises concern. This book tries to suggest not only a real-world practical approach, but an ethics of creativity into contemporary compulsory schooling.

Creative Contexts but Not Much Change

Scientific studies of creativity continue to hold sway. Many popular treatments foreground neuroscientific or economic approaches to understanding and nurturing creativity, unsurprising in a time of such an obsessive search for standardisation and reproduction. Much of the literature is concerned with measurement, definition, and cognition, led perhaps by the *Creativity Research Journal*, *Journal of Creative Behavior*, and the *Journal of Aesthetics* (see e.g. Batey 2012; Kim 2006a, b, 2011; Hu and Adey 2002; Cropley 2000; Runco and Jaeger 2012). This body of literature is an important contribution to enhancing creativity in education, but continues to dominate validity arguments about what creativity is and how to recognise it.

In addition to the neuroscientific approaches, creative industries continue to drive the creativity discourse as it affects education. As creative industries leader Terry Flew has noted, 'Adorno and Horkheimer presented the gloomy prognosis that the once autonomous sphere of culture—art, aesthetics, music, literature, etc.—had become fully integrated into the dynamics of capitalist domination in the form of the culture industry' (Flew 2012, p 62). McWilliam and Dawson's (2007) notion of a second-

generation (economic-driven) creativity might trouble the distinctions in curriculum documents between framing creativity as a capability and a capacity, versus an approach of creativity-as-industry. Hewison's *Cultural Capital* (2014) offers a crucial discussion of the slide of cultural industries into the creative industries and what some consider to be the failure of creative Britain.

Taking little note of international antecedents, Australia's government marches ever forward. Within Australia, the recent *Creative Industries, a Strategy for 21st Century Australia* notes that 'Creative innovation comes from many sources…and enriches Australia's cultural capital' (2011, p 5) yet its focus for government investment remains tightly centred on digital technology as a driver of the creative industries sector. Yet digital technology and its permeable information boundaries cannot be divorced from the change in creativity's sociocultural function. Here creativity is not itself a commodity, but 'becomes a core activity of these new global economies that seek to feed insatiable markets' (Harris 2014, p 84). Yet

> …if 'the desire to be creative seems today to be compulsory in many domains of life' (Osborne 2003, p 81), then surely this desire is inextricable from a Foucauldian governmentality. Csikszentmihalyi's articulation of the 'creative identity' as a kind of 'everyman' reflects this shift toward a democratisation of creativity through its control. That everyone can now be 'creative' in ten easy steps further embodies the shift from production to knowledge economies, in which 'education is the mode of access to power' (Salehi 2008, p 83). This simultaneity of the rise of creativity discourses with that of information productivity and global economies… (Harris 2014, pp 83–84)

becomes the domain in which the battle for creativity as industry versus creativity as orientation plays out. The result is in part our current preoccupation with measuring creativity with the ultimate hope of reproducing it.

This may be characterised as the age of the creativity formula. Even arts educators are responding to schools' cries for a standardised approach to improving creativity in their schools. Some, like Anderson (2015) argue that drama and other arts educators are the ones to teach creative approaches across the whole school—after all, it's our core business ... but in an age of interdisciplinary approaches to creativity, can we be sure that one domain does creativity better than any other? Anderson and others champion an arts partnership model (what in the UK was known as Creative Partnerships) by linking with professional artists and arts organisations in order to professionalise creative approaches to school. Other recent strategies of note include the *Creative*

Learning through the Arts—an Action Plan for Wales (2015) which seeks to improve educational success through recombining creativity and the arts, both through professional partnerships and in-school teacher development. A recent Organisation for Economic Cooperation and Development (OECD) Education Working Paper (Lucas et al. 2013) advises tracking and assessing of creativity in schools in order to progress its persistently vague appearance in national curricula and policy documents. And in Australia, the Australian Curriculum and Reporting Authority (ACARA) champions creative and critical thinking across the curriculum, but does not always say how. Drawing again on Gardner's five minds for the future (disciplined, synthesising, creating, respectful, and ethical minds), a popular model, it does not say how this can be practically achieved within the Australian Curriculum framework. These are just a few of the schematic approaches to improving creativity in schools, yet there remains a disconnect between the theory and practice of how to go about this, and most governments and education departments remain slow to respond.

Present but Not Accounted For

I think creativity needs to be permitted by educators. You need space to explore…. allow your mind to roam (Toronto)

As Anna Craft noted before me, creativity in mainstream education has increasingly become a focus in curriculum and pedagogy, but in a generalist manner that draws more on play-based learning (in early years and primary schooling) than it does on the explosion of creative industries, cultural industries, and technology (and coding) across the educational lifespan. Most visibly, creativity as an articulate practice, skill, and capacity is missing from the instrumentalisation of secondary education across the globe.

While creativity is now intermittently incorporated into standardised curricula worldwide such as the Early Years Foundation Stage Curriculum and the National Curriculum for Schools (England), the Common Core (USA) and the Australian (national) Curriculum (AUS), it remains to be a strong focus of secondary education. In addition, creativity approaches have shifted from discipline-based arts instruction to a notion of integrated creativity across the curriculum.

In this book I explore why education still lags behind in digitally driven, interdisciplinary, and high-level policy dialogue about creativity.

It also explores the seeming contradiction of a rise in creativity discourses occurring at the same time as education globally seems to be experiencing an unprecedented wave of standardisation, testing, and international rankings. While digital creativity scholars focus on the brave new worlds emerging from networked creativity, institutional education seems stuck in the past. In order to link these worlds, I draw on a creative industries discourse but also on the creative workforce scholarship of Teresa Amabile (Chapter 4) which, I suggest, offers ways forward in secondary schools that does not rely on person-centred approaches as we have in the past through giftedness scholarship, but rather takes a more environmental approach to enhancing opportunities for creativity in schools.

I have written about the need within Australia to integrate arts education scholarship with an emergent creativity discourse, and for the learnings from both areas to strengthen each other, rather than vie for airtime in both educational policy and teacher education courses. As I've noted,

> Ewing and Gibson (2007) stress the need for pre-service teachers to experience effective and engaging creative arts approaches and techniques in their tertiary studies, in order for them to feel confident to use such strategies in their own classrooms once they begin to teach professionally. If Heath and Robinson's (2004) notion of creativity as a willingness to fail can be taken as a starting point, Ewing and Gibson might agree that part of this pre-service training might involve a reassurance of the value of productive risk-taking and failure. For students to see their teachers model an acceptance of such risks, a culture of creative trial-and-error becomes possible, keeping open the doors to critical thinking and creative experimentation long past upper primary school. (Harris and Lemon 2012, p 427)

Some scholars have noted how creativity in education is 'intrinsically bound with the teaching of academic disciplines' (Rowlands 2011, p 103), but educational reforms are showing how untrue that is. In fact, the tidal wave of interest in enhancing creativity in schools suggests the opposite: that creativity as a core skill and capacity is and must be taught across disciplines and across all activities in the curriculum and school day. Shirley Brice Heath, who considered these questions a generation ago, asks us to consider 'why is it that arts programmes for the young leave aside the long-standing inextricable interdependence of the sciences and arts?' (Heath 2008, p xvi), and 'continue to hold so tenaciously to siloed notions of creative pedagogies in schools' (Harris and Lemon 2012, p 430).

I have argued elsewhere against schemata for defining and enhancing creativity, and this current book may seem like a reversal of that argument, but it's not. By problematising our obsession with standardising creativity, I am seeking to look more critically at the ways in which creativity continues to morph in our education and work spaces, not to abandon that critical examination altogether. In 2014 I argued:

> If, then, creativity is being increasingly decoupled from arts and recoupled with innovation and productivity, we may also question what is lost in the pursuit of creative economies; that is, in market-defined and market-driven creative productivity…any investigation into creativity today will offer a schematic of some kind for 'improving' creativity in the classroom or workplace…. (Harris 2014, p 90)

Many recent texts address creativity and its contradictions in education today, but most are limited to particular countries and/or national curricula (eg Fautley and Savage 2007; Sarsani 2006). Yet Bill Lucas and Anna Craft have both given us broader approaches to go by, informed by robust conceptual and empirical data.

For everyday educators, Ken Robinson (2011, 2015) and Anna Craft are perhaps most closely associated with scholarship on creativity and what might be done about it. Craft has long explored the difference between what she calls 'teaching creatively' and 'teaching for creativity' (Craft 2006; Jeffrey and Craft 2004). She defines it as 'In contrast to creative teaching, teaching for creativity was seen by the National Advisory Committee on Creative and Cultural Education (NAACE) (1999) report to be focused on the learner and to encompass forms of teaching intended to develop young people's own creative thinking or behaviour' (2005, p 42).

Unlike Gardner, Bill Lucas (2001) argues that creativity is a state of mind that can be cultivated through attention to environmental factors and to setting the conditions for fostering creativity, and I have used this aspect of his approach in the three-year study upon which this book draws. Craft and her collaborators used a range of approaches and contexts to try to unpick creativity from its economic influences, its relationship to a rapidly changing workforce, and the values and social role of education itself. These two scholars, taken together, provide a powerhouse of expertise which helps clarify the salient points, obstacles and possibilities of the problem.

Anna Craft and Her LCC

A lot of creativity is just letting down your guard, and not being intimidated by letting the kids see who you really are. And then they come to you. And they want you to do things. I have kids every day—I'm a doodler. I can't listen well if I'm not doodling. I have kids in every classroom I go to demanding, please, draw me this picture. (rural New York special education teacher, professional musician)

In *Creativity in Education* (Craft et al. 2001) Craft and Lucas both appear, and their similarities as well as differences in approach can be seen. Both as an editor and as a contributor, Craft maps territory in educational understanding of contemporary creativity in her writings consistently since 1996. In her chapter 'Little c Creativity', she outlines her LCC approach as one specifically for the twenty-first century, a conceptual approach to meet the 'uncertainties of life' (p 45), an approach which builds directly upon the work of Gardner (1993) and a notion extended later by David Gauntlett. Here Craft distinguishes between the ways that 'everyday or "little c" creativity necessarily involves being imaginative' (2005, p 18), and asserts that any ordinary person can be 'little c creative', while what she calls 'big c creativity' is more aligned with the giftedness model of talent.

Again drawing on Gardner (1997), she adopts his 'three characteristics of extraordinary or high creators' (p 48): reflection, leveraging, and framing, which she extends by suggesting that these three qualities might in fact be appropriate for understanding 'the creativity of ordinary people' (p 48). She upholds Gardner's view that 'creativity is not a single entity' and therefore is not 'psychometrically ascertainable…as thinking divergently, around which tests can be constructed. His argument is that such tests, although reliable (i.e. they can be replicated), are not particularly valid for creative thinking' (p 48). She goes on to give a clear and comprehensive review of Gardner's relevance for creativity in education, namely his claim that 'creativity is the ability to solve problems or fashion products, and to raise new questions' (p 48), yet she does not completely distinguish what is unique about this type of 'little c' creativity that can be fostered throughout whole school communities.

Craft claims that fostering creativity in schools requires pedagogical, curricular, and other aspects of institutional educational change (Craft 2005, p 77). In addition, she clearly believes that 'there is no direct causal line between creativity and imagination and innovation, which include the tech-

nical, financial and organisation' (2005, p 22) considerations as well. In fact, Craft is the only scholar in the contemporary context who (until her death in 2014) systematically traced the challenges, opportunities, strategies, and implications of fostering creativity in schools, comprehensively covering teaching, learning, assessment, and curriculum, for almost 20 years. While her work—as is Lucas'—was strongly centred on the UK context, her work always approached the problem with an eye to the global context, and for that reason her work remains applicable to diverse contexts.

Bill Lucas and 'Learning to Learn'

If a branch breaks that's okay. Another one will grow back. Because if you look at a tree that's what's going to happen. They're going to break and it's going to keep growing. (San Jose public school teacher)

As far back as 2001, Lucas claimed 'Everyone is talking about creativity' (p 35), and he has been talking about it since then too. His work is much more embedded in the politics and policies of the day than Craft's, and this has advantages and disadvantages. However, Lucas calls much more boldly for structural change and challenges the powers that be—including the then-ascendant Ken Robinson amongst them—that they 'still miss the point. For despite the existence of some extraordinarily creative headteachers and teachers, most schools retain too many features which are fundamentally uncreative' (p 35). He demands—as this book does—that 'all schools need to be able to create and maintain the conditions in which creativity can thrive' (p 35), the primary aim of my study centred on Australia but including the USA, Canada, and Singapore. Despite the intervening 14 years, seemingly institutional education has come no closer to fostering creativity in a systematic and truly democratic way, despite Lucas' (2013) *Five Creative Dispositions* (inquisitiveness, persistence, imagination, collaboration, and discipline) and his *Creative Schools Development Framework* that was developed as part of the Creative Partnerships Programme, which we have adapted for this study.

Another similarity between Lucas' and my approach is our shared focus on what he calls lifelong learning and what I have called the educational lifespan. He notes the influence of digital technology over the access if not quality of education provision, and the conflation of information with learning which means that the foundation of our conception of both work

and learning are shifting dramatically. They continue to do so today, incidentally, as rapidly as they appeared to be doing in 2001 when he wrote this. Lucas' first suggestion is to shift the focus of this change onto the learning and learners, and away from the teachers or the pedagogy. And returning as Craft does to Howard Gardner's multiple intelligences, Lucas claims that '…the point is that there is more than one kind of intelligence. Understanding multiple intelligence theory is, I believe, a fundamental principle of creativity' (p 38). While he expresses confidence that UK schools were coming to agree with this assessment, 14 years later I don't share his confidence as little has changed and in fact the singular value and written mode of assessment has become more pervasive, so what good is an awareness of multiple intelligences if we roundly ignore them in the final two years of schooling?

Lucas contradicts Robinson's core definition of creativity (defined originally in his influential 1999 NACCCE report, but made famous in his TED Talk) by offering his own: 'Creativity is a state of mind in which all of our intelligences are working together. It involves seeing, thinking and innovating. Although it is often found in the creative arts, creativity can be demonstrated in any subject at school or in any aspect of life' (Lucas 2001, p 38). More importantly, however, he clearly defines the creatively contrary conditions in schools: 'In schools, creativity is often mistaken for disobedience or rudeness in young people' (p 38). In Lucas' *Learning to Learn* research project, he explored what it takes to be an effective learner, a focus which produced some powerful evidence-based data on creativity in secondary schools—some of which informs my current study. Yet he also defines creativity as the 'capacity to live with complexity and uncertainty' (p 42) and we know this is probably the most challenging structural and institutional obstacle to fostering creativity in secondary schools still today, particularly in the face of an increasing global culture of standardised testing.

Lucas leaves us with a call to action on two fronts: he would like to see more attention to pedagogy to foster an understanding of how we learn to learn, which he believes will be a 'key skill of the twenty-first century' (p 44). Secondly, he suggests that 'more structured interventions by creative mentors and coaches in school environments will be essential, binding the real worlds of families into the formal educational structure' (p 44). This direction toward creative partnerships of many kinds, including teaching artists-in-schools to more formal institutional industrial partnerships has only increased since Lucas wrote those words.

Conclusion

This text takes a synthesising approach to literature and frameworks from the past, in combination with innovations for today and the future. This is why readers will encounter a 'mashup' of models from Lucas' (2013) *Five Creative Dispositions* to Stanford University's (five-stage) *Design Thinking*, to Howard Gardner's Harvard-based *Five Minds for the Future*. Some models work in some contexts, and not in others. Some of these models are based on capacities, others on thinking or process stages. No one model (or assessment, or iteration, or solution) will or should work everywhere and every time. The chapters in this book are taken from the language of *Design Thinking*, pointing us forward into new collaborations between high schools and the creative and cultural industries, and I hope will encourage readers to interweave as you read, in even more unexpected and surprising methodologies.

CHAPTER 2

Find Patterns

Start with failure.

(Toronto public school teacher)

Failure, as gender and post-structuralist theorists Sara Ahmed (2010) and Jack Halberstam (2011) have argued, can be a place of considerable opportunity. If neoliberalism seeks to control and foreclose, sites of productive failure offer interruptions into the neoliberal project, and an invitation to creativity to start something new, something as-yet uncontrolled. I have previously argued this point regarding the value of creativity education, that

> If failure and hope share a connection, surely it can be found in creativity education. If scholars have convincingly argued that failure might signal a new space for hope in a clearly ailing capitalist context, then education is the context in which hope might be found on the blank slate of creativity. If students (and teachers) are allowed time, space and silence (the cheapest of all resources), and if creativity is (as Seelig claims) an 'endless[ly] renewable resource' (2012, p 75), surely the stage is set for innovation and change, and perhaps even—in purely economic terms—the time is right for a 'creative turn' in education. (Harris 2014, p 23)

That is not to say, however, that the creative project is incompatible with the neoliberalisation of schools as workplaces. Sometimes, as Halberstam

A. Harris, *Creativity and Education*,
DOI 10.1057/978-1-137-57224-0_2

has argued, failure can be a potent invitation toward richer alternatives than those that first meet the eye.

Teresa Amabile's research has led the way in auditing and enhancing creative environments in workplaces. Her systems approach so widely taken up by industry has much to offer schools moving toward nurturing more creative whole-school environments. The teachers in this study report that curriculum frameworks do not prevent them from incorporating creativity into all subject areas and approaches, but rather repressive workplace cultures, and standardised assessment requirements do. In this chapter I link current scholarship on evaluating the state-of-play in creativity education with the emerging data from the creativity study. In closing, I include a sample 'Whole School Creativity Audit' which readers might use or which might serve as a template for assessing your school's current responsiveness to the need for greater creative skills, practices, and creative environments.

As Plucker and Renzulli have noted, creativity 'has only recently gained significant academic attention in psychology, education and other social sciences' (1999, p 46), led by Amabile's work on the social psychology of creativity and paving the way for other systems approaches. They note that the common characteristic of systems approaches, 'is the emphasis on the environment in which creativity occurs. The implications for creativity education are substantial, and researchers are beginning to investigate the ways that systems approaches can be used to develop creativity-fostering environments in educational settings' (p 46).

Nevertheless, environmental and systems approaches to creative education are still grossly underdeveloped areas of research. My current study, as noted earlier, takes in part a systems approach to enhancing creativity in secondary schools by looking at the creative 'hot spots' in school environments, and what teachers, students, and school leaders would do to enhance creativity in the whole-school community. But my assessment of a whole-school system begins with the individual, and then moves out into the networked relationships and environment. For many teachers, letting go of classroom control is an overwhelming prospect. According to one San Jose teacher in my study, '…creativity is to let go of the power [and] a lot of teachers are not okay with that… of course you have to guide them to come up with their own ideas, but…in order for students to grow and be creative, you have to let them struggle on their own'. In order to effectively assess our schools for creative capacities, we must start with ourselves.

Mitias goes one step further in asking us to perform a 'creativity audit' on our own lives, as well as our education contexts:

> We still persist in viewing education as a process of memorizing dead, inert, ideas; …And we still view creativity as a rare commodity characteristic of artists or great scientists! Why? … we cannot confront our life as a creative challenge, nor can we assume a creative orientation toward it, unless we understand the nature of creativity and what it means for this life to be creative…What do we mean when we apply the term 'creative' to a person, act, or activity? Can we apply this term to an object, e.g. a work of art, a scientific hypothesis, a computer, or a nuclear bomb? What are the essential elements of the concept of creativity? We can also ask: do artists, scientists, successful executives, politicians, and army generals *actually create?* Or do we simply live in a world swept by necessity? We can, moreover, ask: is creativity peculiar to great men and women like artists, scientists, and political leaders, or is it an essential feature of human nature as such? Are there types, or degrees, of creativity, or is this activity a generically unique phenomenon in nature and human life? We can, finally, ask: how are we to understand and study creative activity—philosophically or scientifically? …And how can we carry on such a study if the subjective reports on creative events are in many cases radically different from each other? Again, let us suppose that we understand or achieve a measure of agreement on what 'creativity' is, what is the use, end, of this understanding? (Mitias 1985, pp 1–2).

As Mitias makes clear, deep considerations of creativity or its absence are deeply values-based and subjective investigations. Craft et al. (2008) addressed this in their examination of the interconnectedness of wisdom, trusteeship and creative education. Not only are such matters difficult to measure, they are also difficult to face for some teachers. This San Jose History teacher, who had been in teaching service for 25 continuous years at the time of his interview, links creativity with trusteeship of the whole student:

> *What is creativity? For me it has a great deal to do with necessity of finding a problem—or seeing a problem and finding a way to address it. But I think it has to, all creative things—as opposed to the destructive things—the creative things have to elevate, they have to help everybody out, they have to make you to some extent more hopeful about your own abilities, your own possible ways of doing things. I want my students to sort of get a greater sense of their capabilities and powers. So to me creativity has to do that, or else it's something—so even though it might be something out of my imagination, if it's not helpful to those areas, if it doesn't help them get a greater sense of their own power, and if in fact it does the*

opposite, if it runs them down in some way and makes them feel less able or—or more inarticulate, more unable to utter their thoughts—there's lots of language exercises that we do in assignments that actually do that, that end up kind of muzzling the student. So if I create something that I think is going to address a problem but it ends up making it worse, then I don't think ultimately it's a creative endeavour. … I guess [my activity called] 'Dropping a Dime' is encouraging them to explore further, to even get lost a little bit. Because some—part of the problem with prescriptive writing is that it sort of creates this notion that—in academic writing in particular, what you do is, you take on a line of argument, and you stick to it. You cling to it like you are hanging on to a mast on a kind of ship in a storm. And that you do it in order to prove your point. You don't consider any other possibilities because you are trying to prove this thesis, and the—there's the work of this writer named Mina Shaughnessy who I really admire, who argued that what really happens at college level is that you have to confront complexity. You have to create complexity. You have to be willing to get lost and entertain other ideas, and put some on hold while you consider them before either allowing them to modify your own thesis a little bit, or by simply saying, it doesn't work. Just the other day, a student who went down to Guadalajara and became a soccer player for the Shivas, the team of Guadalajara, he's on one of the minor league teams, but he's playing professional soccer. And soccer is a tremendously creative game. And to be able to have the optimism and the hope and to be able to go down there and give it a try is the mentality that we want to encourage. We don't want—we shouldn't want to narrow that down or constrict it in any way. It's this mentality of what you can do, what the possibilities are, that's what we need to, I think, sort of do in all our classes, whether it's in Art—I think, obviously, the arts have—for obvious reasons the arts have been the traditional place. But the arts can be just as restrictive depending on the kind of instruction you get. Whether you're teaching economics or whether you're teaching English or History or Chemistry or the arts, I think it's got to be some kind of mentality of possibility that we're encouraging, of imagination, and of—a sense of their own potential.

Any book that aims to contribute to the discussion of creative education through an assessment of creative schools must admit that such a discussion cannot be conducted apart from creative nations and policies. Vision documents that have shaped Australian education over the past ten years including the Melbourne Declaration and others are unsettlingly similar to the UK's ineffectual *Creative Britain: New Talents for the New Economy* (2008) which Hewison claims set out 'a vision of creativity as the engine of economic growth' yet which betrayed itself through a title showing that,

> New Labour was still seduced by the language of creativity. But it turned out to be more concerned with aligning different agencies…in the direction of

> a future Creative Britain, rather than with spending any money on getting there. The Arts Council was told, with scant regard for the arm's-length principle, to help to deliver the objectives of the Creative Economy Programme by taking account of its findings in its next corporate plan. (Hewison 2014, p 15)

Australia's recent turn away from this arm's-length principle in arts funding to a National Programme for Excellence in the Arts was not only an outrage to the arts sector in Australia by stripping nearly one third of the Australian Council on the Arts funding into a discretionary fund, but it is equally disturbing because it so closely follows the pattern decried by Hewison so recently in the UK. Both recent UK reports – *A Dynamic Mapping of the UK's Creative Industries* (2012) and *A Manifesto for the Creative Economy* (2013) – concluded similarly that, by 2008, 'Creative Britain was running out of steam' (Bakhshi et al. 2013, p 23), and there are many in Australia that worry we are next. In such a constricting climate, creative education and education reform is critical.

New Labour used the rhetoric of creativity, according to Hewison, because it suggested 'transformation without inconvenient specificity. Creativity sounds positive, forward-looking, unbeholden to the past; it has connotations that suggest freedom and personal autonomy…[it] led to personal fulfilment, helped social inclusion…and, in the case of the creative industries, produced "useful beauty"' (2014, p 17). And despite O'Connor's expert advice that 'a review should be undertaken of the relationship between Universities, TAFE [technical and further education] colleges and the cultural economy', policy makers continue to take a backseat approach to developing creative potential at a national and higher education level. 'General invocations of "creativity" and "business education" have signally misrecognised the actual working patterns and career aspirations in this sector [HE and TE]. A "creative education" summit would be the first step in addressing this' (O'Connor and Gibson 2014, p 73). An international 'creative education network' has emerged from the current study, in order to address these and other issues in the Australian context and 2016 marks the second international creative education summit. Is it possible to pursue creative education better by learning from the UK's mistakes? Hewison does not seem sure but of course he is in the UK context. He claims that,

> The hope was that creativity would resolve the ancient problem for the left that hierarchies of taste—even when reframed as 'excellence'—are built on unevenly distributed cultural capital, and consequently are reflections of social power. The market would replace hierarchy with a benign

> pluralism which by 2001, had become *Culture and Creativity*, and the decision had been made that the slogan would become, 'Everyone is creative.' (Hewison, p 4)

The next section of this chapter moves from the cautionary tale of the UK's failed *Creative Nation* experiment to the voices of the teachers and school leaders of my current study. For them, creative education is not a policy or a theory, it is a challenge in their day-to-day, a matter of success and failure, of job satisfaction or disillusionment. For them, creative education must come.

What Might Creative Schools Look Like?

> *Creativity's a very broad notion for me. It ranges from cooking to how you talk to people to the arts, sciences. All are aspects of creativity to me. It's cross curricular. The creativity in our school comes from this extremely passionate group of young and old people who are challenged by the nature of our kids to think outside of the box day to day to day. Something that worked yesterday might not work today. Or it might work every single day until that kid is out of our care. (rural New York special education teacher, professional musician)*

I am not offering an in-depth report on findings from my current study, which will be published as a separate report to government in late 2016, but rather a snapshot of its methodology, strategies, and emergent themes as relevant to the aim of this book. It is important to continue the dialogue between the creativity scholarship referenced here and new data, even as it emerges, although it takes courage! I hope you will receive these emergent data with their rawness in mind. Creativity scholars are noting the ways in which regionally diverse educators and education scholars are understanding the challenge of creative education in surprisingly consistent ways, despite important differences unique to each school, geographical placement, and cohort, and this study fits into that field of enquiry (Fig. 2.1).

In this study, I interviewed 67 teachers from four countries (detailed in the table) and 24 school leaders (91 in all). Within Australia (the primary focus of the comparative study, and the only country in which I have included students), I included schools from six of the eight states and territories (excluding the Australian Capital Territory and

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http://www.monash.edu/education/research/fellows

Research Design

The international comparative study "Enhancing Creativity in Secondary Schools" was funded by the Australian Research Council in late 2013, commencing in early 2014, and is still in process at this writing. It is part of a larger study that will extend the investigation and comparative research to other Asia-Pacific nations, of which Australia is one, with the aim to better understand the development of creative education in this region and its relationship to creative education in other global regions. While Australia is geographically and economically rooted in the Asian region, it is culturally and historically oriented toward Europe and specifically toward the United Kingdom. For these reasons and more, and because the research shows that creativity and education both are culturally-constituted activities, the need for this research seems clear. It is the first Australia-based international large-scale study on creativity in education, and in a time of global economics, it is crucial to understand the practices and discourse of creativity education more widely than nation-based studies which dominate this field.

Fig. 2.1 Researching Creativity: An Innovation from Australia

South Australia, due to similarities of sample demographics and funding/logistical constraints). In addition, I conducted online and hard copy surveys with 742 students from Years 8 and 9, and ran 24 focus groups in which they were asked to imagine their ideal creative school and share that vision, through drawing, speaking, performing, and/or writing it.

The qualitative data were coded and analysed for emergent themes using the online software Dedoose. The surveys were either completed online by students or entered later into a Qualtrics online survey instrument. For validity in a quantitative sample size that undergoes factor analysis, it should

be large, especially in relation to the number of variables. Originally I aimed for 200 completed surveys, a reasonable minimum for survey analysis, but ended up with 747 usable completed surveys, although there were approximately 45 additional surveys that could not be used due to unintelligibility.

Internal validity threats are 'experimental procedures, treatments, or experiences of the participants that threaten the researcher's ability to draw correct inferences from the data about the population' (Creswell 2013, p 162). Threats to internal validity for the quantitative component of this study include the possibility of poor age range or biased participant selection due to the school leaders' knowledge of the students, and their role in recruitment (Creswell 2009, pp 163–165). Even with research and careful construction, the wording of survey items may have been confusing, too poorly explained, too jargonistic or unclear to effectively capture meaningful responses and data on complex concepts regarding creativity from a respondent pool too young to understand what is being asked of them. For the quantitative research design, the instrument was a survey of approximately 11 short answer questions and 18 items using a psychometric Likert scale on a continuum from 'strongly disagree' to 'absolutely agree'.

Finding the Right Tool

A note on the development of our survey tool, because it was a long and laborious process that I hope others might benefit from, but also because there are more creativity measures and validated (and unvalidated) tools than you can shake a stick at, as they say. I have tried to curate some of those tools here in this book, and in the process of my current study, but I want to make clear that these tools—while helpful—are like any good educational framework only blueprints and in my view must always be adapted to your own unique context. If creativity research is teaching us anything, it is how to be more flexible, better at adaptive reuse, and voracious in our 'gathering' phase of thinking.

Based on a literature review of creativity assessment tools that I had conducted in 2012 and 2013 (for more see Chapter 4), this study's research team summarised the appropriateness of the possible tools, beginning with Amabile's KEYS protocol on environmental creativity, which was a clear match for the environmental focus I wanted to bring to enhancing whole-school creativity. However the KEYS tool had challenges that made

it inappropriate for this study (especially assessment of environment for creativity not covered, but also qualified facilitator, lack of focus on school rather than work environments, and language—see Chapter 4 on assessment and measurement).

Isaksen's *Situational Outlook Questionnaire* (SOQ) was another possible tool, however the rigidity of the protocol to retain its validation was prohibitive, especially from so far away as Australia. The protocol administrators would allow for some modifications to be made to the SOQ, but it was possible that phrasing could not be changed, numbers of questions was regulated by the administering body, and use of outputs from the tool would need to be negotiated. The need to qualify all practitioners for use of this tool demanded the possibility of becoming certified by enrolment in a distance learning course.

By then it was clear that Lucas' *Five Dispositions* which I had already been working productively with in a trial study throughout 2013 might provide one part of the answer. In addition, Lucas had conducted one of the only secondary-school-specific studies on creativity in education that I could find. We became interested in the possibilities of using the *Creative Schools Development Framework* (Lucas, via the CCE and Creative Partnerships UK). We wrote to the office of the Creative Partnerships Programme, although it had by then been defunded. The CCE Literature Review (Spencer et al. 2012) stated that there was a creative descriptors/planning guidance form, which sounded like a good match for this study (CCE 2012).

We drew ideas and items from the Change Schools Planning Form to devise our own, keeping in mind Amabile's workplace environment focus, and created multiple iterations of the survey, which we trialled with individual and small sets of young people in our target age range. We then made a table (See Appendix 3), relating the survey questions we made up to the literature on creativity. This thorough and iterative process of researching and developing our survey instrument was both instructive and effective, and we were satisfied in the end that the questions and the approach to asking them, mixing qualitative with quantitatively framed questions was the right one for this study.

As the survey has been created uniquely for this research, it did not have an established measure of reliability (Creswell 2009, p 150), as discussed above. I decided to commit to this approach despite the possibility that it may not be generalisable to other contexts despite its large sample

size, but clear reporting of the design and administration may make the findings helpful to other creativity researchers in this area. These survey results are being analysed using descriptive statistics and with additional future creativity research in secondary school contexts, it may be possible to confirm factor analysis and validate the instrument. This quantitative analysis is continuing at the time of this writing, and so neither this data nor preliminary quantitative findings have been included in the discussion of this study here.

During recruitment I was particular to pursue schools from a diverse range of sectors including private, public and religious, and teachers that were diverse in gender, age and subject area. Participants (mainly school leaders) were recruited through professional organisations, snowball sampling, and creativity-related informal networks. In most cases, the school leaders selected the participating teachers from their school after an initial conversation with our team, explaining very clearly that we were interested in creativity not the arts per se, and that teachers from a wide range of subject areas were desirable. Most often, school leaders understood the study to be concerned with the arts, and in some cases the overselection of arts teachers reflected this, a common conflation of creativity and the arts. Selection of the students for the focus group/s was left to the school representative, and the process varied according to school. In some cases the students self-selected, and in others they were chosen by the school leader or a teacher.

The student survey tool and teacher/school leader interview questions can be found in the Appendices at the back of the book. Focus groups consisted of anywhere from three to ten students and they all responded to the single question (Table 2.1):

> *Imagine your ideal creative school. Money is no object. It can look like anything and be anywhere, or nowhere. It can be online or offline, or both, or neither. Does it have teachers/ Does it have principals? Design the most creative school you can think of, that you would like to learn at. It could have a giraffe, a dog, a boat. Here's some paper—you can draw it, or you can dream it up in words or some other way. You have 15 minutes.*

The teachers and school leaders in this study had strong feelings about creativity, both positive and negative. They articulated clear and overall fairly consistent definitions of creativity, and were able to identify what they feel is working and is not working creatively in their schools. For

Table 2.1 Summary of teachers/school leaders = interim demographics of 'Enhancing Creativity in Secondary Schools' (A. Harris) study, 2014–2016

		Singapore	*Canada*	*Australia*	*USA*	*Totals*
		#	#	#	#	
Staff interviews	Female	6	2	13	24	
	Male	6	4	8	27	
	Unknown	1				
Subject area/s	Non-arts	5	4	12	33	
	Arts	8	2	9	18	
Role	Teacher	10	4	16	37	
	School leader	3	2	5	14	
Student surveys					747	747
Student focus groups					24	24
Total # of schools represented		5	4	4	14	27
Total teacher and school leader participants		13	6	21	51	91
Total student participants					747	747

the purposes of this snapshot, I will not differentiate the data in terms of country and so on, but rather wish to share some of the most prominent emergent themes regarding these teachers' self-assessment of their school environments and practices.

> *To me, creativity is a really subjective term. I think you can be creative with an argument. And writing, you can be creative in any aspect of writing. A definition of creativity? I mean, the design of an idea to illustrate a different perspective on something, maybe, would be some very incredibly abstract way of saying it. It can be as small or as big as it needs to be, but you can have a creative moment in a thought, you can have a creative way of doing a math problem. (Bronx visual art teacher)*

Participants' personal definitions of creativity were diverse but common notions and notable ones spanned the following. Creativity is:

- Experiential learning
- Valuing process over a product
- Slowing down, refocusing on the process of creation

- Risking innovative teaching approaches
- Problem-solving and critical thinking. 'if you can step back, observe, think, distil, express your thinking and however you do, you're a more creative citizen and those are transferable commodities. Those skills are commodities'
- Problem finding, problem posing
- Play, exploration
- Curiosity. Allowing your mind to roam. Asking 'Why?'
- Risking failure. 'If a branch breaks that's okay. Another one will grow back'
- New perspectives, thinking outside the box
- Negotiation, collaboration. The transaction that happens in the student-teacher relationship.
- Making imagination concrete
- Creative relationships, not power relationships, must be explicitly taught
- Time as creative motivator but also prohibitor
- Technology
- Not confined to the creative arts
- Creativity is a skill set
- Unleashing students' creativity involves 'letting go of the power'
- Involves discipline, focus, persistence
- Problem-solving, critical thinking

Briefly, I will summarise the top themes and specifications by country of the emergent data, before highlighting some of the main similarities and differences, followed by a brief comment on what teachers saw as working well, and some common obstacles.

Singapore

These 13 interviews form a distinct grouping both tonally and perceptually from the western interviews. Though there was a good balance of non-arts-based to arts teachers (as in the other countries) and a range of types of schools (mainstream public, elite performing arts, arts-based alternative school), the Singapore teachers' perceptions of creativity and its place in schools was significantly different than either their Australian, Canadian or US counterparts.

Creativity was seen as the flexibility to solve problems, not confined to the arts—although they were aware that others do make this assumption. The way music is most commonly taught in Singapore was noted as demonstrating how teaching music (and other art forms) can be very regimented and uncreative. Creativity was most popularly described as 'thinking outside the box'. Singaporeans were in frequency more comfortable with the word 'innovation' than creativity, and most definitions of creativity had this entrepreneurial edge. It was the ability to have the edge over other enterprises, and was seen somewhat reluctantly as a twenty-first-century competency.

Creativity was seen to be changing but this was not seen to be affecting schools as yet. High stakes national exams and large class sizes (40) restrain open pedagogies and curriculum which emphasises problem-solving. The respondents reported somewhat more freedom at junior levels and little or none at senior levels. Lack of freedom of expression and of an ability to take risks, as well as a lack of expertise of teachers, was also seen as impediments to enhancing creativity in students and schools. They reported a slow but growing acceptance by parents of the value of creativity. They attributed this to students leading the charge with their use of technology because it's interactive, quick, and feeds into their identity formation but schools resist using these common social media platforms in favour of ones they control. Overall, there was a deep appreciation of the arts as linked to cultural heritage, but a discomfort with creativity as a non-arts-aligned skill or capacity that should be nurtured and explicitly taught in schools.

Canada

There were high levels of personal experience and conceptual understanding reported in these interviews, in both the teaching sphere and beyond, some of which had occurred as a result of doing a master's degree while teaching. Themes of exploration, connecting creativity with personal identity-formation, collaboration, the social rewards of co-creation and the advantages to creativity of embodied/tactile forms of learning (e.g. 3D models, gaming, 'ugly' puzzles) abounded.

Teacher respondents reported well-developed and successful experiences within their teaching practices of creative collaboration, cross-disciplinarity, creative pedagogies. Strategies that included digital technological impact modes such as TED Talks were seen as ways to enhance creativity. Consequently the biggest limitations on creativity

reported were institutional: control over teachers, timetable constraints, and industrial/department of education conflicts limited collegiality, cross-pollination, and creative innovation. Several also noted however that teachers may not be flexible or skilled enough in some circumstances to run with lesser controls given to them through curricula innovation.

Creativity was understood as assessable, and rubrics with continuums for development of skills can be useful, but remain a fraught topic regarding fear of discouraging students from taking risks and/or being penalised for experimental failures. They almost universally highlighted the need for and value of self-reflection in a process of creative education.

Teachers listening to and cross-training other teachers, or external partnerships which involve great models of practising teachers/schools are the ways proposed to make leaps in how schools function to grow the creative potential of students. Teachers need safe containers (like their students do) to try new ways of working and be supported while they do so. The greatest complaint was that these institutional structures are not yet in place.

Australia

In relation to the Australian Curriculum, creativity is seen as being constrained by the individual teacher rather than the curriculum constraining them, and most respondents reported that it was the job of teachers to be able to find the spaces for creative value-adding to the framework. They mostly noted positively that at least creativity was now valued and present in the Curriculum, which they mostly saw as an improvement (over past curriculum frameworks, and in relation to other countries). Nevertheless there was a difference between arts teachers responses and non-arts teachers: the arts teachers felt that the prioritising of creativity and its conflation with innovation and critical thinking further marginalised arts education and that this decoupling was ultimately damaging for arts education.

The Australian respondents also reported that the primary condition for fostering creativity was creating a safe and a trusting environment, both across the whole school and in the classroom. Creating such conditions, most felt, was key to students being comfortable, creative, and which they saw as akin to allowing them to be themselves. They felt universally that creativity was a necessary skill for the twenty-first century both as effective and empowered citizens, and as successful employees.

There was not a strong response to the question of whether wider definitions of creativity are changing, neither was there a strong response to the interrelatedness of economic considerations of creativity nor how or why that would impact on the work of the school. The high school certificate requirements (significant drilling and testing in Years 11 and 12) were seen by many as an impediment to creativity.

In Australia, there were significant differences of perceptions of creativity between rural/urban schools and between low and high socioeconomic regions. Overall, the more urban and high socioeconomic schools sought to prioritise creativity as a crucial global and economic skill for the success of their students, while the lower socioeconomic regions, and particularly rural schools tended to feel that creativity was extraneous to their core academic work, and/or that it was associated with digital technology which was also not always central or helpful to 'real learning'. However, there were strong correlations between these schools and the opportunities for making links with local industry where they might result in employment opportunities, but this was not always framed as impacted by or impacting on creativity.

United States

Creativity was understood in rich terms and primarily as a process and a way of thinking rather than a fixed end. Most respondents included the characteristics of questioning, roaming, being curious. The pace of learning also featured strongly; highlighting that it should be allowed to be 'slow' or individually paced in order to be student-centred, though pressure could be used constructively in performances and assessment. Though a number of these features sound like purely individual, many emphasised collaboration.

Feeling safe and creating a trusting school or classroom environment is key to students being comfortable to be creative. Technology was seen to be snowballing creativity because of students' level of comfort and familiarity in everyday use meant they naturally used it for their own purposes when left to their own devices. Similarly, unleashing students' creativity was seen to involve 'letting go of the (teacher's) power', which was pedagogically linked to digital technology as a de-centring of the teacher as the source of all knowledge, but the increased presence of the technology was complex. Technology could be used faddishly and reduce students' development of critical questioning, without sufficient curatorial training for using the internet.

Most participants said the Common Core was not a constraint on creativity; they saw creativity as being constrained by the qualities of the individual teacher, institutional cultures (although much less so, and in contrast to Canada). However, standardised testing was universally seen as detrimental to teachers' and students' developing their own creativity and the school environment because it is based on one right answer and discourages risk and the seeking of alternative solutions.

The Americans (as with the Canadians) responded more comfortably to questions about personal notions and experiences of creativity, whereas the Australian and Singaporean respondents felt that they were 'not' creative, and at times reported discomfort with the language of creativity (that it is an elite term, that not everyone is creative nor should they be expected to be). The Americans sense that ideas about creativity are changing, despite the fact that the arts have never had a monopoly on creativity, nor were they more creative than the sciences, for example. They noted that industries that harness the ideas and potential of their workers seem to be ones that create high value commodities or brand names. Several people demurred at the idea there could be creative 'industries' as though creating technological cultural products meant they were necessarily creative.

Rubrics and performances were suggested as successful ways of assessing creativity because performances internally motivated students and rubrics explicitly guided kids to develop mastery in the technical skills associated with each field of endeavour (including the stage of creatively extending it). The opportunity to justify answers, reflection and self-assessment was also key to activating kids agency/control of their own learning and hence their creativity.

What's Working Creatively

We see some of the children's feedback by parents. So the problem with them is we'll tell them, yes, it's transferable, but they really want to know then, well, how is it transferable? I think everybody has a different standard of what they think creativity is and they will measure it against what they think creativity is. Parents, teachers, the ministry and us, right? But at our level I feel that there has been a change since I came here and I've seen acceptance, And they see changes in their own kids, right? They see a wallflower becoming more confident, you know, able to speak out. So [there is] more and more acceptance from parents. And through this I'm really, really quite surprised. We are Asians and most Asians are quite conservative. (Singapore performing arts high school, drama teacher)

Collaboration as a Core Component of Creative School Cultures

Collaborative approaches to teaching and learning was a strong subtheme in teachers' responses to where creativity 'lives' in their school environment, which teachers spoke of in terms of finding informal creative pedagogy, about the absence of it as an impediment to creative teaching, and the necessity for it in any solution to nurturing creativity in their school. They also discussed collaboration not in terms of teachers collaborating with each other, but in terms of students collaborating with each other and also teachers with students when barriers come down and student engagement with learning is self-motivated.

> *The teachers that tended to be more creative, I guess, in how they did things tended to look at their students more as someone to collaborate with. (San Jose public school teacher)*

Or inviting the students' own experiences and unique knowledges into the business of teaching and learning like this Toronto teacher:

> *I think that's been the most rewarding approach, instead of imbuing the class with creative activities, it's been explicitly honouring the experiences of the kids, and saying, 'What you bring to this room is valuable. I'm interested in it. Let's use it'. And we can actually learn from each other by being creative together. And the set parameters, I've tried to redefine. This has been a very transformative year in my teaching; very creative year for me in my teaching.*

School Environment Impact on Creativity

Many teachers reported that team-teaching and peer skills-sharing was the best way to increase comfort and capacity with creativity.

> *We try to export it out of the arts department and into the academic subjects and we're lucky enough to have a staff that is open to that, is confident enough in their abilities as teachers and nervous enough about their ability as arts educators to allow us to do a lot of that. And so we get teachers who say listen I don't know how to implement theatrical strategies to teach biology, but I would love you to teach me some. I would love you to get me started on that. (NYC, performing arts high school teacher)*

Similarly, the places and practices where creativity was working well involved a surrendering of control and punitive approaches from teachers, and a more meritocratic approach to students' earning autonomy and

creative control of their own schooling experiences. Unsurprisingly, one school in which this was most common was a performing arts high school in New York City where one teacher described it as:

> *We are not going to ask you if you're doing the right thing, we're going to ask you if you're doing something creative. Are you making something, are you doing something productive? And so when we walk around during lunch break like you just saw and there are kids splayed out all over the floor and in the dance room and in the theatre space our question is not are you unsupervised in a room without adults. I mean there is that aspect, there is the safety aspect of it of course but it's more about what are you doing? Why do you deserve this space, because there are ten other kids that would like to use it and if I see you in here disengaged with this space and using this space to be lazy, then I'm not interested and that's not going to work. But if I see you using the space in a creative way, whether or not it's the creative way I think you should be using it, I can get behind it and I can, and I will protect that space for you. (NYC, performing arts high school teacher)*

And this ethos extends to the ways in which teachers in this creative New York City school are able to model alternative ways of being colleagues, as well as learners and teachers, a more collaborative and egalitarian way of creating learning communities:

> *I think there's a licence for them to be—well first off, in terms of their self-identity, they can be more creative in how they dress and how they act and interact… I think there's a latitude there that's not available in the mainstream in the same way. I think there's a kind of interaction among the teachers that the students see that we're not boxed the same way, there's not a hierarchy the same way.*

These common characteristics of creatively nurturing practice in schools recurred throughout the respondents in this study, from all countries: collaborative approaches, more autonomy across the school, strong relationships with families, team-teaching and skills-sharing, and a willingness to surrender power and control.

What's Not Working Creatively

Impediments to creativity cited by the respondents are diverse and include:

- Time constraints/teacher training
- Standardisation

- Success demands (risk-averse school culture)
- Challenges of digital technology

What is creativity? Well I may be the wrong person to ask, cause actually, I work in a factory; it has bells and whistles… it's still very much the 19th Century factory model where students are seated at a desk.

Time constraints are the number one prohibitor of creativity in schools according to most teachers and their school leaders. In Vancouver, one teacher reported that, 'I look at it as there's so much potential in our [science and maths] curriculum for creativity [but] we don't have time. I'd love to work with the art teacher or with other teachers, but we don't have that time.' This is not an uncommon challenge, even for school leaders who wish to address the time deficit issue, but feel bound by competing demands of an overcrowded timetable. This same young teacher echoes what many of us have felt as ongoing changes and additions to teacher workloads contribute to demoralisation and apathy:

I think it's actually more than most teachers can do… most of us are content experts. So we can teach anything about the curriculum in any block in any order, but maybe what we're not experts in is how do we teach it from a multi-representational approach, how do we teach it through communication, through storytelling, through comic strips? Like how do we approach it from a new perspective?….I don't know what understanding by design is, I don't know how to backwards multiply. I don't know how to do any of this, so what do I know? I know my subject materials and I know how to count check marks and damn it, that's what I'm going to do.

Secondary to time constraints in prohibiting more creative practices to flourish in school environments is the always-present anxiety of standardised testing, student results, and school rankings. As one New York City teacher put it:

…So we make sure we cover this vast amount of material in the most efficient way possible, not necessarily the most beneficial way possible because I mean yes, is it better if someone acts out, you know, if we do like some big scene about you know, the Boston Tea Party, yeah like, but that's going to take time. To learn one, you know, to learn a handful of historical information whereas you can just—'Here are the notes for this, here's a quiz on it tomorrow, make sure you', you know. But will it stay with you as long? Probably not. So I still remember being Captain of

the Mayflower in kindergarten, standing on a table…..meeting the standards has become the goal, has become the standard and we have so many 14-year-olds who come to us and have had the joy for learning and creative expression beaten out of them by the process of testing and rote memorisation and things like that.

But these demands were the same in all four countries included in this study. For one Canadian teacher:

We are engaged in a—I guess if I could borrow Orwell's term—in a 'double think': we pay lip service to the importance of creativity and creative thinking, we invest wisely in differentiated instruction and workshopping teachers and so on. But, at the same time, we're moving in this, as I'm sure most jurisdictions are, in this data driven, quantitative, neoliberal approach to measuring student outcomes. So we talk a lot about creativity, but we are in Ontario moving very rapidly and aggressively toward more standardised testing, and a narrower version of curriculum, whilst simultaneously pulling in the other direction. So in our curriculum, in our classrooms, the curriculum is opening up while the high stakes standardised tests are narrowing.

It's not just in classroom practice that the real practice of creativity is being overtaken by fear-driven success imperatives. As this Toronto teacher so clearly describes, contemporary mainstream schools seem to be holding everyone hostage to an endless cycle of performance demands that are increasingly divisive and increasingly unfulfillable:

The pivotal moment for us here was about 15 years ago when the principals were taking out of the Teacher's Union. They used to be principal teachers. And so the authority they go to in every local site was a teacher advocating for the teachers to the board. The principals used to be the top of the chain in their schools. Now principals are the bottom of the chain in their school boards. So you have boards, executive superintendents, superintendents, principals, and then each principal is a site manager in each school. So what we are getting is zero time for collaborative planning….it really is a highly regimented and programmed highly supervised experience, and this pressure to get the kids through the curriculum and to have them find success on the standards test is real and it stifles and precludes that creative time. How much time do we have to make with the kids for that guided exploration, which I think is important, and there's very little of it… It's a deeply anxious time, and our school board, which is the third or fourth largest in North America, has undertaken surveys of kids and parents and asking them how they feel at school, and they're all reporting widespread anxiety about their marks and their results. So the kids are—they've got into

that fear mongering as well, and how much of it is fear mongering and how much of it is just the new reality, I don't know.

Lastly, and unsurprisingly, digital technology was a recurrent theme in conversations about creativity, transferability, the future, and resourcing. However it was also—and this was somewhat more surprising—as frequently raised as evidence of a *lack* of creativity in school environments as it was offered as evidence of the *presence* of creativity. These conversations often pivoted on the difference between creative tools (which technology can certainly be) and creative practices (which is independent of the resources available). This teacher offers a short anecdote detailing the shifting and multiple natures of digital technology in creative classrooms:

We did a unit on the internet … I know and understand macro-economics and globalisation and whatever, but for this unit on the internet I wanted them to think about the pros and cons of the internet. Let's make it teach art. Let's make a list of ways in which we, however you want to define we, have benefited from the internet, and things that it makes more difficult. They were working in pairs, and I had two sections of that course. Every single pair, 24 pairs of kids, turned on their monitors, logged in and Googled 'pros and cons of the internet'. And I just had to sit back and watch that happen. It shows their dependence on technology.

So when I approached it with the kids it's thinking for yourself, thinking creatively, exploring, not turning to the phone or the computer. You have the ability and intrinsic valuable knowledge and intuition to solve this problem. Just stop and think for a second. And then the connection is, if you can do this, if you can step back, observe, think, distil, express your thinking and however you do, you're a more creative citizen and those are transferable commodities. Those skills are commodities. So in a way I'm playing a part in this commodification of creativity but it's through things that are important to me, like critical thinking, developing your own way of explaining your personal relationship to something. But when I watched those kids Google pros and cons of the internet, the irony was so powerful and unforgettable. It was one of the unforgettable moments in my career. (Toronto public school teacher)

A richly detailed scene that many teachers have experienced, this story captures I think those harder and more subtle challenges of trying to nurture creative and critical thinking in classrooms. The lived experience of teachers working at such significant shifts is vitally important to hold at the forefront of curricular and policy change. As you have seen, the characteristics of obstacles to creative school cultures were remarkably consistent throughout the respondents in this study,

from all countries: standardisation, technology, micro-managing and unhealthy power relationships, and success imperatives which are shared by the whole education community at times, including leaders, teachers, students, and parents.

While most schools feature a range of both positive and negative indicators for creativity readiness, the following section helps readers consider ways of auditing their own learning environment to assist in targeting areas of need for creativity enhancement.

Whole-School Creativity Audit

This is a Whole-School Creativity Audit that has been developed as part of the current study, and has drawn on other readiness audits for schools, including the *Refugee Readiness Audit* (Foundation House 2007) and from Ferry (2003). You may use it in your own school environment, adapting it to suit your unique community (Fig. 2.2).

> *Well, for one thing, the leadership is very strong here in terms of really allowing teachers to be creative, I think, to be independent, plan for themselves, think for themselves. There's not a micromanaging of effort and there's a great loyalty because of that, I think, a resilience and a teamwork that's happening. So a lot of people are bringing a lot of things to the table and structurally the time and opportunity for them to do that are already in this school's plan whereas larger schools might have more trouble with that. We're a small school, and also vision, the principal might not always support that but we do here.* (NYC Bronx principal)

School leaders should draw on this Top Creativity Skills and Capacities list in order to clarify the core skills that they are working toward (see Table 2.2). Readers may use this brief audit to assess school readiness for a whole-school shift toward more creative practices and spaces. It is important to note that often school leaders, due to conflicting internal and external demands and tensions to 'enhance creativity' at their school, tend toward the physical expressions of this shift—they want to build a Creativity Hub, a STEAM Centre, put up a stained-glass wall at the entrance to the school. I encourage all who are beginning this process of honestly assessing your school's responsiveness to the complexities of enhancing creativity to first and foremost consider the intangible ways in which your school is sympathetic or antagonistic to the demands of creativity, which are primarily practices that include: risk-taking, decentralising of power in learning processes and relationships, and collaboration. They are not costly needs, but they are frightening ones for many in secondary education.

School policies and practices		
External policies		
1.1	Are we aware of the national economic and education policies that address creative education?	YES/NO/ review
1.2	Are we aware of the state-based policies and initiatives that support creative education?	
1.3	Are we aware of the ways in which the national curriculum or department of education in our district addresses creativity in education?	
1.4	Do we effectively share these documents and visions with our students and staff?	
Internal policies		
1.5	Do we actively pursue ongoing development of internal evaluations of our creative capacities, rather than defer to external requirements?	
1.6	Do our creativity policies and structures reflect the uniqueness of our community and place?	
1.7	Do our students and staff have input into our creative strategies?	
Teacher professional development		
1.8	Do we demonstrate a commitment to creativity by proactively and universally offering creativity professional development (PD) to all staff and students?	
1.9	Do we recognise creativity as a skill that must and can be developed, reflected in our PD program?	
Whole-school creative practices		
1.10	Do we actively program whole-school activities that foreground creativity as artistry or innovation?	
1.11	Do we have (or are we working towards) commitment to improving our creative skills and capacities as a learning community, including the leadership of the school?	

Fig. 2.2 Whole-School Creativity Audit

The Product (curriculum, assessment, timetabling)		
Individual creativity		
2.1	Do we actively reward setting creative outcomes across the curriculum?	
2.2	Do all teachers in our community share equally in offering more creative modes of student demonstration of knowledge, and incorporating assessment criteria that assess the creativity component of all student work?	
2.3	Do our school leaders prioritise creative education here by adjusting the timetable to allow both students and staff time for practicing creative skills and capacities including: curriculum innovation, cognitive creative exercises and games, tolerance for ambiguity, peer- and student-led brainstorming and information-sharing?	
Collective creativity		
2.4	Do we reinforce the notion that creativity is nurtured in collaborative and collective endeavour?	
2.5	Do we provide opportunities for students and staff to work collectively in creative ways?	
2.6	Do we value the outputs of collective creativity in our school community, rather than ignore or discard the outputs?	
Thinking creatively		
2.7	Do we provide opportunities for our students and staff to demonstrate their creativity in class or outside of class time?	
2.8	Do creative products and efforts receive as much academic status or value in our community as other subjects and outputs do?	
2.9	Do we actively articulate the belief that creativity is a thinking capacity, and is not the same as artistic ability?	

Fig. 2.2 (continued)

Doing creativity		
2.10	Do we provide opportunities for our students and staff to demonstrate their creativity in class or outside of class time?	
2.11	Do students and staff ALL have opportunities (and an obligation) to practice creative thinking, doing and sharing in our school?	
2.12	Is creative endeavour reinforced as a core component of academic success at this school, not just a 'time out' of serious academic work?	
The Process		
Individual creativity		
3.1	Do we actively work against test-like activities as often as possible, knowing this inhibits creative thinking?	
3.2	Do we actively work towards rebalancing our assessment structures towards measuring process rather than product?	
3.3	Do we prioritise collectivity and collaboration?	
Collective creativity		
3.4	Do we prioritise collectivity and collaboration in our timetable?	
3.5	Are we committed to timetable changes to enhance opportunities for collective creativity?	
3.6	Do we reward collectively developed original and innovative work at our school?	
Thinking creatively		
3.7	Do we encourage thinking creatively as a crucial skill for all students and staff?	
3.8	Do we reinforce the tangible value of process over product in the creative lifecycle?	
3.9	Do we explicitly teach creative thinking as part of all subject areas?	

Fig. 2.2 (continued)

Doing creativity		
3.10	Do we actively program whole-school activities that foreground creativity as artistry or innovation?	
3.11	Do we allow students to demonstrate creative thinking in non-arts-based areas of enquiry?	
3.12	Do we explicitly reward creative innovation as a workplace skill that this school champions?	
The school environment		
In relationship with students		
4.1	Are we prepared to give students more autonomy, emphasising the need for self-discovery as a core creative skill, even as it impacts a change in the timetable, bells, or student movements throughout our school?	YES/NO/ review
4.2	Do we reinforce the importance of communication in creative idea-sharing?	
4.3	Do we actively reinforce the importance of risk-taking and non-conformity in problem-solving, for both academic, creative, and real-world successes?	
In relationship with staff		
4.4	Do we make opportunities for staff to intermingle, talk informally, and share ideas?	
4.5	Do staff feel a sense of control and autonomy in their work?	
4.6	Do we encourage curiosity in our staff, or compliance?	
The physical environment		
4.7	Does the school site clearly provide collaborative spaces?	
4.8	Does the school site encourage both individual and collaborative brainstorming?	

Fig. 2.2 (continued)

4.9	Does the school layout work actively against centralising the standardised subjects and marginalising the creative subjects and practices?	
4.10	Does the school work to integrate a range of environments (e.g. outdoor, indoor, quiet, interactive)	
Creative partnerships		
Local		
5.1	Do we creatively contribute to our local community, including parents, local organisations, and local government?	
5.2	Do our school community members have a clear and creative vision of who we 'are' and what the school might be in 5, 10, 20 years' time?	
5.3	Do our students and staff actively seek ways to break down the walls between our school and local community?	
Global		
5.4	Do we pursue new opportunities to link to the non-local world?	
5.5	Does our school nurture links between the local-global in our students?	
5.6	Do we actively nurture creative global connections, or share the ones we already have in our student and staff bodies, as real world learning opportunities?	
Artistic		
5.7	Are we proactive in recognising the creative value of artistic input into our school?	
5.8	Do we pursue links with expert artists in the same way we pursue relationships with expert business, science, or industry professionals?	
5.9	Do we as a school make explicit links between creative, artistic, and marketplace success—and work against outmoded science/business/arts dichotomies?	

Fig. 2.2 (continued)

Business		
5.10	Do we initiate opportunities for creative sponsorship, mentorship or project-based links?	
5.11	Do we actively celebrate the creative potential of industry links, and share the responsibility of developing these links amongst the students and staff community?	
5.12	Do we showcase the creative and innovative work in our school to local and global industry leaders, not just others in education?	

Fig. 2.2 (continued)

Table 2.2 Top 10 creativity skills and capacities

#	SKILL or capacity to be fostered	Per creativity scholar or evidence
#1	**Curiosity—**stimulating and rewarding curiosity and exploration in students	Lucas (2013), Sternberg and Lubart (1999), Csikszentmihalyi (1999), Hunter
#2	**Collaboration**/teamwork	All major studies
#3	**Problem-posing/problem solving** itself rather than its impact or outcome. Amabile (1983) described situations in which creativity in problem solving included a phased step-by-step process or a combination of pathways or steps. Research using laboratory investigations of this notion of creativity typically begin with the presentation to the participants of problems that are already well-defined	Amabile (1983), Newell et al. (1962), Mumford et al. (1994), cited in Nickerson (1999), Walsh et al. (2011, p.)
#4	Lots of **divergent thinking exercises** (such as brainstorming programmes) and evaluating those divergent ideas. 'Being imaginative can be seen as the divergent aspect, while being disciplined can be seen as the **convergent'**	Runco (2010, p. 424), Australia (2020) Summit (2007)
# 5	**Motivation, confidence, and persistence**, especially intrinsic motivation must be built over time	Lucas et al. (2013, p. 17), Amabile (1999, 2010), Cole et al. (1999, p. 288)

(*continued*)

Table 2.2 (continued)

#6	**Innovation** (the implementation or application of creativity in industries and in value-added production of goods or services); the process by which new ideas are implemented	Flew and Cunningham (2010), Hartley in McWilliam (2011). Robinson ; Melbourne Declaration on Educational Goals for Young Australians (2008, p. 8), 1999 Robinson Report *All our Future: Creativity, Culture and Education*
#7	**Discipline/mastery** (by which is meant developing expertise or mastery in a range of discipline-rich technical skills and knowledge; encouraging the acquisition/ mastery of domain-specific knowledge and skills)	Lucas (2013), Sternberg and Lubart (1999), Csikszentmihalyi (1999), Jeffrey and Craft (2004), Nickerson (1999)
#8	**Risk-taking/Mistake-making**—productive risk-taking that is not penalised by teacher or education system, in order to build creative 'trust'	Australian Government National Innovation and Science Agenda (2015), Cropley (1992)
#9	**Synthesising**: The capacity to make connections—the ability to bring together previously unconnected 'frames of reference'	Koestler (1964), and in Nickerson (1999, p. 394)
#10	**Critical thinking**—creativity as a *thinking process*— again, must be assessable to be environmentally enhanced/valued. Lucas et al. proposed a formative assessment criteria and process for the progressive development of creativity skills in UK children aged 5–14 (NOTE: pre-senior secondary)	One of seven 'general capabilities' in the ACARA Australian National curriculum and Amabile's work on intrinsic and extrinsic motivation (1999, 2010), Csikszentmihalyi (1999), Lucas et al. (2013), Ramsden (1992), Boud (2010)

Keep in mind, however, that Design Thinking is a model that is not incompatible with the above recommendations as it embodies all of these skills and capacities by using hands-on design challenges that promote interdisciplinarity, where curriculum is jointly developed by students and teachers following this step-by-step process:

1. Understand/research
2. Observe
3. Point of view/find patterns
4. Ideate/brainstorm
5. Prototype/make mistakes
6. Test/iterate

Conclusion

So how are we to understand the need to conduct our own school creativity audit? I will close with an extended quote from Angela McRobbie who has written extensively about gender and social equality, whose understanding of complex social and economic systems is underpinned by the work of unpacking gender, class, race, and geographical situatedness:

> the categories of talent and creativity as disciplinary regimes, whose subjects are taught and told (apparently from birth onwards through primary, secondary and tertiary education) to inspect themselves, look deep inside themselves for capacities that will then serve them well in the future. If culture is thought of as a 'complex strategic situation', then the brilliant move in this new discursive formation is that it simultaneously appears to do away with older forms of reliance on labour markets, on the dull compulsion of labour, and on routine, mindless activities….The Green Paper celebrates the importance of creativity and its encouragement in schools, nurseries, at home and in other cultural institutions. Children and young people will have to do more than routine tasks. They will now be expected to be creative. Even if they do not go on to earn a living in the cultural sector, thinking creatively is now at the heart of the new knowledge economy….Thus there is social rupture as the political order conforms to economic global rationalities to tax the young with being its new subjects. (McRobbie 2011, p 88)

McRobbie gets at the heart of the complexity and my ambivalence about not creativity but the neoliberal role it has begun to assume. This book is concerned with the critical interrogation of this new creativity discourse (as was *The Creative Turn* in 2014), for as McRobbie suggests it has not only economic and educational but also social reverberations that are not only discursive. Craft also argued this point vigorously, noting the ways in which the so-called democratisation and the move to 'universalise' creativity within education policy is actually a 'marketisation of creativity' that is 'ultimately disastrous at personal, local, national and international levels' (Craft 2008, p 1). But I also take a priori the notion that in order to push back against this co-option of creativity (which has only progressed in the intervening years) we must remain a presence in the conversation about how we might do schooling better, and what role creativity as an expansive and defiant practice, rather than a commodified one, can play. I have come to accept that people need frameworks in order to facilitate change, especially when slippery concepts like creativity are involved.

Therefore, this Creativity Audit and the book overall concedes to this need, and while I hope readers will find these practical measures helpful, I equally hope they will be used to continue the critical creativity dialogue between us, and return us to the collective and collaborative pursuit of it in our making, teaching, and learning.

CHAPTER 3

Ideate

I think of it in very broad terms, that inspiration, creativity, I think it's accessible to all people. I just think we kind of train it out of ourselves and each other, unfortunately sometimes in schools. I think that if we're just given resources, opportunities and encouragement, everybody will find some area in which they restore themselves through the activity of creating something, doing something original, exploring their own personality through a medium or a vehicle….I can only hear the voice of Mr Arthur Mitchell, founder of Dance Theatre of Harlem, like, 700 neighbourhood kids one hot, steamy summer after Dr Martin Luther King Junior was assassinated and opened up a garage, an indoor parking garage and they all took ballet. It kind of got them off the streets and he said it's discipline. Discipline is what it gives. Discipline, focus, problem solving, creative problem solving, thinking outside of the box, design, engineering, teamwork.

(Bronx principal)

Understanding the push and pull factors for fostering creativity in schools, and defining the terms of the enquiry at least for ourselves, is an important part of laying effective groundwork, but once the big picture context is in place, we all must face the task of taking practical steps toward changing thinking, practice, and school environments. This stage must include moving from what some call ideation or defining the question into considering what kinds of steps or strategy to use.

A. Harris, *Creativity and Education*,
DOI 10.1057/978-1-137-57224-0_3

I've called this chapter ideate from the Design Thinking model in order to keep the focus on *how* to enhance creativity in schools, a question which includes who, when and where to begin. The chapter once again uses a combination of expert creative education scholarship with empirical data from the current study in order to consider some ways forward in fostering creativity at the whole-school level. In order to instrumentalise creativity in schools, I offer the Harris Creativity Index which attends to both environmental and teaching/learning strategies for fostering creativity in schools; it works toward a creativity that is both the 'wisdom' creativity that Craft calls us to remain committed to, as well as an industrial and innovative creativity that pivots on thinking skills and capacities. By combining current understandings of a more robust creative economic policy, with successful pedagogical evidence from teachers and school leaders, this chapter hopes to point to some practical ways forward in fostering whole-school creativity that has real-world relevance.

Who Is Responsible for Fostering Creativity in Schools?

> *The idea of the creative unit was that kids would come in and would want to negotiate what that project would be. I remember having one student who said, you know, I don't really need to write an essay or a critique. What I'd really love to do, is I would love to use the floor in here as a kind of media site, so when people walk in they're walking over words and images. (Toronto English teacher)*

Most teachers in the current study agree that students are at least partially capable of leading us toward more creative and interactive ways of doing education. More broadly, Wang's recent research on cross-cultural creativity in educational settings (2011) has found that,

> the environmental factors that facilitate creativity are freedom, autonomy, resources, encouragement of originality, freedom from criticism (Amabile 1996; Amabile and Gryskiewicz 1989; Witt and Beorkrem 1989, low anxiety (Klein 1975), an emphasis on self-discovery (Amabile 1996) and attention to the individual (Albert 1980; Harrington et al. 1987). The important characteristics of creativity that should be encouraged include independence, self-confidence, self-esteem (Amabile 1996; Bean 1992; Beghetto 2006; Cannatella 2004; Cropley 1992, 1997; Diakidoy and Kanari 1999; Gardner 1988; Torrance 1975, 1992; Von Eschenbach and Noland 1981), the ability

> to communicate ideas, and nonconformity (Amabile 1996; Beghetoo 2005; Cropley 1992, 1997; Gardner 1988; Torrance 1992). (in Wang 2011, p 3)

Importantly, these factors are not one-way teaching or learning skills and capacities, they are relational ones. Wang also summarises helpfully the factors which appear consistently across the vast body of research on creativity in education settings, the traits to be fostered by teachers in their students include 'cognitive factors, motivation, personality and social factors' including specifically (and I'm quoting selectively here) remembering, reasoning, courage, curiosity, willingness, self-confidence, persistence, tolerance for ambiguity, openness to new experiences, independence, non-conformity, risk-taking, and the ability to communicate ideas (Wang 2011, p 3). Unfortunately, 'in contrast, an environment that inhibits creativity is one that utilises test-like activities (Wallach and Kogan 1965b), salient rewards, external evaluation, pressure (Amabile 1982, 1996), order and discipline, less self-control over individual work and less attention to personal ideas (Amabile 1996)' (Wang 2011, p 3)—a good summary of the work conditions of most secondary schools.

What Is Creativity in Secondary Schools?

> *I don't want to use the word create but the freedom to fulfil a set of tasks or a set of standards or benchmarks from a much more wide open way than is just traditionally done. I think creativity is a skill in and of itself and demonstrates an ability to innovate and I think that's as an arts teacher but also as a teacher in general I think that's important to cultivate. (NYC public school teacher)*

Creativity in secondary schools can take—and is taking—a wide range of forms. Creativity in secondary schools in no one thing, it is unique to the context, cohort and values in which it finds itself. By drawing on these expert experiences from teachers and school leaders, and the long-term research of creativity scholars, readers can identify and trial the approach that works best for you.

Design Thinking and Future-Proofing Creative Education

One creative approach that recurred frequently in the respondents' commentary was Design Thinking, an approach from Stanford University. In

three of the four countries included in this study, there was at least one teacher using the Design Thinking approach. This teacher from San Jose describes it well:

> *The techniques I'm using in the classroom is, well, I'm going with the 21st century standards. I'm using inquiry-based science since I teach the sciences, where the kids—to take more control of a laboratory situation. You have to scaffold and make sure they know what each of those things are before they can start manipulating the variables. But maybe you have to ask yourself do you allow open questions inside your curriculum? Are you allowing students to work in groups and basically have more than one answer and give them—even if they have the same idea, having them be able to articulate and present their ideas, or whatever they're working on, that allows them to do that in discussion? It's hard to measure but you logistically have them do things that force the students to be more cooperative and communicating more because that will push for open life. The whole idea that is behind Design Thinking.*
>
> *Stanford has Design Thinking. They originally opened it for engineers and computer scientists—Design Thinking is where you have a bunch of people, they spit out all these ideas and then from those ideas you isolate which ones are the ones that are going to be more effective. They include those ideas and you go through a process of iteration. So I did this with my kids with their labs. If they do a certain iteration like let's do the lab again. What went wrong, how would you improve it, do it again. And the idea of project-based enquiry….We need more training in how to teach that way, and I think giving teachers time to collaborate with other teachers. (San Jose, CA teacher)*

What Is Design Thinking and How Might We Use It in Our School?

What is Design Thinking? http://www.whatisdesignthinking.org
Use Our Methods/The Bootcamp Bootleg: http://dschool.stanford.edu/use-our-methods/
Virtual Crash Course in Design Thinking: http://dschool.stanford.edu/dgift/

Adam Jefford, Head of Creative Industries

Pimpama State Secondary School, Queensland, Australia

Read more about Adam and his school here: http*://www.arts.qld.gov.au/blog/index.php/what-does-it-take-to-be-a-citizen-who-thrives-in-the-21st-century/*

Adam Jefford is the Head of Creative Industries at Pimpama State Secondary College. In 2012, he was awarded the fourth Smithsonian Cooper Hewitt Design Education Fellowship, which saw Adam working with the award winning Education team at the Smithsonian Cooper Hewitt Design Museum in New York. Adam and his principal, John Thornberry, have adapted the *Design Thinking* approach for cross-curricular fostering of creativity at their year 7–12 school in rural Queensland. Adam developed a Design Thinking Toolkit to involve his students in a practice-led research project to develop and deepen their understanding of their school and act as a catalyst for change and increased ownership of the school environment. John and Adam have previously introduced a version of Hackschooling at Pimpama (search Logan LaPlante), and are currently delivering a program called JumpStart—a creative enterprise incubator program in partnership with Pozible. This program received funding from the Australia Council for the Arts and the Queensland Government (Arts Queensland in the Department Science, Information Technology, Innovation and the Arts and Department of Education, Training and Employment).

SNAPSHOT: ***What does Design Thinking look like in the classroom?***

Adam writes: *"All of our subject areas embrace the creative process in their learning experiences and assessments:*

· Year 7 Science students designed a Rube Goldberg machine for their assessment on energy with a design constraint that the machine transformed energy a minimum of two times.

Fig. 3.1 Fostering Creativity: An Innovation from Australia

· *Year 8 History students developed a Design Solution for their assessment. The Design Brief was for the students to design a way to make History more appealing to teenagers, while also teaching them curriculum knowledge (Shogun Japan).*

· *Year 9 Play Maker students developed a Design Solution (in this case an App coded with MIT App Inventor) for their assessment on Mobile Technology that persuaded the school administration to allow the use of mobile devices in the school environment."*

Highly digital technology-based, and working in partnership with a dynamic Creative Industries Faculty at a nearby university, Adam and John have implemented Design Thinking across the curriculum in circulating ways, and formalises a requirement for all year 7, 8 and 9 students to practice creative skills and capacities—without calling them that. This, Adam believes, keeps some teachers onside who have fears about the demands of creative education. Design Thinking has credibility because of its heritage as a Stanford University approach, it has the added status of endorsement from the partner university, and by all accounts, it's fun, creative and practical, grounded in the technical realm but born out of creative problem-solving.

Further reading from Adam and John's related projects:

Articles, curriculum and other documents related to Adam's approach of *Design Minds*

http://designminds.org.au/your-school-your-future/, http://designminds.org.au/toolkit-reverse-design/, http://designminds.org.au/inspire-pimpama-state-secondary-college/, http://designminds.org.au/inspire-pssc-workshop-how-might-we-create-community/, http://designminds.org.au/design-minds-partners-with-pimpama-state-secondary-college/, http://designminds.org.au/inspire-re-thinking-school-and-super-market-relations-pimpama-state-secondary-college-designer-in-residence-program-develops-my-school-space/, http://designminds.org.au/inspire-pimpama-asks-how-might-we-create-a-repair-culture/,http://designminds.org.au/toolkit-how-might-we-build-a-culture-of-repair/, http://designminds.org.au/inspire-kids-who-care-and-repair/

Fig. 3.1 (continued)

Design Thinking is an approach developed at Stanford University which they describe this way (Fig. 3.1):

> The Design Thinking process first defines the problem and then implements the solutions, always with the needs of the user demographic at the core of the concept development. This process focuses on needfinding, understanding, creating, thinking and doing. At the core of this process is a bias towards action and creation: by creating and testing something, you can continue to learn and improve upon your initial ideas. The Design Thinking process consists of these 5 steps: empathize, define, ideate, prototype, test. http://dschool.stanford.edu/redesigningtheater/the-design-thinking-process/

> *Yeah, I love technology. I use a smart board which I love, it helps me stay organised and it gives good visuals for the students. We also have almost everybody from freshman through to seniors using the light board, the sound board, downloading different songs and queues and putting them into iTunes and just converting files and doing all that business. We also have a partnership with a group of guys called C&T… They're based in Britain and they are doing a lot with digital theatre so we are one of their partners…they just were here and we're doing this thing about augmented reality and—I can barely even explain it, but it really is using technology in the classroom and in theatre…the kids have their phones with them anyway and for the most part if you can use it, if you can harness it, if you can say alright use your phone look this up, it's so much easier for us than wheeling in a laptop cart and turning them on, making sure they work, they're not plugged in you know, like if they can just do that instantly it streamlines everything. I would say probably 85 to 90% of our kids have smart phones, and teachers have been issued iPads to use in the classroom. I'm able to do like a snapshot of a video or have the kids record something so that we can look at it and critique afterwards…. I've noticed that if I'd have something on the Smartboard, they're just like, 'Can I take a picture of it?' If they have an assignment they're just like, boom, 'I've got it' …I've started taking advantage of that and making less copies of things and I'll post something on the call board and I'll say 'Cast, the tech times are up, make sure you take a picture of it or make sure you write it,' you know, so it just makes everybody's life that little bit easier. (NYC performing arts school Drama teacher)*

Readers can use a tech-friendly approach like Design Thinking, adapted for the unique demands of your own school, as Adam and John have. The approach is highly digital, champions strong links with local and national industries and funding bodies, and is well-matched to their demographic. But will it work for you? One condition that seems integral to the development of this creative industries approach to schooling is that Pimpama

State Secondary School was only built in 2013 and is still filling up to its full cohort of students. Robust set-up funding was able to enhance the kinds of resources Adam and John could purchase, and the equipment and the facilities still seemed brand new when I visited in mid-2015. Will they be able to sustain their approach in this rapidly expanding outer-suburban catchment area, and will it be through the industries they are focusing on now? Only time will tell. Schools, like any other organic body, go through lifecycles, and what is clear for now is that Pimpama is providing secondary education in innovative and creative ways. If this approach is not for you, however, what else might you do to enhance creativity in your school?

How Do We Foster Creativity in Secondary Schools?

So how could creativity be enhanced? Well, the teachers have to be trained in nurturing creativity. I think that creativity is something that's nurtured. Sometimes teachers expect it to just magically materialise. And that's disappointing, and perhaps they give up on that. (San Jose public school teacher)

Experts have a range of views on how to approach this challenge, as discussed in more detail in the preceding chapters, but this book combines those views with the experience of the teachers and school leaders in this study resulting in the Harris Creativity Index and whole school audit, both easy-to-use tools for your own unique context. They were asked how they thought creativity could be enhanced in their schools, if there were no financial or other constraints. Their responses showed some clear and recurrent commonalities which include: better creative skills development for teachers; the facilitation of cross-curricular collaboration and development of interdisciplinary units; autonomy and agency for students, allowing them to lead or collaborate in the teaching and learning; further development of 'authentic' or real-world skills and assessment forms; creative partnerships and links beyond the walls of the school (both locally and further); and better resources. These are detailed below.

Theme 1: Creative Approaches/Teacher Development

Teachers in this study for the most part want to be able to bring more creative approaches to their educational work, but don't always know how. They recognised that they had more to learn, but also saw that (as most

good teachers know) they must practice what they preach, or model what they want to see in their students. Here is some of what they had to say:

> *So how could creativity be enhanced? Oh, well, the teachers have to be trained in nurturing creativity. I think that creativity is something that's nurtured. Sometimes teachers expect it to just magically materialise. And that's disappointing, and perhaps they give up on that. But there's got to be some sort of shift. (San Jose)*

*

> *The process is very important. We make them understand, okay, if it's wrong we don't tell them, well, this is wrong, certainly. We want to find out from them why do they even do that in the first place. So that if they think that this is right, then you may even question whether maybe this is a new original material, this is how this person has their own unique way of learning. So that is what we do, the trainers, that's why I find it very different. We do not really follow the MOE syllabus or the questionnaire and everything, tick, tick, tick the box - - -* (*Singapore Arts Academy*)

Many, like this passionate teacher from San Jose, recognise that we need to learn more about our own practice than we do about content; we need to create the classroom we want the world to be:

> *Do you want them to think in order to write a particular kind of text, some kind of essay that's an ideal, some platonic conception of what an essay is that you've got in mind, is that what you're after, or do you want them to write in order to think? So do you want them to think in order to write, or do you want them to write in order to think? And I don't think there's any one answer to that question. However, the way that you answer that question does dictate the kind of writing teacher you're going to be. (San Jose)*

Or this one, from the Bronx in New York City:

> *What I preach to them I follow myself. I believe in the process. So I think that if you're constantly putting yourself through this process in the environment of striving to be creative, whether you will hit that mark successfully or whether you're going to find fame or not, it really doesn't matter at that point but in your own progression I think that new things come to you. New ideas. New ways of seeing and you have these aha moments. (Bronx art teacher)*

Or this teacher from a Vancouver public school:

> *So by just entering into field I was like, wow, this is actually really effective….. this year I kind of changed how I did the 3-D models where I was much more—had them cutting out the shapes, building them with every lesson and it got to the point where some of my weaker students when they would get to certain problem they would just go grab a scrap piece of paper, draw the shape and then cut it out and fold it all up to make the 3-D and I'm watching some of the students who are really—but yet somehow through that process they were able to pick up that skill to be creative and just using their hands and I think what is getting lost in technology is that a pencil is a piece of technology back in the day. (Vancouver)*

Theme 2: Cross-Curricular Collaboration

Across the data collection, teachers and school leaders recognised the need for more interdisciplinary collaboration, which for the most part was reducible to a lack of sufficient time for cross-curricular collaborations. But mash-ups are where creativity thrives, so these teacher respondents wondered what we were losing when we don't make time for working together:

> *…You'd see this cross-pollination of the different disciplines, and oh my God, the math people do this, but we in the art do that; isn't it cool that we did this project on the Fibonacci Series, right? Or the Golden Mean, or something like that. That's where I would spend my money. I would not spend the bulk of it on technology, because those are tools which are important, but they're just tools. (San Jose teacher)*

> *Teachers getting together and their co-planning and they're going into each other's classrooms, that should be happening! And I think going into other people's classrooms, what there is, is there are all these barriers that are up, and that has to come down, the barriers have to come down, we have to look at each other's practice. (Toronto)*

Theme 3: Allowing Students to Lead

Many of the respondents discussed the thrill of seeing engaged students take the task in a new direction, or extend the work into more complex areas than even the teacher imagined when they were planning the unit of study. But some of the respondents talked about sustainable ways of collaborative meaning-making in the classroom, or having the courage to turn the classroom over to the students when the students knew more

than the teacher did. Creative risk-taking means putting your money where your educational mouth is, like this teacher:

> *I think differentiation is valuable for that reason. I always felt like when I was asked to express something in some particular way and it wasn't writing or speaking, then I would struggle. And I felt like it would affect my marks or my teacher's opinion of me, or my sense of self advocacy and self-esteem. … it feels great to be able to choose. To have some latitude in your life…So my version of commodifying creativity is practice with critical reason, quick reasoning skills; critical thinking. Making your thoughts clear in writing as best as you can, or making meaning and making your thoughts clear in your way. So that allows for a certain differentiation.* (*Catholic school teacher, Melbourne*)

Or this math teacher from a Vancouver public school, who understands the freedom of decentring the power base in the learning relationship:

> *…I get to the dethroning myself, I don't need to be the centre of this anymore. Teachers listen to other teachers - - - [so retraining our teachers here] wouldn't be [done by] somebody from the ivory tower, it'd be somebody who's at a different school, who's actually doing it. Whenever we get staff members from other schools that come here to say, this is what we've done and we've been successful at this area, there's usually a shift happens quite quickly. (Vancouver)*

or this:

> *I do feel like a lot of creative arts teachers approach their students as collaborators in a way that other teachers don't, and also sometimes are really suspect about…I think everyone else, now, is going to have to do what we've been doing all along before it was called the Core Curriculum. We have just always done the collaboration, the cross-curriculum type things… (New York City public school teacher)*

Theme 4: Real-World Skills and Assessments

Authentic task creation has been around for a long time, but these teachers responded to the question 'how do your curriculum frameworks help or hinder you to be a more creative teacher?' and they responded in ways that prove that creative teaching demands creative and relevant tasks to keep students engaged, not just compliant:

> *The Common Core doesn't change anything, it tries to codify something which is that we should be able to take a reader through an entire thought out idea and*

convince them of something to the point by their 11th or 12th year, 11th or 12th grade of being able to present a counter claim and tell them not only why you're right, but why someone else is wrong. And I don't think that we as a culture can stop valuing that. I think there are other ways to allow them to practise it and I think the more creative ways, not that writing an essay isn't creative, but the more performative ways that we can get them to do it so that they feel like there is a real life application of this beyond just writing essays in school, the better. (NYC performing arts school teacher)

And this San Jose drama teacher knew exactly what he would do with unlimited funds to foster creativity across his whole school community:

The very first thing I'm going to do [to enhance creativity] is I'm going to teach every adult on campus how to actually speak/communicate, from introducing themselves and have that be a kind of a standard so that every kid always learns how to actually articulate, to introduce themselves…because I think once they can do that then they can open up to the creative process, but if they can't even stand up and introduce themselves and if they're terrified of just being criticised then they can't be creative. And then I'm also going to teach everyone that it's okay to fail, and I don't mean not do anything, but to try something and not be successful at it and then try again. And that's how it is in life too.

Theme 5: Creative Partnerships/Links with Community

A major recurrent theme that emerged is the various ways in which students and teachers crave stronger links with the outside world. Increasingly, education is a multi-sited enterprise, and the consensus seems to be that keeping it locked within schools and confined to within the walls and budgets of those individual schools is underserving not only the students but the teachers too:

I would build a consortium and I would get one of all of them. I would build a board of directors that would be experts who could help us with curriculum, who could help us with creativity, who could help us with understanding the dynamics of interpersonal skills and how do we work together. There are science teachers I don't talk to, not because I don't like them but I never see them, we have nothing to do with each other committee-wise. So how do we build those interconnections and then how do create a really dynamic working environment? Maybe I'd bring somebody in from Google. That's how I would spend the money. I'd just be hiring all these people to come in and help us turn the district into this really functional, funky place where kids can—we talk about this idea of independent and individualised learning, but all it means is

distributed learning doing something online at home. That to me isn't individualised learning. So how could we as teachers say to a kid who wants to be a civil engineer, how can we spend the next two years working on the basic maths of civil engineering and applying that to what you want to do when you grow up? But how do we actually do individualised learning in a productive, engaging way?

And for teachers who work in low socioeconomic areas, the value of just getting their students off the school grounds and into the community can have transformative effects toward opening their eyes to the local but also extended cultural contexts:

I'd like to get the kids out of the classroom, experiencing things… to be able to take my kids to museums, to walking tours of places. I mean, half of my students have never been to San Francisco, and it's 50 miles away. (San Jose)

Theme 6: Better Resources

Better resources are not the cornerstone of creative learning of course, but they are one of the recurrent themes in this study and many others. Today resources get lots of attention due to the acceleration of digital technology, 3D printers, and the speed with which teaching resources are changing. No schools (and no teachers) want to be left behind, but are resources really the secret to creative education? Some teachers commented this way:

…. I would love to just have instruments lying around, and maybe an instrumental program because I think that would really help. Maybe a nicer costume closet and better lighting and sound equipment, and just little kits, like if we were to have like 10 sound kits then we could have small groups and kids all working on sound projects at the same time. Something I've tried to model my classroom after is the Roundabouts Postcard Production model where they teach all the production elements, and they have these really handy kits where like in the sound kit they have a laptop, an iPad, speakers and they just have sound stuff loaded up on there. So if we had, you know, three or four of those and then we had—they have like a lighting kit that has lights and gels and—So a lot of our academic teachers also teach in arts class. So we have our chemistry teacher that teaches the music class and our history teacher teaches the dance class, it's a pretty cool thing. (NYC performing arts high school)

But whether it is a question of enhancing resources or the teachers who know how to best facilitate student use of them, resources are only as

good as the school culture that provides opportunities for them to be used freely and effectively by their students:

> *I think that we're in an interesting period right now because technology has just given us a whole another layer of opportunity in being creative. And it's an area that my students are really quite adept at, and so it's like I'm—is it creative, or is it just a thing where I'm trying to get them to tap into that part of their brain? (San Jose)*

Getting Out of Our Own Way

> *And then I'm also going to teach everyone that it's okay to fail, and I don't mean not do anything, but to try something and not be successful at it and then try again. I mean, that's where I would start. (San Jose teacher)*

Perhaps our art teacher from the large public school in the Bronx best narrates how to create the conditions for creativity in schools:

> *…But it gets better. Okay. So now I've got them doing—like, there's no excuse at this point. You can draw, you can't draw, it doesn't matter. If you have an arm and you can pick up a pencil you can now function. It's now a thought game. All right. You have to think it through and that's on you. Now, so I have the kids tracing these templates. They're using light boxes and I say to them, 'Well, there's not enough light boxes, bingo, use the window, God's light box.' So another creative step, but get this, it gets even better. So finally, this one girl is using the window to trace her template. She puts the paper up there and she does what I've been wanting students to do for years, draw what's outside the window. Draw your neighbourhood in the Bronx. So she puts the paper up on the window. It forces her to look out there and as she's looking, she goes and click, she had the creative moment where she said, this is here and the building's there, I'm going to draw them. I can see them. This is—this is a girl who had no skills and she learnt something that is so pure and fundamental to what I believe in, that the ability to draw is a mechanical task, it's a technical task, it's an intelligent endeavour, it's a strategy and I've learnt on my own, working in the studio, that if I pivot my easel and I'm looking at the object a certain way maybe I'm not so good. If I turn another way, this is a physical mechanical thing, now I don't have to do too much of this because you have to remember what's going on from here to there constantly. So I've got this girl being able to go like this, instead of going from here to there she's going—she's almost—imagine if you could look at your paper and see the thing you're drawing, if I could put a piece of paper up here and draw you I would be tracing you, wouldn't I, but I'm not. That,*

to me, was volumes and so I said well, this is something. That's—so I walked it back and I said well, how did this happen, the process? You put somebody in the creative environment and you—that's it. You've given them the opportunities.

Conclusion

Education needs a radical overhaul, nowhere more desperately than in secondary schools. These six emergent themes and the best practice exemplar from Pimpama School let teachers and school communities show how possible it is for this change to be affected from the ground up. This chapter focused on ideation as a reminder that the nuts and bolts of creative education are in releasing our minds from the repetitive, familiar and mundane. By refocusing our attention on *how* to enhance creativity in schools (a question which includes who, when and where) rather than the relentless *what*, we can make a more dynamic beginning as we move into the prototype (modelling, trial, manifestation) phase.

CHAPTER 4

Prototype

So the physical product, of course, can be replicated by any means by probably a number of different people and sources but the concept is where it's at. Creativity is basically approaching things from what is new, what is unique. So, to me creativity is something that hasn't been tried before that can work.

(Bronx art teacher)

When considering the evaluation, measurement, and assessment of creativity in secondary schools, it has been helpful to me to leverage the language and process of Design Thinking. My use of it throughout this book (and especially in the chapter headings) is intended to invite that approach to creativity into this treatment of creativity in secondary schools, in an effort to bridge what sometimes feels like two worlds, or at least two very different ways of thinking about the world. In order to model the ways in which creative industries approaches can help foster creativity in schools, it seems helpful to think of creative doing and measuring as prototyping and iterating. The more familiar school-based language of assessment already compromises the creative process for some, and so this chapter and the next seek to find ways (both new and in this chapter drawing on the past) to think of assessment as part of the creative process, something I don't think we've done particularly well in secondary school contexts so far.

The language of Design Thinking and assessment approaches both hold at their centres the question 'why' and 'what if'. The questioning act itself

A. Harris, *Creativity and Education*,
DOI 10.1057/978-1-137-57224-0_4

can be considered the beginning of a process of prototyping, as we begin to consider how things might be done otherwise. Yet to fully consider ways forward with measuring and testing creative approaches, we must do so drawing on the past, and the past of creativity assessment is not very practical for much of its history. Such a consideration must also include cultural and collective practices that so often remain sidelined in discussions of this nature.

While much of this chapter is devoted to contextualising the ways in which creativity in education has been measured throughout the modern era, I want to start by returning briefly to Craft (2008) who was gravely concerned about the shift from collective creativity to the individualism at the heart of the new creativity discourse. Apart from her ethical concerns with this shift and the implications for marketisation that went along with it, she recognised that it added to the complexity of assessing creativity. She highlighted two 'continua' of tensions, one regarding the siloing of creativity in disciplines and the other in relation to the individual/collective divide. In the following diagram, Craft offers a schema for considering these intersections and the tensions between them (Fig. 4.1).

indi	**vidual**
Individual students' learning processes (e.g. drafting, redrafting, rehearsing, refining) in specific subjects **Depth of applied individual student subject knowledge** in teacher-assigned or student-identified problems **Individual students' artefacts/outcomes** (e.g. a musical composition, a piece of writing, a presentation made using ICT, an artefact made in design and technology) **Domain-**	**Individual students' cross-curricular learning processes** (e.g. drafting, redrafting, rehearsing, refining) **Depth of applied individual student knowledge** in general problems either assigned or identified **Individual cross-curricular outcomes/artefacts** (e.g. proposals for a debate, or an artwork representing this) **Creativity**
Specific	**As general**
Collective student learning processes in specific subjects (e.g. choreographing, collaborating on a design task, or on a musical composition) **Collective students' artefacts/outcomes** (e.g. a choreography, a group presentation, a collectively written play script) **Individual student nurturing networks of support to enable individual creativity** (subject-specific) **coll**	Collective student learning processes in cross-curricular projects, or seen in transfer from one subject to another (e.g. from music to choreography) **Collective student artefacts/outcomes in a cross-curricular project,** or seen in transfer from one subject to another **Individual student nurturing networks of support that enable collective creativity** across subjects/in general **ective**

Fig. 4.1 Dimensions of creativity in practice (Craft 2008, p 6)

This schema or what Craft calls her continuum, makes visible the tension between 'the disciplinary-root and the generalisable view' which she rightly suggests

> raises the question of whether in assessing creativity in education it may be necessary to ensure that both process and product are assessed (Chochrane & Cockett 2007). This combined with the tension between psychometric and componential approaches to assessing creativity mean that the role of creativity in being seen through assessment to be leveraging value in a rapidly accelerating global environment is unclear. (Craft 2008, p 7)

I believe our ability to answer that question is still unknowable, and yet creativity continues to gain traction in a range of ways across the education spectrum. And at the centre of that presence is the conundrum of assessment. This chapter offers a brief review of creativity assessment tools by era, highlighting this movement between individual-focused and other forms of creativity measurement, then looks forward to how we might handle the tension that Craft has identified in creativity assessment today.

Background to Creativity Assessment Tools

> *I think the more creative, the more structured they have to be. Give them choice. Give them opportunities to display knowledge in different ways. To me that's all creativity. (Bronx mathematics teacher)*

In this current study on creativity in secondary schools, we have drawn heavily on Lucas' work because it is recent and it is one of the few studies conducted in secondary schools on creativity (Lucas et al. 2013). In compiling our student survey and teacher questionnaire, we benefited from Lucas expertise and the long period of creativity research from the UK context. His *Five Creative Dispositions Model* was at the centre of our enquiry, and we combined this focus with Amabile's focus on environmental conditions for creativity. I encourage readers to give the Lucas, Claxton and Spencer full report for the OECD their full attention for further detail on their study. It is one of the few documents that address assessment of creativity in simple and straightforward terms, and for that reason I highly recommend it. But like our study, I encourage teachers, school leaders and researchers to adapt Lucas' work (like all research) for their own contexts and unique communities.

Assessing creativity may be achievable and even necessary given our historical-cultural moment, but it is certainly not standard or uniform. Runco and Pritzker noted this as far back as 1999:

> Different cultures tend to foster their own distinctive intellectual styles, which, in turn, presumably influence the form that creative expression will take. … Mead studied relationships between the forms provided by a culture and the creativity of the individuals within the culture, on which statements of regularities may be based. Studies of styles of thinking and learning, examined in two cultural contexts, have suggested a reexamination of Western reverence for logic and intellect over intuition and creativity. (1999, p 457)

Amabile (1982) has articulated a consensual approach to creativity assessment that offers one way forward in recognising the need for creativity assessment that does not present a stifling of the creativity itself. Bourdieu's capitals of course do not stand alone, and they are often understood as participating in a process of 'conversion of capitals (emotional for musical, musical for creative, creative for economic capital in the form of a scholarship)' (Clare Hall 2016, p 39).

Runco and Pritzger articulated other aspects of complexity in measuring creativity, including cross-cultural considerations:

> Some of those who have approached creativity psychometrically, though within the framework of person-environment interactions, have used various instruments to measure creativity in different cultural settings, of course, with different objectives. The open-endedness of the test tasks and universality of the stimuli have made some creativity tests, in this case the Torrance tests, readily adaptable to different cultures and sub-cultures. The test tasks, it is claimed, bring out cultural differences, and a test task that would not elicit cultural differences would not be very useful in comparative studies. As such, Torrance tests are widely used in cross-cultural studies of creativity, however, to some it is difficult to determine whether creativity as embodied in the Torrance tests is congruent with the actual definitions of creativity in the cultures studied. Some hold the view that in applying a complete Western perspective to assess creativity in a traditional or indigenous context, there is a serious problem in seeing this context as an impediment to creativity. (1999, p 457)

The UK is and has for a long time been leading western nations on the ways in which we might assess and measure creativity, as noted

throughout this book. Yet there is a growing number of creative education researchers in the Asia Pacific region (including Korea, Hong Kong and Singapore) who are contributing to new global understandings of how education might foster creativity more effectively. One resource developed by the Centre for Cultural Policy Research, The University of Hong Kong, is entitled *A Study on Creativity Index* (Home Affairs 2004), and while its focus is not primarily in schools, the document recognises the ways in which 'the discourse in creativity has even gone beyond academic research and entered into the policy-making agenda of national and global importance' (p 28) and certainly this impact has only increased since this report was published. This report addresses the need for assessment of higher education attention to creativity overall, as an indicator of economic growth and healthy development at the national level. This includes not only attitudes toward creativity in higher education overall, but measuring structural and institutional capital as one of the four capitals that contribute to creative capital. Such measures concur with Amabile's approach to measuring creativity as a workplace environmental measure, and schools should be included in such assessment strategies. Without financial investment in fostering creativity across disciplines, and creative continuity across the education lifespan, creativity skills and capacities will not improve.

Creativity Measures as Constitutive Cultural Practices

Return to the 'why', ask the 'why' but ask yourself that question, and then okay what are you going to do to try to get the answer, don't just ask an adult the 'why' but you know, sit there and get all that information and then go after it and try to figure out the 'why's', and maybe there isn't an answer, but give it a go. Well one person could do that on their own versus a project base type of thing and that's where I think the arts, especially in respect to this whole transition of Common Core where we're already doing it and maybe we can be, you know—one thing that I always talk to the kids about is whatever you learn here, whatever it is, how to collaborate, how to be a team player and all this good stuff, showing up on time, and the importance of those collaborative things we hoped they've gained from music, apply those to the rest of your classes or apply those when you go out to the work force, apply them when you go to college and you'll be a better citizen. (San Jose music teacher)

Attention to cultural context in the measurement of creativity is helpful in isolating the culturally situated aspects of creativity that too often go unremarked in present creativity debates (see Wang 2011 for a comparison of US-Taiwanese student teachers and creative thinking). As noted by Bilton (2010) in defining the culturally constituted turn in policy endorsements and definitions of creativity around the globe, since the 1990s 'the consensus in scientific and academic studies of creativity has shifted definitions of creativity from an individual trait to a collective social process…concerned with sociocultural context, systems theories, networks and organisation' (p 231). The conundrum of creativity's changing face and sociocultural place is inextricably linked to the growing call to establish a consistent definition of creativity and to assess it. Creativity, says McGuigan, is 'such a good thing that we can hardly say what it is' (p 323), and its widely divergent definitions are not helpful in education systems required to measure and report.

This chapter looks at creativity and the ways in which it may be assessed or otherwise measured to ultimately advance a fostering of creativity in secondary schools. To do so, I make explicit links with creativity's changing role in cultural policy, the canvas upon which creativity policy is played out. While the shift from 'cultural industries' discourses and funding structures to 'creative industries' has been well-addressed here and elsewhere (see, for example, Banks and O'Connor 2009; Cunningham 2009; Neelands and Choe 2010; Oakley 2009; Weisberg 2010), most interrogations of creativity in recent times have come from outside of compulsory schooling discourses. This chapter demonstrates that a close review of measurement and assessment tools from within education (and educational psychology) can offer critical insights into the emerging direction of cultural policy regarding creativity, especially in education.

Scholars have argued that the necessary activity of literature reviews (as this in part must be) can themselves be creative processes (Montuori 2005), and part of the mandate of this book is to demonstrate how creative education must and can link the worlds of Craft's 'big c creativity' with the more neoliberal discourses that govern our educational and policy lives. This chapter recognises the long history of creativity measurement tools, and reminds readers who may be focused on the current tidal wave of 'new' creativity research that the desire to measure and standardise different forms and expressions of creativity is not new at all.

In the previous chapters I have addressed some ways in which the arts in education may yet be creativity's best friend if policy makers will look toward leading nations like Wales in developing a more integrated arts- and culture-infused creativity strategy. Yet the conversation between arts education, cultural industries and creativity and innovation remains an uncomfortable one, and much of this discomfort pivots on assessment and 'reliable' measurement. As Oakley has stated, 'the new "non-political" creative industries cease to be industrial sectors producing cultural products or services' (p 403), linked inexorably to innovation and 'big money', in which 'the cultural sectors can only benefit by being rescued from the "ghetto" of arts funding' (p 403). While creative industries develop creative markets (discursively and educationally), and primary schools continue to regard creativity as crucial play-based development, secondary schools fall between the cracks of creativity as cultural production.

This chapter offers an overview of creativity assessment tools in a range of categories, differentiated by the cultural framing of the assessment, the discipline or field out of which it emerges, and its implications for education. To effectively foster creativity in secondary schools, cultural policy within education must play a greater role, particularly in the development of curriculum and pedagogy within teacher education. As the Wales strategy (Welsh Government 2015) has asserted, a sustainable approach to creativity education must integrate practical and pedagogical perspectives within education policy as it meets national cultural policy.

Space limitations prevent me from critically analysing either the *ways* in which creativity has been measured, or to critically problematise the *categorical* siloes through which they have be differentiated. Here I will limit my discussion to a summary review of the tools used to measure creativity in relation to education, and close the chapter with some practical suggestions for how to test creativity in secondary contexts, whether by traditional assessment or in combination with iteration (the Design Thinking version of *doing*).

Psychosocial assessments of childrens' creativity have had a major impact on how creativity has been measured, assessed and evaluated, and continue to influence the ways in which it is or isn't nurtured in schools. Researchers have adopted various perspectives, including psychoanalytic, psychometric, cognitive, neurobiological and other social–psychological

approaches to study creativity, both within educational and more broadly within cultural studies approaches. Numerous authors have reviewed and taxonomised instruments, procedures and methods by which creativity may be assessed (see, for example, Craft 2011a, 2005, 2002; Haensly and Torrance 1990; House of Commons Education and Skills Committee 2007; Hocevar and Bachelor 1989; Lubart 1994; McWilliam et al. 2008; McWilliam and Dawson 2007, 2008; Petrosko 1978), so in this chapter I am limiting myself to approaching assessment through the trends in the design and implementation of creativity measures, and how these tools have formed and informed shifting cultural understandings of creativity, especially within the development of education policy.

This chapter will first summarise some ways in which a recent shift in cultural positioning of creativity has had both policy and educational implications. I will then survey the three primary approaches to measuring creativity and their historical antecedents. Lastly, I will review the implications of these measures and offer some practical guidelines for those wishing to approach assessment of creativity in secondary schools today.

A Brief History

Creativity is giving them the opportunity to create something from scratch in relationship to a larger vision. (Vancouver public school teacher)

Creativity assessment tools and the research that produces and interprets them can be separated into distinct general periods, all of which have their own historical and cultural characteristics and implications for assessing creative potential (Feist and Runco 1993; Sternberg 1988) and for creative and cultural policy (Neelands and Choe 2010). The 1950s and 1960s can be characterised as the psychometric period of creative cultural policy, a time during which psychological measurement tools developed rapidly and creativity tests were established in response to a cultural positioning of creativity as an individual trait (Plucker and Renzulli 1999; Sternberg and Lubart 1999). A second period of creativity research began in the late 1970s, when cultural positioning of creativity caught up with developments in the field of psychology. Whereas behaviourism and personality psychology had dominated American psychology after World War II, cognitive psychologists then sought to discover the process of

creative thinking and motivational aspects of creativity in order to better understand (and service) such individuals. During the 1980s and 1990s, cultural studies research contextualised investigations into the nature and use-value of creativity within social and environmental matrices. Since the 1990s, the emergence of creative industries discourses (and public policy development and funding) has decoupled creativity from arts and recoupled it with innovation and other market-based use-value markers. This shift has led to more generic, transferable and pragmatic definitions of creativity that serve cultural policies wishing to identify emergent economic capacities for new global markets. Weisberg (2010) and others have defined this shift as a move toward 'creativity as a social activity' (p 237), with a concomitant shift toward environments and conditions as distinct from outputs or inherent individual capacities. The effects of this shift have included (1) a democratisation of creativity that promises we are all creative, and that creativity is no longer solely understood in relation to the arts; (2) creativity measurement tools reimagined to promote the training of an emergent 'creative class' within global markets; and (3) creativity as an industrial tool which is both a thinking process and a marketable skills set that has commercial value.

The Trait Approach to Creativity Measurement (1950s and 1960s)

Sports athletes are creative with their bodies. Obviously dancers who are artists, they are creating with their bodies. But programmers can be creative. Anybody who's doing something innovative. A teacher's ability to think outside the box and consistently change in terms of always improving a lesson or coming up with an idea that's unconventional which means involving students in taking charge. That's what creativity is… creative in terms of lesson planning. (San Jose)

Scientific analysis of creativity even in the modern era has a long history (Dearborn 1898; Galton 1869; Terman and Chase 1920). Its systematic study and empirical investigation, however, began during the early years of the twentieth century within the newly established discipline of psychology and has had a long-lasting impact on creativity's framing within education and cultural policy. During the 1950s, several newly established research institutes and the first generation of creativity researchers focused

mainly on individuals' genius, talent and giftedness. The earliest studies of creativity and its measurement focused on the development of instruments and procedures that would help to identify creative individuals, and within educational contexts not only to identify but to assist such students. This human-centred view of creativity and its measurement resulted in a cultural construction of creativity as an inherent trait, and to the establishment of tools—mostly in the form of manual tests—that could measure an individual's creative potential. Most prominent and widely cited amongst creativity researchers from this period is the American psychologist Joy Paul Guilford who researched creativity and intelligence and pioneered the concept of 'divergent thinking'. Rejecting a singular view of intelligence (like Gardner after him), Guildford's influence on creativity and the giftedness approach to nurturing creativity in classrooms continues to hold sway.

Based on his Structure of Intellect (SOI) model, Guilford (1950) established a number of tests which led to the categorisation and measurement of different types of divergent thinking and their resulting products. Guilford's underlying assumption was that creativity required divergent thinking, the production of a multiplicity of ideas in response to a situation, rather than seeking a single 'right' answer. Readers may note the contradiction between current trends toward standardisation in education policy and Guilford's deconstruction of fixed answers and outcomes. Yet Guilford remains a seminal theorist in creativity studies, both in educational and cultural discourses.

Several other influential tests were developed during the 1960s, the heyday of psychometric testing. Based on Sarnoff Mednick's (1962) exploration of the associative process, the Remote Associates Test (Mednick and Mednick 1967) measures the creative potential of a person. The test is based on the assumption that creativity is the result of mental associations. The test attempts to assess the number of verbal associations that are at an individual's disposal by providing three stimulus words and asking the respondent to generate a word that can be associated with all three. The more numerous and diverse the associations are, the more opportunities an individual has for being creative.

These scientific measures were to provide researchers with a better understanding of the workings of creativity, and of its relation to other mental dispositions and psychological measurement tools, such as intelligence tests (cf. Getzels and Jackson 1962; Wallach and Kogan 1965a). Tests of divergent thinking have been widely used in educational research

and schools since then (McGinn et al. 1980; Mumford et al. 1998; Sarsani 2006). Generally, test reviewers have, however, criticised the shortcomings that these measures of divergent thinking show in terms of their reliability and validity, as well as their correlation with real-life creative output and creative behaviour in non-test situations (Guilford 1970, 1971; Kasof 1997; Wallach 1971).

As creativity testing became well-established during the 1960s, measurement tools tried to establish 'real world' scenarios and to extend their applicability to a greater segment of society. Several creativity researchers in the 1960s believed that creativity tests could help to identify people, and especially school children, who had a higher creative potential, so that schools and training programmes could nurture their creative development and target them for high-creativity careers (e.g. Parnes and Harding 1962). Especially the Torrance Test of Creative Thinking (Torrance 1966/1988) and the Wallach-Kogan test (Wallach and Kogan 1965b) were designed to satisfy these key goals of 1960s creativity research. The Wallach-Kogan consists of three verbal subtests and two subtests including ambiguous figural stimuli that require divergent thinking. This test emphasises a game-like atmosphere and the absence of time limits in the testing procedure. The Torrance Test of Creative Thinking remains the most widely used and most assessed tool, and it assesses creative thinking in the form of words and pictures and evaluates creativity in terms of fluency, flexibility, originality and elaboration. Many educators will recognise in the design of these tests those conditions for nurturing creativity in classrooms that are now under fire, including time limits, learning spaces and fixed outcome assessment.

Guilford's Structure of Intellect (SOI) theory differentiated an astounding 180 kinds of thinking. His concept of divergent thinking has had a great impact on understandings and measurements of creativity, although subsequent assessment protocols have expanded their scope beyond divergent thinking, into evaluative and convergent thinking, as well as domain knowledge and skills. Yet Guilford certainly remains one of the 'superstars' of creativity measurement.

One of the most influential models of creativity, Campbell's Blind-Variation and Selective-Retention Model, requires a combination of chance variation to produce new ideas (divergent thinking) and selective retention of more workable ideas (evaluative and convergent thinking) to produce creative breakthroughs (see Campbell 1960; and also Simonton 1999, 2011 for more recent versions of this model) (Table 4.1).

Table 4.1 Creative thinking rubric

Guilford Battery (Guilford Consequences Test)	Guilford (1957, 1967)	• Creativity test for children, based on the Structure of Intellect (SOI) model which led to categorisation of different types of divergent thinking and resulting products; • 'Divergence' means the production of a multiplicity of ideas in response to a situation, rather than seeking a single 'right' answer; • Test focuses on the operation of divergent production and involves six kinds of product (units, classes, relations, systems, transformations, implications); • Guilford Consequences Test (Christensen et al. 1953) asks respondents to list the outcomes of unlikely events such as: 'what would happen if gravity was cut in half'; • Participants are scored on the total numbers of responses (fluency), the number of statistically rare responses (originality), the number of different categories the responses fall into (flexibility), and the degree of detail and description provided for each response (elaboration); • Mumford et al. (1998) administered the Guilford Consequences test to over 1800 US Army Officers.
Remote Associates Test (RAT)	Mednick (1962)	• Creativity is believed to be the result of mental associations (the more numerous and diverse the associations an individual can make, the more opportunities he or she has for creativity); • Attempts to assess the number of verbal associations at an individual's disposal by providing three stimulus words and asking the respondent to generate a word that can be associated with all three; • Validity of RAT has been questioned on theoretical grounds; test has not shown more than moderate correlations with creative behaviour in non-test situations (Kasof 1997); • No validity data available for the high school version of the test.
Wallach and Kogan Test	Wallach and Kogan (1965b)	• Series of tests requiring divergent thinking; • Test consists of three verbal subtests and two subtests consisting of ambiguous figural stimuli; • Five subtests include: Instances (e.g. 'Name all the things with wheels you can think of'), Alternate Uses, Pattern Meanings; • Emphasis on a game-like atmosphere, absence of time limits in the testing procedure;

		• Not commonly used in schools, but frequently used in research involving creativity and conducted in a unique testing atmosphere. Hocevar and Bachelor (1989) conducted analysis of TTCT and Wallach-Kogan Test, and they concluded that despite shortcomings both measure verbal fluency.
Structure of the Intellect Learning Abilities Test: Evaluation, Leadership and Creative thinking (SOI: ELCT)	Meeker (1985)	• Uses concept of divergent thinking introduced by Guilford; • Measures eight cognitive activities connected with creativity, all of them involving divergent production (divergent symbolic relations, divergent figural units…); • Studies support the construct validity of this test and interrater reliabilities are high; but has not been used a lot.
Torrance Test of Creative thinking (TTCT)	Torrance (1966, updated 1998); Torrance and Ball (1984)	• Assesses creative thinking in forms of words and in the form of pictures; • TTCT—Verbal consists of five activities: ask-and-guess, product improvement, unusual uses, unusual questions, and just suppose. The stimulus for each task includes a picture to which people respond in writing; • TTCT—Figural has two parallel forms, A and B, and consists of three activities: picture construction, picture completion, and repeated figures of lines or circles; • Tests evaluate creativity in terms of fluency, flexibility, originality, and elaboration; • Doubt has been cast upon the role of divergent thinking as a form of creativity, because statistical correlations between divergent thinking and subsequent creative performances are very low; • Use is supported by more evidence of validity than other tests of creativity; • Most widely used in research as well as in practice (Anastasi 1988; Feldhusen and Clinkenbeard 1986; Torrance and Goff 1989); • Baldwin Identification Matrix (1984) includes these tests as a part of its total profile of students' strengths, with creativity being an important aspect of this profile; • Argulewicz and Kush (1984) found that Mexican American children scored lower than European American children on two of the three TTCT verbal scores (no differences between groups on the figural form of the test (Renzulli et al. 1976).

(*continued*)

Table 4.1 Continued

Test of Creative Thinking (Drawing Production (TCT-DP))	Urban and Jellen (1996)	• Respondents' productions are rated according to dimensions derived from a Gestalt-psychology theory of creativity; • Dimensions include: boundary breaking, new elements, and humour and affectivity; • Respondents are presented with a sheet of paper containing incomplete figures; their task is to make a drawing or drawings containing the fragments, in any way they wish; • Emphasises image production (not statistical frequency or uncommonness of the figure produced, but figures are rated on 12 dimensions yielded by the theory of creativity).
Triarchic Abilities Test	Sternberg (1997)	• Emphasises that intellectual ability can be better understood in terms of several facets, in this case analytical ability, practical ability, creative ability; • Test includes material for two age levels: 8–10 years and 15 years and up; • Test involves multiple-choice items, an essay, and novel numerical operations. One tool that measures creativity that is based on Sternberg's theory is: Aurora r. It is part of an assessment battery for intelligence in students aged 9–12 years. Using Aurora r, teachers rate their students on a five-point scale, responding to questions about their memory, analytical abilities, practical abilities.
Evaluation of Potential for Creativity (EPoC)	Barbot et al. (2011)	• Measurement tool for elementary and middle-school students; • Based on current theoretical framework, envisioning creativity as a multifaceted, domain-specific construct; • Measures divergent-exploratory and convergent-integrative components of creative expression; • Composed of eight subtests, testing verbal and graphic expression (e.g. 'Propose as many story endings to a single story beginning as possible'; 'Generate a drawing which combines a set of elements presented on a photo, including a candle, a fruit, a suitcase').

The Process Approach to Creativity Measurement (1970s and 1980s)

Creativity is simply an approach, a way of approaching things. There are very creative ways to do rote learning. You go into a good classroom and you see kids rapping math formulas, they are learning by rote, that is exactly what rote learning is but it's tremendously fun, it's tremendously creative but it's rote memorisation. (NYC public school teacher)

Whereas creativity research during the 1950s and 1960s mainly focused on divergent thinking as an essential part of a person's creative potential, creativity assessment in the 1970s became more open to other aspects of creative thinking and behaviour. Several tests were established that focused on the traits and attitudes of the creative personality, including self- and informant-rating scales, as well as personality, interest and biographical inventories (Feist and Runco 1993). Harrison G. Gough (1979) developed the Creative Personality Scale (CPS) as part of the Gough-Heilbrun Adjective Checklist (ACL) (Gough and Heilbrun 1965/1983). The CPS consists of 30 adjectives (e.g. capable, inventive, conventional, suspicious) describing the attributes of a creative person, adjectives often seen now in education and economic policy documents such as *The Melbourne Declaration*. Other lists like Domino's (1970) established the Domino Creativity Scale that is also embedded within the 300-item ACL and discriminates between several groups of more and less creative university students. Many of his 59 characteristics (including curious, insightful, and spontaneous) can also be found recurring throughout recent education policy and curriculum documents. Schaefer's (1971) Creativity Attitude Survey focused on attitudes associated with creativity, including confidence in one's own ideas, appreciation of fantasy, theoretical and aesthetic orientation. Later in the 1980s, Sylvia B. Rimm and Gary A. Davis (Rimm 1980; Davis and Rimm 1982) developed the Group Inventory for Finding Creative Talent (GIFT), a self-report form designed to assess the creative potential of students that identified the traits of independence, flexibility, curiosity and perseverance. While versions of all these schematics can be found recurring periodically in creativity policy and curricula, this trait approach with its implications of 'inherent' creativity, are certainly on the wane.

Creativity Self-assessment

Hocevar and Bachelor (1989) have suggested that the self-report inventory is the most easily defended method of assessing both creative achievement and creative talent. Most such inventories are checklists that ask the participant to check off achievements in various areas of creative endeavour (Table 4.2).

Table 4.2 Self-assessment rubric

Creativity Attitude Survey	Schaefer (1971)	• Focuses on attitudes associated with creativity, including confidence in one's own ideas, appreciation of fantasy, theoretical and aesthetic orientation; • 30 self-rating items to be answered with *yes* or *no*, suitable for grade 4–6; • This instrument may be effective for evaluating programmes designed to increase creativity in elementary school-age kids (McKee 1985).
Group Inventory for Finding Creative Talent (GIFT)	Rimm (1980), Davis and Rimm (1982)	• Self-report form designed to assess the creative potential of students grades 1–6; • Test was upgraded for junior and senior high school students (Group Inventories for Finding Interests (I and II)); • Students respond *yes* or *no* to a series of statements designed to assess the traits of independence, flexibility, curiosity, perseverance; • Sample statement: 'I like to make up my own songs'; • Instrument yields a total score and scores for imagination, independence, and many interests; • Reviewers have stressed the need for additional validity data, but they have viewed the scale as a useful tool for decision making when used in conjunction with other types of assessment (Dwinell 1985).
Adjective Checklist (ACL) including the Creative Personality Scale (CPS)	Gough and Heilbrun (1983) Gough (1979)	• Widely used personality measure for adolescents and adults; • Can be used for both self-ratings and ratings by observers; • Consists of 300 adjectives commonly used to describe attributes of a person; • There are 37 subscales, including the CPS (Gough 1979); • CPS includes 30 adjectives (e.g. capable, inventive, conventional, suspicious); • CPS is the most widely used paper-and pencil measure of the creative personality (cf. Domino 1994; Kadusa and Schaefer 1991); and is one of the most valid as well (Hocevar 1981).

		• Alternatively: Domino Creativity Scale (Domino 1970) consists of 59 items that are embedded within the 300-item ACL-List; • Discriminates between several groups of more and less creative college students.
Creatrix Inventory (C & RT)	Byrd (1986)	• Integrates cognitive and motivational dimensions of creativity; • Based on the concept of 'idea production': creativity is regarded as the result of an interaction between creative thinking and the motivational dimension of risk-taking; • Consists of 56 self-rating statements, 28 measuring creative thinking and 28 risk-taking; answered with the help of a nine-point scale ranging from complete agreement to complete disagreement; • Each person's score is plotted on a two-dimensional matrix (creativity versus risk-taking); • Respondent is assigned to one of eight styles: reproducer, modifier, challenger, practicaliser, innovator…
Abedi-Schumacher Creativity Test	O'Neil et al. (1994)	• Multiple choice test, students rate themselves on a three-point scale; • 60 questions regarded as indicators for fluency, flexibility, originality or elaboration; • Sample question: 'How do you approach a complex task?'; • Reliability and validity of this test were examined in a study conducted in Spain on a group of 2270 students (Villa et al. 1996).
Villa and Auzmendi Creativity Test (VAT)	Villa et al. (1996)	• Students rate themselves on a list of 20 adjectives, such as imaginative or flexible; • Uses a five-point scale ranging from very to not at all; • This test also yields scores for fluency, flexibility, originality.
Basadur Preferential Scale	Basadur and Hausdorf (1996)	• Contains statements to which respondents express their degree of agreement/disagreement on a five-point scale; • Emphasise attitudes favourable to creativity (e.g. placing a high value on new ideas); • 24 items include: 'creative people generally seem to have scrambled minds'; 'new ideas seldom work out';

(*continued*)

Table 4.2 (continued)

Creativity Styles Questionnaire (CSQ)	Kumar et al. (1997)	• Questionnaire measures beliefs about and strategies for going about being creative; • Includes statements identifying the various ways, procedures, and environmental control manipulations a person may use to be creative; • Uses seven subscales including: belief in unconscious processes ('I have had insights, the sources of which I am unable to explain or understand'); use of techniques ('I typically create new ideas by combining existing ideas'); use of other people ('When I get stuck, I consult or talk with people about how to proceed'); and so on; • Respondents rate themselves on 72 items; using a three-point scale consisting of 3 (true), 1 (false), and *2* (unsure).
Creative Achievement Questionnaire (CAQ)	Carson et al. (2005)	• Self-report measure of creative achievement that assesses achievement across 10 domains of creativity in the arts, sciences, and culinary (plus three additional domains: individual sports, team sports, and entrepreneurial); • Each domain includes eight ranked questions weighted with a score from 0 to 7; • Consisting of 96 items; part 1: respondent marks areas in which he or she has more self-perceived talent or ability than the average person; part 2: respondent lists concrete; • Achievements in the 10 standard domains.
Creative Self-Efficacy	Beghetto (2006)	• Tierney and Farmer (2002) proposed a concept of creative self-efficacy as representing a person's beliefs about how creative he or she can be; • Measures of self-efficacy are often brief, for example, Beghetto (2006) used a three-item scale: 'I am good at coming up with new ideas'; 'I have a lot of good ideas'; 'I have a good imagination'; • Evidence of reliability and validity have been gathered, although theoretical and psychometric distinctions between measures of creative self-efficacy and instruments which have similar items have yet to be clarified.

A different set of creativity measurements addressed the growing interest in cognitive psychology that led to investigations of the creative problem-solving and thinking processes. Michael Kirton (1989, 1976) developed the Adaptation-Innovation Inventory (KAI) which distinguished between people who seek to solve problems by making use of what they already know (adaptors) and people who try to restructure and reorganise the problem (innovators). The KAI supports the view that both adapting and innovating are involved in creative problem-solving. The innovative style, however, is accompanied by greater motivation to be creative, higher levels of risk-taking, and greater self-confidence; therefore it leads to higher productivity. Richard E. Byrd's (1986) Creatrix Inventory sought to integrate cognitive and motivational dimensions of creativity. This inventory is based on the concept of 'idea production': creativity is regarded as the result of an interaction between creative thinking and the motivational dimension of risk-taking. Each person's score is plotted on a two-dimensional matrix (creativity versus risk-taking) and all respondents are assigned to one of eight styles: reproducer, modifier, challenger, practicaliser, innovator, for example.

Creative Problem-solving

The Creative Problem-solving (CPS) model, a well-validated practical approach to creativity enhancement on the level of everyday creativity and problem-solving, requires both divergent thinking and evaluative judgement (Isaksen and Treffinger 1985; Puccio et al. 2005; Treffinger et al. 2006) (Table 4.3).

Other checklists and self-report questionnaires worth mentioning are measures that focus on creative activities and behaviour, such as David L. Johnson's (1979) Creativity Checklist (CCh). The CCh rates the behaviour of a person on eight dimensions, such as ingenuity, resourcefulness, independence, positive self-referencing, and so on. In addition to the personal properties, cognitive dimensions (fluency, flexibility, and constructional skills) are assessed. Mark A. Runco's (1987) Creative Activities Checklist asks participants how frequently they participate in real-life activities in literature, music, drama, and other areas. Similarly, Roberta M. Milgram's (1998) Tel-Aviv Activities and Accomplishment Inventory (TAAI) measures out-of-school activities and accomplishments in the fields of science, leadership, and dance. Examples of such accomplishments include receiving an award or being chosen for a leadership position in a youth group. The Creative Behavior Inventory (CBI) (Hocevar 1979; Kirschenbaum 1989) also rates the creative behaviour especially of children and students, but is based on the rating by observers. The CBI contains ten items (e.g. '*This child notices and remembers details*') which yield scores on five dimensions: contact, consciousness, interest, fantasy, and total score (Table 4.4).

Table 4.3 Creative problem-solving rubric

Adaptation-Innovation Inventory (KAI)	Kirton (1989)	• Frequently cited in creativity research, distinguishes between people who seek to solve problems by making use of what they already know (adaptors) and people who try to restructure and reorganise the problem (innovators); • Supports view that both adapting and innovating are involved in creative problem-solving, but the innovative style (which is accompanied by greater motivation to be creative, higher levels of risk-taking, and greater self-confidence) leads to higher productivity; • Scale consists of 32 items (e.g. 'Will always think of something when stuck,' 'Is methodical and systematic,' 'Often risks doing things differently'); • On this scale respondents rate themselves, indicating how difficult it would be for them to be like this on a five-point scale *(*very easy–very hard); • Yields an overall score and scores on three subscales: originality, conformity, and efficiency; • Puccio et al. (1995) report on test reliabilities;
Creative Reasoning Test (CRT)	Doolittle (1990)	• Test has two levels (grades 3–6; secondary and college level); • 20 items designed to assess creativity; • Problems to be solved are presented in the form of riddles (e.g.: 'I grow in the park/ Where I stand tall and green/For birds I am home/When the wind blows I lean.'); • Respondents are required to find the correct answer, and a scoring key is provided that contains these answers; • Test reminiscent of the RAT (see above): requires associative, inductive, and divergent thinking; • Even most basic technical information on this test is unavailable; • No information on the groups on which the test was standardised.

Table 4.4 Testing personal properties and dispositions rubric

Creativity Checklist (CCL)	Johnson (1979)	• Assesses on eight dimensions: ingenuity, resourcefulness, independence, positive self-referencing, and so on; • Rating people at all age levels, including adults in work settings; • On a five-point scale ranging from *never* to *consistently,* observers rate the behaviour of the people being assessed; • In addition to cognitive dimensions (fluency, flexibility, and constructional skills), personal properties are assessed (ingenuity, resourcefulness, independence, positive self-referencing, and preference for complexity).
Creative Activities Checklist	Runco (1987)	• Test asks participants how frequently they participate in real-life activities in six areas: literature, music, drama, arts, crafts, and science; • Suitable for use with children in grades 5–8; • Scoring by simply adding the number of instances of participation: (e.g. writing a story or poem in the last year); • In some studies respondents merely list their three most creative achievements to date.
Creative Behavior Inventory (CBI)	Kirschenbaum (1989)	• Rates the frequency with which the child behaves in a certain way; • Test has two forms (grades 1–6, grades 7–12); • Involves ratings by observers, teachers; • Contains ten items (with ratings ranging from 1 to 10): 'This child notices and remembers details'

(*continued*)

Table 4.4 (continued)

		• Ratings yield scores on five dimensions: contact, consciousness, interest, fantasy, and total score; • Reliability assessments are promising, but reviewers did not recommend the CBI for educational decision making (Clark 1992); • Instrument is theory based; other validity data are limited and unclear.
Tel-Aviv Activities and Accomplishment Inventory (TAAI)	Milgram (1998)	• Measures out-of-school activities and accomplishments; • Talents in science, leadership, and dance are assessed (13 items tap the science domain, 12 the social leadership and 10 the dance area); • Examples of accomplishments: receiving an award, being chosen for a leadership position in a youth group; • Various studies gave evidence for the discriminant, predictive, and factorial validity of the TAAI (Milgram and Hong 1999).
Creativity Scale (of the Scales for Rating the Behavioral Characteristics of Superior Students)	Renzulli et al. (2002)	• Checklist or observation form; • Teachers identify students whose behaviours match descriptions of activities associated with creativity; • Creativity scale: nine-item checklist describes behaviours such as: imaginative thinking ability and 'a non-conforming attitude'; • Teachers use a six-point scale to rate each student on each behaviour; • Test-retest and interrater reliabilities data for this instrument are strong; • Strong correlation with verbal scores on the Torrance Test of Creative Thinking (TTCT), but not with figural scores.

The Socio-environmental Approach to Creativity Measurement (1980s and 1990s)

Born out of the social psychology and systems theory, the socioenvironmental approach is a more recent direction in creativity research developed during the 1980s and 1990s which took environmental conditions, the social context and sociopsychological factors into account (e.g. Amabile 1982, 1996). At the same time the methodology for investigating creativity in education shifted, within a general trend, from positivist, large-scale studies aiming to measure creativity, toward ethnographic, qualitative research focusing on the actual site of operations and practice (Craft 2001). While this impacted on policy approaches to the integration of creativity and arts in education, it was short-lived: from about the 2000s onward, the shift back toward statistical, large-scale studies which can 'prove' the transferable academic value of creativity and arts engagement have returned to the norm. Yet the socioenvironmental approach was important for a number of reasons.

In particular, researchers who adopted a sociopsychological perspective focused on a larger system of social networks, problem domains and fields of creative activity, while others explored the mechanisms which govern the interplay between a person's experience, behaviour and environmental or social situation (Ryhammar and Brolin 1999). The assessment of this complex interaction between a person's creativity and the environment has attracted the attention of Amabile and Eysenck (1996), who both developed valid ecological measures of creativity. Amabile and Gryskiewicz's (1989) Work Environment Inventory (WEI) assesses those factors in the work environment that are most likely to influence the expression and development of creative ideas. Eight scales describe environmental stimulants to creativity, such as freedom, challenge, resources, recognition, and creativity support. Out of the WEI, Amabile (1995; Amabile et al. 1996) developed another measurement tool, the KEYS 'Assessing the Climate for Creativity' instrument. KEYS assesses the organisational environment for creativity, its supportive factors, and environmental obstacles. This self-report instrument assesses individuals' perception and the influence of those perceptions on the creativity of their work. Forbes and Domm (2004), influenced by the work of Amabile, developed an environment survey that requires participants to rate the importance of items related to a recent, successful, creative project on which they have worked. The six factors which emerged from the data are

mental involvement, intrinsic motivation, time and resource constraints, extrinsic motivation, external control, and team management.

Another self-report instrument assessing the environmental factors for creative activities is the Creative Climate Questionnaire (CCQ) (Ekvall 1983; Ekvall et al. 1983). The CCQ differentiates ten dimensions of organisational climate that help, stimulate or block innovation, including idea time and support, openness, conflicts, and risk-taking. Several of these measures have been designed for the work environment and supposedly test the organisational climate that stimulates creativity; many of the reports and studies relating to these tests did, considerably more than before, conflate the notions of creativity and innovation (cf. Ekvall 1991, 1996; Amabile 1988, 1998). During the 1990s, research into creativity also adopted more comprehensive and integrated models, emphasising and combining personality-related, cognitive, social, and cultural factors. For example, Hans Eysenck (1996) developed the Creativity Index which highlights the importance of sociocultural factors in the measurement framework of creativity as does the Harris Creativity Index offered in this text. This index proposes a model that differentiates between cognitive variables, environmental variables, and personality variables. These approaches can be easily compared in Table 4.5.

Creative Environments

The environmental dimensions of creativity that sit at the heart of creative industries and economics discourses (see Amabile and Seelig) are often overlooked by educators, in creativity assessment models, and within theories of creativity (see Thomas and Beck 1981; Treffinger 1986). Amabile has greatly expanded conceptual understandings of the creative environment and ways in which it might be assessed (Table 4.5).

Researchers' interest in the influence of social and environmental factors on creativity over the last three decades can be seen as a correction to the earlier almost exclusive focus on the creative personality. The increased interest in environmental factors, however, also gives an indication that creativity can be produced, managed, and enhanced by changes in the social environment. This seems relatively easy to establish compared to confronting the challenge of altering individual traits and abilities (cf. Ryhammar and Brolin 1999), and I have argued that education creativity research can benefit from an environmental approach to creativity assessment (Harris 2014; Harris and Ammermann 2015), and for this reason I have included school environment questions in my current study. The design, implementation

Table 4.5 Creative environments rubric

KEYS 'Assessing the Climate for Creativity' instrument	Amabile (1995), Amabile et al. (1996)	• Assesses the organisational environment for creativity, its supportive factors and environmental obstacles; • Self-report instrument; • Assesses individuals' perception and the influence of those perceptions on the creativity of their work. Forbes and Dimm (2004), influenced by the work of Amabile, developed an environment survey that required participants to rate the importance of items related to a recent, successful, creative project on which they worked; • Six factors emerged from the data: mental involvement, intrinsic motivation, time and resource constraints, extrinsic motivation, external control, and team management.
Creativity Index	Eyseneck (1996)	• Highlights the importance of sociocultural factors in the measurement framework of creativity; • Proposes a model that differentiates: Cognitive variables (intelligence, knowledge, technical skills, special talents); Environmental variables (politicoreligious factors, cultural factors, socioeconomic factors, educational factors); Personality variables (internal motivation, confidence, non-conformity, creativity [trait]); • Used in the Hong Kong Study on Creativity Index (Home Affairs Bureau 2004).

and results of creativity measurement tools also indicate that they are to support arguments about the essential role which creativity plays for organisational innovation and economic prosperity (Amabile and Khaire 2008).

Assessment of the Creativity of Products

A majority of creativity researchers and theoreticians believe that the key to understanding this phenomenon lies in the study of individual difference variables and the unique constellation of traits that make up a creative person, whereas others focus on the creative process, creative environment and the creative product. The 'product creativity' can be reliably and validly assessed based upon the consensus of independent expert raters. Although creativity in a product may be difficult to characterise in terms of

specific features, it can be recognised and agreed upon. Baer et al. (2004), among others, suggest that product assessments are the most appropriate assessments of creativity. This is in variance with arts educators (including Elliot Eisner and John Dewey), who have focused on process measurement rather than product. Recently, large-scale international surveys have established creativity assessment tools that look into specific aspects of a culture or community's creative potential (Florida and Tinagli 2004; Home Affairs Bureau 2004). Richard Florida (2002) has developed the Creativity Index, which ironically does not measure creativity per se, but factors associated with urban economic growth. According to Florida, the three indicators of a creative society are: *technology*, mainly referring to the presence of high-tech companies and their production of patents; *talent*, or the number of people in the 'creative class'; and *tolerance* which refers to the openness of a society to other ideas and making outsiders welcome (Table 4.6).

Developments in creativity measurement tools show that psychological methods and constructs have given way to other types of measures

Table 4.6 Measuring creative products rubric

Creative Product Inventory	Taylor (1975)	• Measures seven criteria such as generation, originality, relevance, hedonics, reformulation, originality, complexity, and condensation.
Creative Product Semantic Scale	Besemer and O'Quin (1986, 1999)	• Based on Creative Product Analysis Matrix (CPAM) (Besemer and Treffinger 1981); • Assessment on three dimensions: Novelty (the product is original, surprising and germinal), Resolution (the product is valuable, logical, useful, and understandable), and Elaboration and Synthesis (the product is organic, elegant, complex, and well-crafted); • These dimensions are assessed by raters using a semantic-differential rating scale (e.g. *surprising-unsurprising, logical-illogical,* or *elegant-inelegant)* with 43 items.
Student Assessment Form (SPAF)	Renzulli and Reis (1997)	• Instrument to assess students' creative products; • Used to rate student products on nine factors (e.g. diversity of resources, originality of the idea, attention to detail…); • Not all factors are appropriate for every kind of product, but item descriptions provide clarity in the judgement of each factor and contribute to the reliability of the instrument.

of creativity, and often mirror trends in the cultural value of creativity, reflected in funding and policy. In particular, the conflation of innovation and entrepreneurship with creativity in research, policy and discursive framings alter the very meaning and cultural role of creativity. When productivity measures become possible measures of creativity levels, the cultural role of creativity itself shifts (Villalba 2008) first most apparently in economic and policy strata, then later in education.

Assessment and the Current Study (2014–2016)

I would say that creativity is divergent thinking, to be able to see beyond the established possibility of things. (San Jose science teacher)

In the research study 'Enhancing creativity in secondary schools', I have used a range of research instruments in order to get a balanced view from 'the coalface' of secondary schools. This mixed-methods study included qualitative and quantitative components. The qualitative tools included observation, thick description, one-on-one interviews, focus groups, and student drawings. The quantitative survey instrument was created using other established tools, notably Lucas (2013), as noted in Chapter 1. Some tools (like Amabile's KEYS tool) were prohibitively expensive, required a qualified facilitator to run the survey, and used fairly rigid workplace and managerial language rather than the language of teaching and learning communities. Others felt inadequate to the new demands of a contemporary understanding of creativity in education, and were not designed to reach a practical outcome that was implementable.

Many contemporary creativity researchers have noted the challenges with assessment (McWilliam 2008; Moss et al. 2006; Cowdroy and de Graff 2005) but McWilliam et al. (2008) say it best: 'while the hegemony of quantification continues to be an irritant for those of us who refuse the idea that measurement is the only true means for knowing the world, we nevertheless cannot simply sidestep powerful traditions of quantitative inquiry if we are to build a teaching-for-creativity case' (p 3). And as Wang has shown drawing on Beghetto (2006), 'different assessments can be either conducive or detrimental to creativity' (p 3), and she asserts that 'a factor that show relatively consistent results is socioeconomic status [where]…creativity test scores increase with the SES' (p 2), a finding that has repeatedly emerged in relation to standardised testing which is culturally and socioeconomically situated and therefore inequitable.

In my current study of creativity in secondary schools in four countries, we asked teachers and school leaders the question '*Do you believe creativity can or should be assessed, and if so, how?'*

Most respondents believed that creativity should be measured, but were not always certain how. Some methods that respondents had used or believed were valuable include: *Formative self and peer assessment/ Reflection* (which builds confidence and persistence by asking students to consider their own success); *Rubrics* (transparency about what you are supposed to be developing); *cross-curricular assessment; Design Thinking* which builds teamwork and creative confidence; *project-based learning (PBL)* which builds synthesis capabilities.

They believed that assessment (either formative, summative or some combination of both) was necessary in order to provide structure, credibility, opportunity for synthesis, an opportunity to demonstrate what had been learned, a baseline from which to measure improvement/personal progress. Many also felt it was important to incorporate assessment into creativity education in order to participate in assessment development, which they saw as core work of teachers. Virtually all respondents believed that standardised tests impede the development and demonstration of creativity in their students.

Assessing Creativity: In Their Own Words

> *I think students often think that creative means that it's somehow going to be artsy. I think it just means that you can take something and look at it in a fresh kind of way. Give it a new spin, have multiple perspectives on it. (Toronto English teacher)*

The teachers and school leaders in this study from Singapore, Canada, the USA, and Australia made the following recommendations for diverse forms of creative assessment, and also identified some obstacles to implementing both creative assessment forms, and the assessment of creativity itself, in their own words:

- 'Analysis of kids' media performances based on the notion that's called the Triangle' with a checklist or rubric of skills covering audience, production, text.
- Reflection as a tool, asking students 'what did you learn?'—a metacognitive focus.

- Production of a performance in which students must use the learned techniques. *'If we treat it as a celebration and not as an accountability measure, we say you are going to have the chance to show off your best work at this date and at this time and they're surrounded by other people doing their best work, there is a push that we see among our kids. And the reason we know it's real is because they do it in math and science and they come in as mediocre as any kids in the city at their math and science course. …but one of the ways that we've seen them turn onto it is to turn it into a performance and to say you're not preparing for an assignment, you're rehearsing. You are rehearsing and you can do it as many times as you want until the day of the performance.'*
- Measure by application: *'Can they take an idea and do something with it? For example, what my students were doing was teaching other kids. Does it work? That's the assessment process. Real world.'*
- Problematic nature of assessing creativity presents a tension with not knocking the stuffing out of kids. Teachers want to encourage kids to take risks without knocking their confidence. Given that creativity often involves a personal approach some teachers feel there is a danger of personal harm. *'And they know me, that I'm not going to then whack them for it, right? You did take a chance but I took marks off because it wasn't this—they know I'm not going to do that. But I don't know how to put that on a rubric. Because it may be something that a student is just so incredibly proud of, and it's just totally off-base. So if you say it's not right, then they may just be totally turned off and say "Well, I'm not going to do this again". You run the risk of that 6th grade experience I had. Some expert coaching the chorus saying, "You don't have it." So I think we need to develop different assessments. I think we need a lot of self-assessment and I think we need a lot of counselling, constant reflection.'*
- *'I think mentoring is really probably the best model.'*
- Rubrics can provide structure and deal with the confidence issue, transparency of expectations. They can cover techniques, skills: *'I used to objectify it. I think you could objectify - you could write out a rubric, discuss the rubric, try it, use it, reflect on it, update it—that's just a scientific process. Some people call it the cycle of inquiry; I just call it science.'*
- Justification: as long as the student can give reasons for design or other decisions, they can use them: *'There's no wrong answer if you can justify what you're telling me. You're pro-abortion, anti-abortion, fine. I want to know if yes, why? What are your reasons for it? If no, why? What are the reasons for that? It almost forces creativity.'*

While the obstacles to assessment of creativity or creative assessments included:

- Teachers not having the expertise and confidence to grade another aspect of the work in a different discipline to their own justifies not having tasks that cross disciplines: *'The core issue is a lot of teachers saying I do not have a background in a visual journal, so if I give my student a visual journal, and they give me that visual journal, how do I assess it?'*
- Contradictions with the process and cultures of standardised testing in which they work: *'Creativity is absolutely measurable, but you can't do it through standardised testing.'*
- Teachers reported a need to confront their own and their students' fear of creativity. *'We have to stand up and say: We're going to explore your creativity in this classroom. And if you tell me you can only draw stick figures, I'm okay with that. Because that's just a technique I can teach you.'*
- Class size: *'I think class size is one of the bigger obstacles, 'cause with class size other problems stem from that'* (Fig. 4.2).

Conclusion: Creative Capital and Educational Assessment

From these measures, clear patterns of a shift in cultural and educational policy framing emerge. As Weisberg (2010) and others have pointed out, the shift from individual to social and cultural framing of creativity is illustrated in its measurement. That is, *what* is being measured indicates something about *where* creativity sits in cultural policy and practices. The pattern toward creativity as a commodity with a status value may be considered as a shift toward a new kind of capital—creative capital (Harris 2014).

The influence of the creative industries sector on secondary education has been well-covered in previous chapters here and elsewhere (in particular, see O'Connor 2009; Oakley 2009; Cunningham 2009), but can creative industrial work be problematised further to help understand the cultural implications of this creative turn from human capital to creative capital in the new knowledge economy? McGuigan (2010) notes the perhaps misleading democratic overtones of an emaciated creativity that no

Progression in Creativity **(Spencer, Lucas and Claxton 2012)**

Link to full document:
http://www.creativitycultureeducation.org/progression-in-creativity-a-literature-review

While this guide produced by creativity experts Ellen Spencer, Bill Lucas and Guy Claxton (from research based at the Centre for Real-World Learning at the University of Winchester, UK) offers a comprehensive overview of creativity and assessment, it does so through the lens of the individual. I disagree with this singular and humanist approach (as did Craft), advocating as for a more environmental and intersectional approach to fostering creativity, as this is how creativity is born and thrives,—in collaboration, amidst cross-pollination. Nevertheless, this document is a thorough and helpful resource.

The Creative Partnerships (who commissioned the literature review) acknowledge as most creativity researchers now do that there is no single effective definition or measurement tool for creativity in schools, but they understand this inability to standardise this work as a suggestion that "there are some deep rooted challenges to overcome" (p 8). I disagree. I find creativity's resistence to being typecast a sign of its health and vigour, and in some ways an indication of its core characteristics. Its refusal to be standardised is part of its definition. Despite my concerns, I include it as a best-practice model here because I appreciate how squarely it tackles assessment head-on, a problematic aspect of creativity-in-education research that many avoid or only cursorily address.

SNAPSHOT: *"Section 6 describes the philosophical issues underpinning any assessment of creativity and the inherent tensions between the structure and goals of schools and particularly assessment, and the prioritising of creativity"(pp 67–80) and*

Section 7 (p 81): Measuring creativity in schools: some noble attempts" which asserts that "Measurement of creativity is not just confined to the field of education. In this chapter we ask what has been learned from attempts to assess creativity in schools. We introduce major government

Fig. 4.2 Assessing Creativity: An Innovation from the UK

sponsored milestones and raise issues that complicate assessment, and we explore the possibility of developing a progressive framework for assessing creativity."

They note that "Ferry (2003) observes that tests for creativity (some of which are aimed at schools; some at employers) measure the same four areas that Beattie (2000) touched on earlier: the individual, the process, the product, or the environment" (pp 82–83). That is why in my current international study on creativity in secondary schools, I have included assessment regarding all four areas. For a more detailed treatment of assessment in schools, read the rest of the Spencer, Lucas and Claxton (2012) report, available online.

Fig. 4.2 (continued)

longer means specialness or giftedness, and this may well be linked to its very inability to be 'measured'. Yet in the entrepreneurial imperative of our new global economy, everything must be measurable, and 'it is very difficult to analyse anything if you cannot make distinctions between what is and what is not' (p 324).

Twenty-first-century global economic and cultural flows are similarly going through a reorganisation of both ideologies and policies. For this reason, modern educational systems are similarly undergoing a reorganisation of purpose from the manufacturing of human capital (embodied, objectified, institutionalised) toward more diffuse information productivity. In order to do so, a redefinition of concepts like original thought, innovation, and critical analysis are required; creativity, it seems, is a core component of this new productivity. Bourdieu's forms of capital (social, cultural, economic, human, and symbolic capital) can be understood in relation to the current creative turn, and with it the shift in creativity's field. While the very nature of creativity may not be changing, cultural attitudes and policies that recognise it relationally are. This suggests that through the measurement, commodification and production of such a 'new creativity', its cultural function and use-value is changing, and with it the way we think about the function of creativity education and its role in culture and cultural production. Through recognition of the changing structures of measurement in creativity, it becomes easier to see new ways of fostering creativity in education that balances arts processes with assessment requirements.

The last ten years can in part be characterised as the emergence of a turn toward creative capital, a commodification of creativity's tools, both in ideological terms and in institutional ones. The rush to define, understand, and harness creative capital may represent a desire to colonise it for the purposes of profit; in other words, to identify the nature and market value of a notion of creative capital in order to commodify it. In this chapter I have tried to show how measurement tools can offer a litmus test for changes in the sociocultural role, policy development, and discursive framing of creativity. The act of surveying such shifting definitions and measurements is not new—indeed almost every article and book on creativity now begins with such a list (see for example, Cropley 2000; Houtz and Krug 1995; Feldhusen and Goh 1995). Here however it is crucial to understand the basis of measurement that underpins any new assessment strategies for creativity in education.

CHAPTER 5

Iterate

We can't have a global economy without people knowing how to creatively look at different things from different viewpoints.

(San Jose)

SNAPSHOT #1 Sydney's International Grammar School is a 31-year-old locally embedded but globally focused independent bilingual school that covers preschool Year 12 (3–18 year olds) (http://www.igssyd.nsw.edu.au). Like many schools, this one is focused on tools, but rather than technology this school's main focus for global citizenship is language: all students' classwork is bilingual throughout their entire time at the school, and the school community sees linguistic diversity as a lens through which to experience cultural and other diversities as well.

The bustling, chaotic and bilingual space on an inner-city block, the K–12 year levels intermingling, the endless ascending and descending from one building to the next and up countless flights of stairs make it feel somewhat like a treehouse or a bustling home, but at all turns it is bright and offers beautiful expansive views or exciting craggy corners. It has open, light-filled spaces that look out over the industrial landscape in which the school is set, and aren't—like so many other schools—overprogrammed. It is loud, messy, feisty, informal, and colourful. It is lived-in. It has over

A. Harris, *Creativity and Education*,
DOI 10.1057/978-1-137-57224-0_5

70 after-school clubs, a roof-garden schoolyard (because there is no room on the ground), it is globally networked, academically robust, and sitting in the centre of Australia's most populous city. Somehow, the founding vision of bilingual education for all has given it a messy cosmopolitanism that other international schools don't necessarily have. It certainly has the air of privilege, but at the same time it is like one big family, all squashed in together, and in fact the space problem is something the principal mentions in our interview and in some sense would like to address but is also hesitant about: the proximity feels like creative opportunity, as all three teachers interviewed agreed. So in terms of *programming*, IGS may not be the most innovative school out there, yet in terms of *creating the conditions for creativity*, this school has it in spades.

Principal Shauna Colnan is a passionate affiliate of Howard Gardner's *Project Zero* at Harvard University and recently attended her second 'Think Tank on Global Education' there. She—like so many other principals whom I have met in this study—believes that the key role of schools today is to equip students as global citizens, and she sees creativity as one central part of that readiness. To that end, in addition to partnering her school with Harvard, she proactively partners with local universities and international high schools, has a dynamic professional development programme, and is introducing innovative curricula for their Year 7–10 students.

The notion of cross-pollination as a creativity-enhancing factor, and a way of maintaining creative risk-taking, and its relationship with spaces of learning, is evidenced all throughout the school. 'Wherever you can break those (subject area) siloes down, the better', Colnan says. 'For us, it can be the local coffee shop…people get together and say "maybe we could do this".'

But I asked her about the tension between interdisciplinarity and the need for home, hubs, guilds, mastery, centres of excellence. Surely, I asked, there's got to be a need for those rich, singularly immersive areas. 'I think when you delve deeply into any discipline, no matter what it is, you've got your creativity within it', said Colnan. And indeed she is revisioning the school as a mixture of both immersive areas of specialisation and open spaces of interdisciplinarity. For her, the most creative spaces in the school are the spaces of possibility, interaction, and relationship:

> *That top floor, which is just an empty space, which is that ochre colour, I love it… the way that building was built was to locate it here in Ultimo, to pay homage to the industrial warehouses around. But put it in the ground, and therefore it's that ochre colour that connects you to the Gadigal people…You're walking*

around, going wow imagine a school with these funny ameoba-like circles for windows! But I think that space which is an empty space, so much goes on there, any sort of creative thing you want to do will pop up there. It's a nice big open space that can be that place that you go to, to do creative things. And the fact that it's a multipurpose empty space lends itself to the spillover of creativity. And I think around the canteen downstairs there. New canteen operators came in, we cut a hole in the wall and suddenly it's like a coffee shop, a café type thing has come up and I see students down there talking, having lots of different ideas, and teachers and parents talking, so it's become a real hub in that central space. The only way into the school…is through there, so it's a very creative, central spot.

When I note to her that so much of where she sees creativity living in her school is not necessarily in the classrooms, but in the places of meeting, she brings everything back to relationship this way:

I grew up in a very disadvantaged area…but we had this teacher who came in and put on a musical, and my sisters and I all went into his musical and got parts and it just changed our lives, you know it just really gave us culture in a place where we really didn't have that. And it was transformational, and it was magical. So for me, you could use a school musical as such a metaphor for creativity, because no one person—okay there's the vision around it, that someone's gotta create it and have the vision for it, but everyone participates and the creator of that is facilitating it for other people, really not for themselves at all. And what I can't wait to see tonight, the school's first ever musical, the kids are going to make it their own. The director will sit back, and suddenly this thing's going to become something else. Now as the principal of the school, I'm kind of seeing the school in the same way—I kind of can have these visions and these ideas and sort of drop it out there, and suddenly people take off with it and do something better than I could ever do myself ..its collaboration, its working with others, and its kind of working not for yourself.

Colnan's vivid description echoes the words of Greg Meissner, a vice-principal from a large, sprawling, low-socioeconomic school community in San Jose, California, a school environment that couldn't be more different from Colnan's. But listen to the echoes from his tale of creative school-making:

…the thing that surprises me the most is when I'm at a meeting, and we've got a problem that we're discussing as administrators; maybe it's a problem with the way a course is being taught, a problem with why certain kids are getting it and certain kids aren't getting it. And all of a sudden I just get this jolt of

energy, I get this idea and I just speak out loud, and really scares me, because I never know what I'm going to say. But then I'm usually met with—'that's not actually a bad idea'. Then all of a sudden I'm in a group of other people who have maybe better ideas building on that. But they wouldn't have had that idea had I not raised the first one. So there seems to be a—I'm having a hard time describing it, because I have a hard time imagining where it comes from, but the same idea—the same creative energy that makes me have an idea on a painting or in a song that I'm singing is the same feeling that comes across me when I'm talking with other people about problems in an education setting. And all of a sudden just a creative—a solution comes to me, and then someone else will take it and run with, and say, 'Hey, you know what? Maybe we should have an extra summer school class for Spanish speakers, because the Spanish teacher was so bad this year, and so many people will not graduate on time, or will not be able to take electives they want because they'll have to repeat Spanish in order to qualify for the UC system for their four-year university.' That was one. And then I thought, geez maybe I should shut up, maybe I'm speaking—it's not my area to create the summer school schedule, and then two other people jumped on it and said, 'Great idea. Here's how I'd like to do it.' So now they're taking it, and they're being more creative with that idea.

For school leaders like Colnan and Meissner, relationship is at the heart of *creating the conditions for creativity* through productive risk-taking, of collaboration, and of curiosity. But in Snapshot #2, curriculum *programming* itself can be risky, innovative, and model creativity for its students.

*

SNAPSHOT #2 The Pimpama State Secondary College is like a colourful gobstopper stuck in the rolling green dales of southern Queensland, about 50 kilometres south of Brisbane, in what has been called 'creative suburbia' (Felton et al. 2010), what O'Connor and Gibson call 'an important forming ground for cultural industries' (2014, p 48).

The school sits amidst a cluster of new buildings on a construction site—the fields around it are being transformed, even during my day there, into additional school buildings, new homes, and infrastructural services for this expanding community. My guide through Pimpama School is Adam Jefford, a young teacher (albeit with eight years of teaching experience) who formed a creative and productive partnership with his principal, John Thornberry, when they worked together previously at a primary school,

and who now are making creative educational waves far and wide with their innovative programming, funding successes, industry and university partnerships, and experiments with the structure and purpose of this secondary school's work. There is much about Adam's role and the almost whole-school approach to Design Thinking and creativity that is unusual—a secondary school with a Creative Industries department, active scheduling of interdisciplinary units and collaborations, proactively teaching students about productive risk-taking in their learning journeys—all core characteristics of creative education. I spoke to him about not only their unique whole-school approach to creativity at Pimpama, but its roots in the cutting-edge technology focus of his department:

> *We're trying to develop and celebrate the role of creativity and resilience and risk-taking in probably what's—not a restrictive teaching environment, but one where mastery is valued in some ways over divergent outcomes, particularly when you are learning how to code, or how to develop software…Technology is a common thread, but we're at pains to not have a fetish with the technology itself. So technology is a tool. Artists have always used technology to make things, whether that's pen and paper, oil paint, canvas, they are all forms of technology ….what's really nice about viewing technology through creativity is that artists have always used technology in ways it wasn't designed for, to produce new things….Take the camera, I'm sure that the way a camera is used now was wildly unimaginable from its original intent.*

We agree that central to any creative perspective or process is a 'making-strange' approach to things, which has been written about by artists and creative education scholars as innovation, non-conformity, independence.

But I asked him why at Pimpama they organise performing arts separately from the technology and design subjects, noting the ways in which live and performance art, drama, and dance also use the strategies of old and new technology, repurposing of materials, and innovation, and Jefford conceded that 'I would agree that the similarities are there', and 'it's a structural' decision, dependent on his skill set and workload, the cost, and demand of the tech resources in his department. However, he does not feel that it's a 'false binary', just 'it probably does reflect more of a management strategy than an ideological split'.

Yet surely it's no coincidence in a school with the only Department of Creative Industries that I've encountered, and who work closely with a creative industries faculty at a nearby university. This kind of split is

characteristic of creative industries tertiary faculties and centres, and my questions remain about why creative industries continue to maintain a separation that groups creativity on the side of digital technology and the performing arts or other subjects elsewhere, or what some consider another not-new binary of 'live arts' on one side with 'virtual/digital arts' on the other. In the 1970s, there was of course a separation between the arts and the technology subjects, which this grouping echoes. Yet at Pimpama, these high-tech subjects and subject suites are still framed pedagogically as preparing their students for new kinds of technology jobs:

> *The other thing about technology is that there's sometimes a fear around technology…the shift from realism, or realistic painting to the camera, and the perceived loss of skill, or mastery or value there, is something that we're trying to disrupt. So again I talk about the tools fit for purpose. We want our kids to move fluidly through 3D printing, laser-cutting, routing, as advanced manufacturing or rapid prototyping, but being equally as comfortable to use traditional modes or tools…Access to technology is seen as the outcome, having access to the tool is celebrated, rather than what's made or output from the tool…With our students, we want to celebrate the act of creation, whereas creativity and creation have that relationship, so if they can create something, if they are creative, that can be built on.*

When asked if he had a personal definition of creativity that he could share, Jefford said in characteristic cheeky fashion, 'Probably not that's Tweetable', but quickly came back to a pivotal personal memory of creative awakening, and as he insightfully foreshadowed his tale, 'it's a memory of an art teacher, as I guess a lot of these stories start.'

This split that I perceived in Adam and John's innovative approaches to creative education reminded me of the ways in which O'Connor and Gibson (2014) have written about the split between cultural and creative industries.

Cultural and Creative Economies: Best Frenemies?

These two schools, taken together in a snapshot, might indicate some way forward in joining the creative and cultural industries for a more balanced and sustainable—yet certainly creative—twenty-first century in Australia and elsewhere. But the cultural economy (including the discursive and other distinctions between culture, creative, and arts industries) continues to be overshadowed, as O'Connor and Gibson claim, by the narrow

creative industries. Their close analysis of the abandonment of the cultural industries points to some ways in which education can make a robust contribution to the sustainability of Australia's continued economic growth. They have clearly described what they call,

> a kind of legitimation crisis in cultural policy. There are real debates about if, how, and how far the public should directly subsidise culture. But also, if, how and how far the state ought to be concerned with the general parameters, quality, level of provision of culture and media. This makes for difficult and complex policy-making. The creative industry agenda's reduction of this to a combination of innovation effects and the working through of technologically empowered consumer markets is not a feasible response to this situation. Unfortunately the language of public cultural value—outside of subsidy to the elite arts institutions, and even here it is contested—has been severely eroded. (2014, pp 42–43)

Hewison (2014) too has offered a cogent cautionary tale from the British context, yet despite such texts being so readily available, policy makers in diverse contexts continue to advance national curricula and creative industries strategies with seemingly little attention to the failures that have preceded them, as O'Connor and Gibson (2014) point out here in Australia.

So what does it mean to try and foster creativity in secondary schools within a larger context that devalues culture and cultural economies, that once saw our economy as linked not only to productivity but what Colnan called the uniqueness of her school? Are we going to try and foster creativity in schools so that we might produce a new global labour force that is more digital—but no more expansive, skilled, or happier—than our manually labouring past generations?

I have named this final chapter ITERATE. This term and the other chapter titles are solidly Design Thinking terms, and are in some way aligned with the discourse and processes of creative industries. I have done so intentionally, and it is not because I believe creative industries processes will replace other creative processes, or use-values. I hope that readers will see the continuum of meanings from experiential learning, to arts education, to new creativity, and creative industries. For arts educators, ITERATE might be identifiable as devising, rehearsing, drafting. As the two school snapshots showed, fostering creativity in schools requires a multi-pronged approach. O'Connor and Gibson 'have chosen the term "cultural economy" over "the creative economy"…we think the latter is an inadequate descriptor, it reduces cultural value to economic value, and

indeed defines this economic value rather narrowly around "innovation effects"' (p 7). The distinction is not semantic, but rather points toward an important insight into how to foster sustainable creativity in schools.

So how do we go about fostering creative change? Some school leaders in this study discussed their plans for building a STEAM Centre or a Creativity Hub, yet worried that such specific approaches might go out of date too quickly to justify the expense. Whether considering the magnitude of whole-school change or cultural and arts policy, it takes more than just a new building, creative event or even a new curricular commitment, and such changes take time. Other industries seem to be moving ahead more quickly with their creative innovations than education, but as Adam Jefford has shown at Pimpama, it is possible to create change in curriculum, pedagogy, and structures while keeping staff and students invested. In this final chapter we return to the single factor that throughout all strategies (or iterations) of creative brainstorming and trialling to find the right solution for your school, almost every respondent in this study has identified relationships as the core component of making the conditions for creative trial-and-error. By establishing trusting relationships, students (and teachers) can feel safe, confident and enthusiastic to try countless iterations and not be bowed by failures. As Howard Gardner has been saying for years, trusting relationships are the bedrock under which creativity thrives.

Before I move into the three models of possibility for school innovation, I want to say a final word about the relationship between culture and creativity, drawing on O'Connor's long career with creative and cultural partnerships in the UK and then Australia. His experience in the UK's Creative Partnerships gives him a unique perspective on the evolution of the newer creative industries in Australia, and on problematising the sidelining of cultural industries, and why.

> Culture had never traditionally been seen as a 'sector' in the same way as manufacturing or construction, or indeed as anything other than a net expenditure on the arts and arts education. As cultural production and consumption expanded in the 1960s due to higher wealth, leisure and education, its commercial and non-state funded aspects grew way beyond the sphere of 'the arts'. This led to a growing desire to identify and measure these activities, but it took some time to establish what was out there and how it might be measured. (O'Connor and Gibson 2014, p 13)

Now, it seems, this desire to measure has come of age. And while assessment and measurement continue to be the main difficulty for creative

education, the persistent desire to do so acknowledges O'Connor and Gibson's point that Australia seems to be doing creativity and culture worse than many of our neighbours.

> Though it is notoriously difficult to compare due to different statistical collection systems, Australia's public funding of culture is smaller than many European countries. Places such as Singapore, Hong Kong and South Korea are rapidly increasing funding for culture and cultural industries development. China, coming from a low base, has engaged in a massive investment in cultural content development, infrastructure and education. (p 15)

So why is this? It seems hard to believe that while Australian and British policymakers are in such close conversation, that on the Australian side we would not avoid some of the traps that have befallen our colleagues in the UK.

Australian Creative and Cultural Economies

O'Connor has warned widely about the shift from industry to occupations in the creative industries discourse that has 'allowed a focus on creativity as an input rather than the characterisation of an output. That is, creativity became a function in a value chain not the specific quality of a product' (O'Connor and Gibson 2014, p 28). This functionalisation of creativity is what I've referred to as a kind of commodification (Harris 2014), but it's more than that.

NESTA's *Characteristics of Creative Occupations* define creativity as 'the application of creative talent to commercial ends' (Bakhshi et al. 2012) and creative occupations as a 'role within the creative process that brings cognitive skills to bear about differentiation to yield either novel or significantly enhanced products whose final form is not fully specified in advance' (O'Connor and Gibson 2014, p 28). This language of mechanisation, including 'novel process, mechanisation resistant, non-repetitiveness or non-uniform function, creative contribution to the value chain, interpretation, not mere transformation' (p 28) is almost wholly divorced from the stages of the cultural economy identified in the UNESCO *Framework for Cultural Statistics*. Here the relationship links between creativity and culture pivot on a wider pallet of economic, social, and cultural factors:

> There is an 'elective affinity' between cities and the cultural economy which many have tried to capture in the term 'creative city', in which the very

> milieu of the city attracts and stimulates new and innovative kinds of creative activity . Creative city agendas became an example of global 'fast policy' as in Richard Florida's prescription for cultural amenities to attract the creative class, whose presence would then generate economic growth, circulated the globe. These ideas sparked similar debates to those which developed around the reduction of urban cultural and civic values to the 'creativity and innovation' effects they might produce. They were controversial for the way they corralled the history and ethos of urban life into the innovation economy. (O'Conoor and Gibson 2014, p 40).

Yet they are careful to point out that this urban characteristic of creative and cultural economies does not pivot only on commerciality, but rather 'sociality, everyday meaning, entertainment, artistic excellence, rituals, celebrations' and more. Unlike in some creative industries schemata, 'both economic and cultural value lies outside "innovation" effects' (p 40). That means that creativity *must do more* than simply innovate and generate consumption, a seemingly obvious requirement for sustainability (Fig. 5.1).

Finally, O'Connor and Gibson lay bare the confusing and only sporadically present links between culture-creativity-the arts and so I quote them here in full, as the links they make between the UK's stumbles and the way that Australian creative industries policy is moving forward bear close scrutiny:

> A number of points need to be made here.
>
> 1. These criteria could describe almost any highly skilled input by managerial, or scientific, or technological, or social service, or educational personnel. That is, it just shifts the problem of defining creative away from industries and onto occupations.
> 2. 'Creativity' here is far too generic. It is unworkable as a definable input unless the kind of creativity and the kind of product are fully specified. In this case the 'aesthetic' or 'experiential' creativity traditionally associated with artists has been conflated with a range of other cognitive design functions, and indeed to all highly skilled, situated inputs into a product or service.
> 3. Using the presence of 'creative occupations' in an industry or economy as a proxy for the creativity and innovation of that industry or economy per se is thus highly problematic.
> 4. Focusing on creative occupations pushes questions of industry to one side, in favour of policies to support 'creativity', or skills, which remain vague and generic. NESTA has promoted voucher systems, which allow

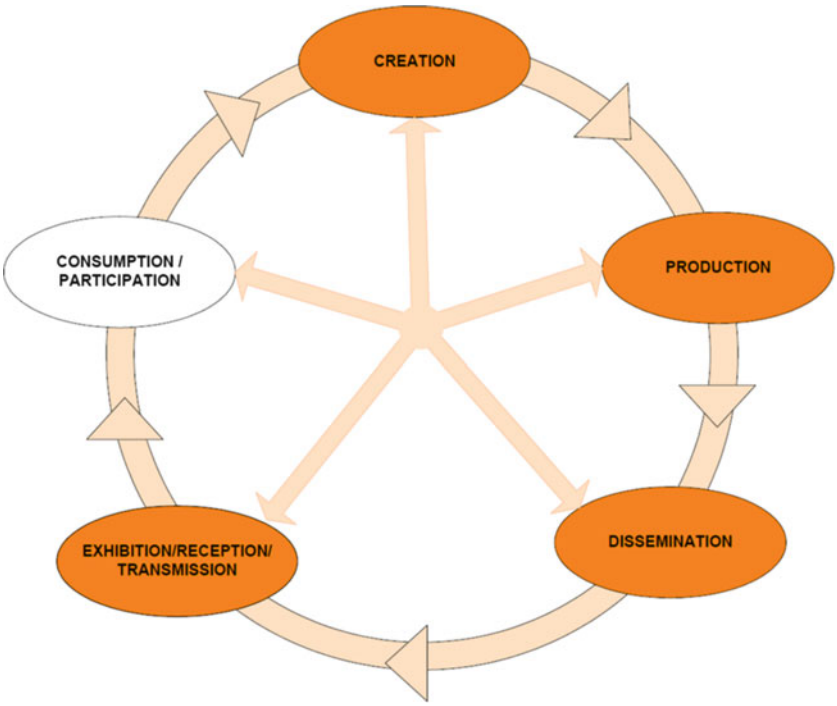

Fig. 5.1 The culture cycle (Source: UNESCO 2009 Framework for Cultural Statistics)

business to purchase design services. Other agencies promote IP awareness or access to finance for start-ups. But any systematic analysis of an industry and how it might be promoted disappears before a generic approach to 'spreading creativity'.

5. We might wish to see the cultural sector as a sub-set of the knowledge economy, but we also need to clearly distinguish between them for the purposes of counting and, more importantly, for the purpose of developing effective, targeted policy responses. In failing to make this distinction 'creativity' conflates too many sectors to be useful.
6. Creativity loses its connections to cultural value, which involves much more than 'novelty' or 'innovation'—such as identity, tradition, ritual, social bonding etc. And in reducing it to 'the application of creative talent to commercial ends' it ignores the range of non-commercial ends involved in the production of culture.

7. The presence of 'creatives' in an industry does not necessarily mean it is more innovative. It might be applying design and marketing principles to some pretty routine, non-innovative, non-sustainable products just as much as developing cold fusion or the next iPhone. 'Creative' occupations, on this definition, are not necessarily either innovative or creative. Many 'creative functions' can be—as they say in the design sector—simply 'putting lipstick on a pig'.

In conclusion we can say that both creative industries and creative economy:

i) Is confused and confusing, leading to a growing policy deficit in Australia, as the cultural sector frequently fails to recognise itself or unhelpfully divides into cultural/ creative and subsidised/ commercial;
ii) Is far too broad and generic to give policy purchase, as the wide sweep of 'creative economy' is useful in headline figures but fails to precisely identify where specific policy interventions can work best and on what precise object;
iii) Fails to specify a targeted rationale and set of tools for the complex area of 'design-led' products and services.
iv) Defines the economic value of the cultural/ creative too narrowly, focusing on the innovation effects rather than the broad and significant range of products and services involved in the cultural sector (see below).
v) Tends to reduce cultural value to economic value, thus making unhelpful divisions between commercial and 'subsidised' sectors, missing out on the range of connections between them and the different values generated for economy and society. (p 30).

Here O'Connor and Gibson have laid out a very clear sustainable/equity model that draws on an overall 'ecosystem' approach, which addresses the 'need to reframe the public value of the cultural sector' (p 69) which I would argue is needed for reframing the arts in education and finding better ways to make a 'linked-up' approach to reuniting culture, creativity, and the arts in education and other economies. Maybe *Creative Australia* did not find the audience it needed in 2013, but perhaps a scant two years later, it is time to move to a more networked global approach to creativity culture that is no longer framed by geographics, nations, or indeed the walls of schools.

Imagining Creative Futures

This chapter addresses the future, and the iterative process required to get there: recommendations for future teacher training, whole-school approaches to enhancing creativity, and building school-industry partnerships

to value-add the creative potential of schools. The 'post-it' approach to brainstorming creative solutions takes shape in this chapter in three distinct ways:

1. Two 'snapshots' of creative approaches to schooling in Australia, from two very different types of schools but both of which synthesise the possibilities of creative futures, in different ways. Read together, they ignite the creative education imagination and point to ways forward that combine creative technology with relationships in creative communities.
2. Three Innovation models of ways to foster creativity in your school
3. A 'creative skills' checklist for starting a conversation about creative change at your school level.

Today creativity across diverse education contexts, workplaces, policy shifts, communities of practice, and digital innovations cannot be divorced from the function of creativity as commodity, cultural component, and place-making practice. The hybridisation of creative cultures and creative education can be seen today in an exciting array of creative practices and sites that are both local and global, digital and tactile, online, offline, and more. Creative education futures include but are not limited to: EduTech (bringing together the learning lifecycle), MOOCs (decentralising teaching), 'slow' creativity and craft work (connecting the local and global), DIY and community/activist arts and education practices (teaching and making for social change), crowdsourcing and other networked approaches to maker and hacker culture. Like the opening of this chapter in the voices of Colnan and Jefford, in this next section I feature some voices and projects that represent in some measure the move toward networked cultures and how both creativity and education are organically present in such communities. To close, I will return to Anna Craft and the unique way in which she synthesised multiple forms of creativity, wisdom/trusteeship, and education for the future.

> *I guess one that sticks out is my 8th grade geometry teacher who had us build three dimensional houses and the standards and targets were very clear as far as what we're trying to demonstrate our knowledge of and mastery of, but the process itself was tremendously creative and involved a lot of refinement on our own part so that we were not just interested in doing these benchmarks but also in creating something that we could stand back and be proud of. (New York City teacher)*

Iterations

This chapter moves from school leader, teacher, and researcher perspectives, to the world beyond research and institutional education's walls. This last chapter looks toward the future of creative education, not 'future-proofing', as some aim to do, but 'future-celebrating' the unknown possibilities that educating for creative skills and capacities allows to unfold. The kinds of structuralists approaches I've examined in earlier chapters would suggest that this is where some conclusive schema for 'doing' creativity in education should come, neatly wrapping up all the creative complexities that this book has shown have plagued researchers and educators for much longer than we mostly remember. But this is not a structuralist approach, and I have no desire in this book to suggest that any one approach or tool can comprehensively address the 'creativity problem'. Therefore, in this final chapter I let creative education examples speak for themselves. The three best practice examples featured here all suggest very different ways of approaching creative education in the twenty-first century. Rather than superficially 'ticking off' the requisite attributes or strategies, such as creativity, critical thinking, or innovation, this chapter shows how educators can foreground an open-source, iterative approach to creative education. Having experienced how teachers, school leaders, and researchers understand creativity, this final chapter moves onto examining how fostering creativity in secondary schools is an iterative process that includes institutional and individual evolutions. This chapter shows how emerging creative education initiatives are responding to some of those recurrent themes of concern for teachers and school leaders in the four countries of the current study. Each project offers distinct and unique ways of addressing them.

While these three exemplars respond in iterative ways to the recurrent topics from the study, they also reflect many of the formative experiences of creativity described by the teacher commentaries. They embody contemporary topics of widespread concern including the role of technology as an enabler or impediment to facilitating creativity, the impact on traditional schools of artist/arts/creative partnerships, and lastly, they point to ways in which creativity has become a change agent for education policy, already inevitably shifting in seismic ways.

So to this end, I have designed this section of the final chapter in a way that I hope facilitates readers' experience of both the teachers' thematics being read and integrated against/into the three dynamic exemplars offered as iterative possibilities for creative educational problem-solving into our shared futures. I hope these design solutions take you far beyond the tired notion of 'incorporating creativity into teaching practice' but

rather that they offer you new ways of thinking about teaching itself, ways in which creativity leads, and the learning follows.

But the reason it's—to go back to your question—the reason it's changing is it has to change. And if it doesn't change, then we're going to be behind everybody else, but more importantly, I think, if it doesn't change, we're not really giving the kids the full ability to create at the level that technology in their house lets them create. So we're not keeping up in school with what's in their house …. there's nothing inherent about it at all. I consider people inherently creative, and technology can be used … so the medium for creating things used to be paint and chalk—let's just use visual as an example, and now the medium can be pixels'. It's a pen, I've seen as if a stylus a student uses, and can choose colours. And then you can save that digitally, can enhance it digitally. I can enhance photographs in this way or that way digitally. So I just think the media keep changing, and then the ways to share ideas change. If I want to look at a picture of particular thing, I no longer am just relegated to encyclopaedias, things that are in the library, or pictures that I have, or going and taking a picture of my own—nothing wrong with that, that might be even better in a lot of cases. But I still I can access a picture someone in New Zealand took immediately, and get onto their Flicker page and get more ideas that come from that. Here's an interesting thing. Thinking about creativity in conversations. I have conversations with my nephews and nieces all the time, and it used to be that when we ask a really interesting question about a fact—why is the sky blue? If I didn't have an answer, we'd then make a date to talk about it in the future after one of had visited a *library or something, or call someone. And in a lot of cases the follow-up conversation never really happened. Now we get that answer and pose three more questions in a few minutes, just by Googling it. And so the whole idea of impromptu conversations and creative conversations—something has opened up that wasn't there before. It's almost like this super consciousness thing that's between you and me, people on the other side of the world all held together electronically by our ability to share ideas across—instantly across—I could talk to you instantly. We Skype instantly to Australia, and we're in San Francisco. And it just wasn't a barrier now. So we can be creative together across all this distance. (San Jose vice-principal)* (Fig. 5.2)

It's never a product; it's always a process. (San Jose music teacher) (Fig. 5.3)

I think I really enjoyed going to a Montessori school for a couple of years as an elementary school student, yeah, and experiencing team teaching. Those teachers were from Ireland. They were kind of fresh off the boat and they had wonderful songs and culture that they brought to the fore and so we learned things that were outside of the norm and because it was Montessori there was an open classroom with lots of areas to explore and centres. So I had a lot of choice and I went further in areas of my interest than I might otherwise have been allowed to do or do and I think that helped me just become inquisitive and curious and somewhat experimental. (New York City, Bronx—principal) (Fig. 5.4)

INNOVATION #1 A new kind of game-based, play-based school called *The Institute of Play* (USA) http://www.instituteofplay.org They self-describe their vision and process this way: *'We create learning experiences rooted in the principles of game design—experiences that simulate real-world problems, and require dynamic, well-rounded solutions. We support teachers and other learning leaders in making learning irresistible—creating for students a powerful need to know, and a hunger to learn more. We believe in making learning relevant—to the technologies that shape our kids' lives, the passions that fuel their ambitions, and the demands of life in the 21st century. Our first initiative, the New York City public school* **Quest to Learn,** *serves as a living lab where we developed and continue to evolve a game-like approach to learning that is transforming not only student engagement and outcomes but also teacher practice in compelling new ways.'*	
The Innovation Using gaming to link to 'real-world' education—in fact, the so-called real-world is changing. So why shouldn't education?	**This study** Technology is talked about by some of the educators as a pervasive, mindless 'keeping up with the Joneses' in which no real teaching is going on, and digital literacy is an end in itself, and as a fact of life, the chief strength of which is students' engagement and ease with it which lends itself to creativity. They highlight the other side of this coin, which many feel is not addressed often enough or deeply enough: the disabling of creativity by technology when used mindlessly
Pivotal idea #1: 'Lessons learned from Camp Minecraft: Game designers know a lot about failure and iteration. Getting a play concept right on the 1st (or 50th) try happens infrequently and as a result, game designers quickly learn to traffic in the space of possibility—what if we did this? What if we changed that? Feedback from players fuels the iterative design cycle, helping to push a game from alpha through beta and beyond'	A lack of awareness of earlier forms of technology (e.g. a pencil and scissors); the loss of skills is commented on, particularly the opportunities to learn bodily, kinaesthetically: *'So they've all ordered iPads to all the schools, so they've brought iPads in and what are they using them for? All these apps. Well, there's no teaching going on. They're just kind of like games and all this kind of stuff. So we just spent all this money on iPads because that was—they were like, well, we need to bring in digital literacy… I think what is getting lost in technology is that a pencil is a piece of technology back in the day…. So is a pair of scissors.' (Vancouver)*
Pivotal idea #2: New media scholar 'Henry Jenkins (**Project New Media Literacies, USC**) interviews the three girl geek founders of Connected Cmaps, creators of the Summer of Minecraft virtual camps, about the ways that Minecraft has become an important space for connected learning'	*Different kinds of connecting: 'Every classroom in our school has a smart board. It is amazing what you can do. It's amazing what the kids can do. The kids taught us more about the technology than the company that brought it to us or than we taught the kids …. You can do silent voting. They have little hand held, remote control voting buttons, so you can do—you can do anonymous surveys in classes with the kids.' (upstate New York special education teacher)*
Pivotal idea #3: 'Teacherquest Case Files: Students Make Games for Teachers. *Lunchtime for most 7th graders consists of anything but more schoolwork. But…a special group of girls use their lunch periods to develop and test educational games.'* This notion of playing games together, especially games that are designed by the students, is creative and effective	The loss of associated skills (e.g. use of the dictionary, using the alphabet as an organising principle) is also bemoaned and seen as a deficit. Language as a tool/technology for communication is felt by many to be additionally devalued by digital technology, both online and offline

Fig. 5.2 Innovation #1: The Institute of Play

INNOVATION #2: Teachers as networked creative researchers in *The Curious Schools Project*

http://www.utas.edu.au/education/curious-schools for samples

https://curiousschools.wordpress.com

The *Curious Schools Project* states as its central aim 'Making Creativity Visible!' and it offers a website/clearinghouse of creative teaching resources created by the teachers themselves, as co-researchers. Look for a soon-to-be published book on this innovative project that has gained international attention for its structure and its creator, Mary Ann Hunter. The website says:

'The Curious Schools website which launched in May 2013 was developed in partnership with Arnold Aprill from Chicago Art Partnerships in Education (CAPE), using the CAPE website architecture. Each school site has a standard layout and is navigated via the 5 tabs at the top of the site: **Context, Inquiry, Story, Findings and reflections**, and **Curriculum Links**. The CAPE website has more than 100 different arts inquiries that have been documented over the past decade by American educators', and it's great to see the internationalisation of this site by the expansion into Tasmanian creative resources.

The Innovation	**This study**
Pivotal idea #1: Teachers as researching their own practices from inside schools	Some teachers in this study were frustrated that policymakers and researchers don't often want to hear what they have to say based on their lived professional experiences
Pivotal idea #2: Recognising that localised classroom works are globally transferable resources makes the most of digital networks—both in process and product	Programmes like Curious Schools highlight how not only creative outcomes in classrooms can be shared and measured, but creative processes as well
Pivotal idea #3: Directly sharing student-led works assists in the creative education goal of decentring learning and teaching	*If you're a creative educator, capitalise on that and say okay, you're really into this one thing…can you write me a computer programme that will rank works of art based on variation in colours. Can you build something that represents a historical idea that you need to know. This piece of content. So, I think allowing the child to be the impetus for the creative path we take is paramount. (NYC public school teacher)*

Fig. 5.3 Innovation #2: The Curious Schools Project

Ground-up Creating a Creative Nation

Creative Nation (1994) was Paul Keating's vision for building Australia's creative arts identity and productivity. It took nearly 20 years for the next like document to emerge, *Creative Australia: National Cultural Policy* (2013) released under Prime Minister Julia Gillard, and which evidenced much more integration of culture, creativity, and the arts than has been seen since. Yet did it change anything? Its executive summary stated that:

INNOVATION #3: The GoodWork Project—one of the many endeavours located at Project Zero, Howard Gardner (Harvard), William Damon (Stanford) and Mihaly Csikszentmihalyi (Claremont) http://www.thegoodproject.org *'The GoodWork Project was a large scale effort to identify individuals and institutions that exemplify good work—work that is excellent in quality, socially responsible, and meaningful to its practitioners—and to determine how best to increase the incidence of good work in our society.'* They have developed, amongst many other resources, the '*GoodWork Toolkit, a flexible curriculum that was developed by this project, to see a variety of course descriptions and course materials related to good work.'* What I love about this project is its flexibility and its ethical, educational, research, and creative robustness and interconnectedness.	
The Innovation Based on easy-to-use toolkits, this long-term project seeks to understand the nature of various 'goods' in society, including non-material ones	**This study** Like creativity, the notions of 'goods' and 'good' are complex ideas with diverse meanings. This project uses straightforward approaches to help youth approach complicated issues
Pivotal idea #1: 'The Good Collaboration (and other) Toolkits'	Toolkits are useful in helping people know where to start
Pivotal idea #2: Since 2007, our Good Play research group has been studying the relationship between involvement with new digital media and young people's ethical sensibilities and their sense of identity, intimacy and imagination. The Good Play Project involves both research and the development of educational interventions, and has been focused on five ethical fault-lines that we believe to be ethically salient in new media environments: identity, credibility, privacy, ownership and authorship, and participation (i.e. conduct such as online speech and treatment of others)	*Creative process is really just problem-solving. It's problem-solving. It's: here's my materials, here's what I've got, make something.* *(Singaporean drama teacher)*
Pivotal idea #3: GO STEAMPUNK: combining old and new technology for creative and curious learning (Hong Kong): http://www.thejakartapost.com/news/2015/08/06/young-hong-kongers-go-analogue-a-digital-world.html	*We just did a really fun project where we'd been doing all this learning and I said okay, here's a piece of cellophane—I wadded it up—I said, 'I want you to watch, what this cellophane.' I threw it on the floor and they all stood there, 39 of them staring at this piece of cellophane slowly—I said, 'Now go dance that.' I took some water and I said, 'Watch this, now go dance that,' and I took a balloon and I let it go and then I said, 'Now, go dance that. Now take those three things and go put them together.' (San Jose dance teacher)*

Fig. 5.4 Innovation #3: The GoodWork Project

Creative Australia aims to ensure that the cultural sector—incorporating all aspects of arts, cultural heritage and the creative industries—has the skills, resources, and resilience to play an active role in Australia's future. *Creative Australia* reflects the diversity of modern Australia and outlines a vision for the arts, cultural heritage and creative industries that draws from the past with an ambition for the future.

Creative Australia 2013

Design thinking—which entrenches design at the heart of the development process—now encourages growth, with organisations focusing on how scientific, managerial, and creative support can help companies get off the ground and grow…Creative thinking and design will play key roles in bringing innovation to the core of Australia's industries, across all sectors. Government, the cultural sector and industry have a role to play in forging partnerships between creative industries and manufacturing, education, health, and other sectors. This approach has the potential to lead to new ways of conducting business, with increased productivity and efficiency across the economy…To ensure Australia's success as a leading provider of creative services to our region, an arts education will be central to all students' lives. (94–96)

http://creativeaustralia.arts.gov.au

Fig. 5.5 O'Connor and Gibson 2014, pp 29–30

Though most of the report's '152 pages focused on how to promote arts and culture in general, seven were devoted to "Creative Industries, Commerce and the Creative Economy"' and despite some intermittent and confusing jumping between '"arts", "cultural" and "creative" as descriptors', it is already evident that 'design' is being positioned 'as the primary commercial benefit of cultural/creative industries. However, in its description of design it is not clear how it relates to the "arts and cultural sector" or why "arts education" should be so central to its development' (p 29).

The excerpt from O'Connor and Gibson in Fig. 5.5 shows that the vision of policymakers has been geared solidly toward creative industries for some time.

Creative Australia had five linked goals at its core:

GOAL ONE: Recognise, respect and celebrate the centrality of Aboriginal and Torres Strait Islander cultures to the uniqueness of Australian identity.

GOAL TWO: Ensure that government support reflects the diversity of Australia and that all citizens, wherever they live, whatever their background or circumstances, have a right to shape our cultural identity and its expression.

GOAL THREE: Support excellence and the special role of artists and their creative collaborators as the source of original work and ideas, including telling Australian stories.

GOAL FOUR: Strengthen the capacity of the cultural sector to contribute to national life, community wellbeing and the economy.

> GOAL FIVE: Ensure Australian creativity thrives in the digitally enabled 21st century, by supporting innovation, the development of new creative content, knowledge and creative industries. (p 6)

*

These goals are a long way from being realised and indeed seem to be vanishing in the creative distance under today's Australian cultural policy. Instead I return to the pro-action of the Government of Wales in issuing their globally influential strategy document (Welsh Government 2015) that strongly recommends a recombination of arts and creative learning as a basis for fostering creativity across whole schools. This document states their governmental commitment to leading in educational reform to improve the conditions for creativity in all Welsh schools. Their recognition of the interconnectedness of creativity and arts education is reflected in their 12 recommendations including:

> *Recommendation #4: that all initial teacher training (ITT) delivered by HE institutions in Wales should ensure that creative teaching methodology is 'core' to educational practice;*
> *(#6) The Welsh Government should support the fostering of schools 'arts champions' within the new national plan for creative learning;*
> *(#7) …The Arts Council of Wales and Local Government should be remitted to work with local authorities and education consortia to prioritise a range of specific initiatives, to support and develop creative teaching;*
> *(#8) …that a Creative Education Portal is developed*
> *(#9) …to establish 'Creative Learning Networks' to encourage arts, artists, teachers, parents and educationalists to exchange ideas and information, and to work together with Professional Learning Communities to improve standards of creative learning in schools.*
> *(#11) …should work in partnership to support a stronger focus on providing more balanced careers advice to young people to highlight opportunities and pathways in the arts and creative industries sector;*
> *(#12)… undertake a periodic audit of Welsh schools to assess the embedding of creative learning, and the quality of the ongoing arts experience and its impact on literacy and numeracy outcomes.* (2015, pp 18–19).

Kick-Starting Your Creative School

While such checklists are frustratingly simplistic, and incomplete on their own, I have been asked for over two years now by teachers, students, and school leaders in four countries for a straightforward place to start a guide

like a checklist that will help busy people have a language or a template for knowing what to include in your creative teacher professional development activities, your teacher education, or paste up on your classroom walls. This was the genesis of my Top 10 Creative Skills and Capacities list (see Chapter 3). But even that alone was insufficient to offer teachers a consistent, step-by-step but whole-school tool for fostering creativity. So while I still recognise its insufficiency, I offer it here with hesitation, and as only the beginning of what I hope will always become a complex conversation that occurs within safe and supportive educational relationships—the perfect conditions for fostering creativity (Fig. 5.6).

Certainly various bodies' recommendation of improving teacher preparedness to include explicit teaching of creativity skills as core to all teacher education courses is becoming a unanimous call, and something that can be affected immediately. In Australia, the Australian Institute for Teaching

1.	That pre-service teacher education should ensure that creative teaching methodology is 'core' to educational practice	
2.	That in pedagogical and curricular approaches to creativity in education, that arts, culture, and creativity be recognised as interdependent	
3.	Establish Creative Education Networks to assist in training and confidence-building of teaching staff and leadership	
4.	Maintain regular review through Creative Education Summits	
5.	Schools conduct annual Whole School Creativity Audit	
6.	Schools undertake professional development opportunities to train staff in creative skills and capacities	
7.	Schools establish and maintain creative industrial partnerships that provide real-world networks and opportunities through which their students may expand their skills and professional opportunities	
8.	School-based timetable reform for increased interdisciplinary collaboration, a core condition of creativity	
9.	School-based review of policies and procedures (using tools such as the Whole-School Audit in Chap. 2)	
10.	Adopt and adapt a toolkit from outside the school if appropriate, or invent your own (for example, use a Design Thinking or SAGE approach)—whole-school approaches are required	

Fig. 5.6 Creative education skills—a checklist

and School Leadership (AITSL) Teaching and Principal Standards should be changed to include baseline creative competencies or literacies, and the state curriculum authorities should be required to review their Year 11 and Year 12 testing to come more into line with the Australian national curriculum and other education vision documents. But the groundswell of school- and teacher-led change can and will continue, as the emerging data from my latest study shows (Fig. 5.7).

Based on current creativity literature and emergent themes from the Australian study, and representing the contemporary shift from individual to social, cultural and collective creativities, the **Harris Creativity Index** provides one consistent and measurable tool for fostering creativity across the education lifespan. A comprehensive program may be that schools use the **Harris Creativity Index**, together with the Whole School Audit, the Top Creative Skills and Capacities from Chapter 3, and the Creative Education Skills Checklist, as their step-by-step guide to fostering better marco-creativity across their school community, not just at the individual level.

Harris Creativity Index

Strategy 1 – creative approaches / teacher development
Strategy 2 – cross-curricular collaboration
Strategy 3 – allowing students to lead
Strategy 4 – real-world skills and assessment
Strategy 5 – creative partnerships / links with community
Strategy 6 – better resources

Through these areas of professional development, school leaders should commit to ongoing development serving the following three core foci:

Focus 1 – Creative Environments (Amabile)
Focus 2 – Assessing Creative Processes and Products (Spencer, Lucas & Claxton 2012)
Focus 3 – Creative Industry Partnerships

Fig. 5.7 Harris Creativity Index

Conclusion: Coming Home to Anna Craft's Trusteeship

I really believe what's driving the whole thing is [students'] need to create something beautiful together and do it together. That's what's driving this whole thing, not the critical part, even though the critical part is in there. I would say that it's a tendency to make things out of nothing. The ability or the inclination to start with the mind, start with an idea, and make something tactile, something real. And that can be something like a dance, or a song, or it could be something physical that you touch, or it can be a class, a lesson, a situation. I always would've defined creativity in terms of science, because I like animals and plants, and so I became a biology major, and I had a really good instructor in college—a nun, as it happens—who would take role by asking you, 'Anne, would you please propose an experiment to prove that cattle have an enzyme in their stomach to digest cellulose?' That's how she took roll. This was creativity, and I saw it as creativity. I would go to my anatomy classes, and I would sit, and I would draw the muscles and nerves, and so forth that I saw in my notebook. If you don't care about each other, you don't care about the school, because the school is really the people in it. And it's the people who live in the area who go to it, and then they send their brothers and sisters, and then they send their children. And when you can say, 'Yeah, your uncle was my student,' or 'I knew your mom and she got in trouble for smoking' or whatever. That's like a whole other—when you start calling everybody 'honey' and 'kiddo' and stuff like that, all of a sudden—and you start getting more hugs than handshakes, then you want to do all that stuff for the school, and creativity just becomes a—it's something you really want in there as much as possible for them. (San Jose vice-principal, opera singer and Biology teacher)

The focus of this chapter and indeed this book has been a slow build toward a new way of thinking about creativity in secondary education. Incorporating aspects of past approaches, assessments, and embodiments, with an emergent Design Thinking approach, can bridge the vast body of experience in this field with new—dare I say—innovations. Schools are slow to change. If Design Thinking has one great gift to give education, and in particular secondary schools, to me is it's fearlessly hands-on approach, one that appeals to the adolescent in all of us. Design Thinking tells us to keep trying, relentlessly, persistently, try and fail. Do mock-ups, wear your DIY ethic like a badge, let everything become models of your ideas, let it evolve until it arrives at a 'temporary' solution. One that can change. And one that is only a portal to something bigger, to connectivity. How wonderful would it be if the senior years of high school could be

characterised this way, instead of exam anxiety and fixed notions of success or failure?

If Australia chooses to go the direction of the UK's *Creative Partnerships national Change Schools Program*, we can certainly see evidence from robust evaluations of that programme that it increased creativity in schools (CCE Evaluation 2011). Yet is that the best way to foster creativity in education, given the critiques of this approach, and its ultimate end? I think these antecedents place Australia (and others) in a good position to learn from their mistakes and approach this crucial transition stage in a more holistic manner. Finally perhaps we find ourselves back where we began, with Anna Craft's heartful scholarship building upon the still-emerging contribution of Howard Gardner. In some ways, Gardner (and Craft) are becoming more relevant today than when they were first championing multiplicities and collectivities in their different contexts. The 'slow education' approach of Gardner's *5 Minds* schema—including 'The Synthesising Mind' which perhaps first articulated what Design Thinking is now usefully recycling—is a model for a way of creatively being that is focused on the *thinking*, not the doing. Like adopting Design Thinking to education, Gardner's approach feels like a new way of thinking about the world, and above all about problem-solving, because the world itself is new.

Gardner calls his stages 'Period of development' (rather than ideate) and 'pseudoforms' (instead of prototypes) but he also offers us a practical process for moving forward. His four-stage schema which includes *Examples* (formal education), *Examples* (place of work), *period of development* and *pseudoforms* (Gardner 2006, p 156) may help some educators foster creativity in their schools in a way that integrates a whole-student approach with a productivity imperative that is more responsive to our times. The method you choose to use for taking action toward more creative schools is not as important as the call to be creatively open and educationally daring, as Anna Craft called us to be.

In closing, I return to Craft's call to trusteeship, which I believe is the pivot between all the debates, models and innovations offered in these pages. She suggested that, in synthesising the past with what we hope for the future, we are still in need of 'clear narratives, or values, to inform education in the future…and the two elements that seem particularly live for creativity in education are the relating of the future to the past and present, and the more and ethical framework' (2008, p 11). This call to trusteeship in our work for creative educational change seems to be a salient place to end this text as we 'educators strain to be aware of what

is over the horizon for learners, teachers and learning systems' (p 11). By working to stay collective in our creative endeavour, teams of teachers, students, researchers, and policy makers can recommit (including through our multiple approaches) to 'develop community trusteeship' and 'creative educational futures with wisdom' (p 11) as Craft called us to do. I hope this book will be a useful contribution to those creative and trusting efforts.

Appendix 1: Interview Questions for Teachers and School Leaders

Context

1. What subject areas and year levels do you teach?
2. How long have you been teaching?
3. What type of school do/did you work in? (public, private, independent, religious)

On Creativity (Personal)

4. Do you have a personal notion or definition of creativity, and can you share it with a story or a statement?
5. Have you had a pivotal experience of creativity in your own education, either good or bad?
6. Do you believe definitions of creativity in education are changing, or have changed, in recent times? And if so, what is driving it?
7. What is your most recent educational experience of creativity?

On Creativity (Professional)

8. In what ways do you feel you bring creativity into your work as a teacher? Can you tell me a story about that?

A. Harris, *Creativity and Education*,
DOI 10.1057/978-1-137-57224-0

9. Creativity 'Hot Spots': Where do you see creativity as most evident in your own school environment or practices, outside of your own classroom/work)?
10. Are there any curricular demands on you to incorporate (or avoid) creativity in the work you do (as in a national curriculum etc)?
11. Do you believe there are any core creative skills that are transferable? (e.g. 'collaboration' is a core skill of drama creativity, and is transferable to other subjects). And if so, what are they?
12. Do you believe creativity is measurable/assessable, and if so HOW?
13. What kind of relationship do you see between creativity or creative industries and high schooling in 20 years' time?
14. What is the greatest obstacle to creativity in your school?
15. Blue sky question: If you were given a zillion dollars and two or three years and told to foster creativity here across the whole school, what would you do?

Appendix 2: Student Creativity Survey

Thanks in advance for answering the following questions.

BEFORE YOU START

Think of an example

The questions below are a mix of questions. As you answer them, it might help to think of an example of a particular situation in the past year when you feel you really had a chance to 'put your stamp' on some work, be creative and apply yourself. It doesn't matter what - it could have been a maths game, the school band, a play, planning the school formal, the 'Night of the Notables' event (if you do that), a science experiment – or ANYTHING ELSE you can think of!

Q1 What school do you currently attend?

Q2 What age bracket are you in?

- □ 12–14
- □ 15–16
- □ 17 and over

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Q3 Using your creative example referred to above, tell us

- what was it? What were you doing or making?
- did you have a choice in what you did?
- how long did it take?
- did you encounter any hurdles or problems when doing it, and if so, how did you overcome them?

Q4 Using the same creative example, did you do it by yourself or with other people (in a group or a pair)?

Q5 Did you get the chance to be imaginative and develop your own ideas? If so, please tell us what they were and how you did this.

Q6 What do you think 'being creative' means?

Q 7 Thinking of that creative experience (or any others you can think of) how much do you agree with the following statements?

	No Way! I strongly disagree	I disagree	No strong feelings either way	I agree	I absolutely agree!
I felt completely into it	O	O	O	O	O
I had time to work on it	O	O	O	O	O
I could explore and investigate what I was interested in	O	O	O	O	O
I felt happy at times	O	O	O	O	O
I felt bored at times	O	O	O	O	O
I had to concentrate hard but that was good	O	O	O	O	O
I felt pride in what I achieved	O	O	O	O	O
I collaborated with others	O	O	O	O	O
I had to do some research to be able to do it	O	O	O	O	O
I used my intuition	O	O	O	O	O

Q8 What skills, and how much effort, were involved in what you did? Did it take practice to perfect it or to make sure it worked properly?

Q9 How much do you agree with the statements below?

	No Way! I strongly disagree	I disagree	No strong feelings either way	I agree	I absolutely agree!
Creative achievements are recognised and celebrated at my school					
At my school I have the chance to initiate activities and projects	O	O	O	O	O
The school listens to the students	O	O	O	O	O
The school supports the students making decisions that affect how the school runs	O	O	O	O	O
The students are encouraged to advocate for things at my school and the school leadership will listen	O	O	O	O	O
The teachers encourage me to personalise aspects of my learning so it's more meaningful to me	O	O	O	O	O
Every year I get the chance to do a project or activity that cuts across subjects	O	O	O	O	O
Students can get involved in how student work is displayed around the school or in the school newsletter.	O	O	O	O	O

Q10 In the text box below, complete the sentence: 'My school environment could be more creative if ....'

Q11 Describe the most creative teacher at your school (without naming her or him). What does he or she do that is creative or allows you to be more creative?

THANK YOU SO MUCH FOR TAKING THE TIME TO COMPLETE THIS SURVEY.

If there is anything you want to add about your experience of creativity? Please tell us

IN THIS SPOT!!!

Appendix 3: Lucas' 5 Dispositions Model

Lucas et al. Five Creativity Dispositions Model (2013) with additional characteristics of creative schools derived from CCE's Change School CSDF (Creative School Development Framework) Planning Form (2010)

A tick (√) indicates the question's explicit focus on disposition or characteristic indicated in the column, but the student's answer might involve several of the other dispositions and characteristics not indicated by a √

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	Q.3 Open	*Q.4*	*Q.5*	*Q.6 Open*	*Q.7 a*	*Q.7 b*	*Q.7c*	*Q.7 d*	*Q.7 e*	*Q.7 f*	*Q.7 g*	*Q.7 h*	*Q. 7 i*	*Q. 7 j*
1. Inquisitive/curious/exploring challenging assumptions	√, choice,				√		√						√	
2. Persistent/tolerance of uncertainty	√ time									√				
3. Imaginative/playing with possibilities, making connections, using intuition	√?		√											√
4. Collaborative/sharing the product, giving and receiving feedback	√?	√										√		
5. Disciplined/crafting and improving, developing techniques and skills, devoting time, reflecting critically to evaluate ideas.	√?, time					√			√	√			√	
Emotion								√	√		√			√
School recognition of creative achievement (on a par with sport and academic achievement)														
School leadership responsive to/ supports pupils' involvement in decision-making and initiative														
Interdisciplinary/cross-curriculum activity														
Personalised learning is established practice														
Systematic development of components of creative dispositions														

	Q.8	*Q. 9 a*	*Q. 9 b*	*Q. 9 c*	*Q. 9 d*	*Q. 9 e*	*Q. 9 f*	*Q.9 g*	*Q.9 h*	*Q. 10 Open*
1. Inquisitive/curious/exploring challenging assumptions			√				√			
2. Persistent/tolerance of uncertainty	√									
3. Imaginative/playing with possibilities, making connections, using intuition										
4. Collaborative/sharing the product, giving and receiving feedback				√?			√?	√?		
5. Disciplined/crafting and improving, developing techniques and skills, devoting time, reflecting critically to evaluate ideas	√					√?				
Emotion										
School recognition/celebration of creative achievement (on a par with sport and academic achievement)		√								
School leadership responsive to/supports pupils' involvement in decision-making and initiative			√	√	√	√			√	
Interdisciplinary/cross-curriculum activity								√		
Personalised learning is established practice							√			
Systematic development of components of creative dispositions										

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A. Harris, *Creativity and Education*,
DOI 10.1057/978-1-137-57224-0