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GROWING FUTURE INNOVATORS

A new approach to learning
programs for young people

By Dr Julie Robson
and Dr Luke Jaaniste

A scoping study through Edith Cowan University in
partnership with the Perth Institute of Contemporary Arts
with the support of The Fogarty Foundation

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Cover image: **The “Elastic Frontiers”**
project with artist Dan Shippides.
Photograph by Adam Farady, courtesy
of Arnolfini, Bristol, UK.

Executive summary

Growing Future Innovators is a ground breaking new project that examines how contemporary arts institutions can work with schools to educate for innovation. Historically, connections across these domains have not been readily acknowledged let alone celebrated, however, many fruitful intersections are being explored between innovation (new ideas and change), arts (creative-cultural engagement) and education (teaching and learning).

The dynamics of innovation

Innovation is about fostering new ideas and ways of doing things that lead to greater civic, economic and cultural prosperity and wellbeing.

While innovation is as old as humanity itself, awareness of its public value has grown steadily over the last century, and innovation is increasingly cited around the world as key to addressing our current and future challenges and opportunities.

In Australia, innovation has been an overt preoccupation of national policy makers from the 1990s onward. It was most recently re-examined in the federal government's Review of the National Innovation System and *Venturous Australia* report in 2008, both of which culminated in the government's *Powering Ideas* agenda paper in 2009.

Historically, there has been a narrow science and technology focus within innovation policy. This is now expanding, however, as other domains and stakeholders begin to engage and contribute. The rise in debates around creativity and the creative industries has, for example, seen ideas within the arts and humanities change the way we can imagine the innovative workplace, classroom and community. Consequently, contemporary

theoretical frameworks are being elaborated to incorporate multiple dimensions and types of innovation.

The 'cycle of innovation' is the term used to describe the process of generating, applying and disseminating knowledge and ideas. The cycle of innovation is fostered by our 'innovation system', a varied network of people, organizations and policies that support and regulate aspects of innovation activity, and which in turn is highly influenced by a society's wider educational and cultural milieu. Ultimately, the goal of innovation-focused policy and programs is to increase the capacity of the innovation system so that we can be more innovative, more of the time.

The role of education in innovation

The education sector can foster innovation by developing the skills and values required for an innovative workforce and society. While education alone cannot produce a more innovative society, formal and informal opportunities for learning have a significant part to play in building innovation cultures and capacities.

Educating for innovation is the responsibility of many but the contribution of schools is especially crucial. Their reach across society and their involvement in the early years of learning makes them vital. In many parts of the world, schools are recognizing that innovation is an essential part of 21st century learning. Further research on how to pragmatically implement this agenda is, however, now a priority.

The core competencies of innovation that education can cultivate have been identified as creativity, self-efficacy, energy, risk-propensity and leadership. While innovation skills, it is argued, can be developed in everyone—not just the extremely talented or those in certain subject disciplines, designing the delivery, assessment and measurement of programs that reliably foster these is likely to be a major project for years to come.

Educating for innovation in schools depends strongly on the range of people and practices that forge the health and creative ecology of the school itself. Notably, there are structural weaknesses at the very heart of schooling systems and policy initiatives, many of which are revealed as being outdated and archaic. Even without major national reforms in education, however, a paradigm shift in teaching and learning is occurring.

Within the 21st century education paradigm, teaching and learning is framed as inherently a partnership endeavor, one that is based on personalized relationships and flexible, reciprocal networks. Student-teacher relationships, it is encouraged, can be based on co-learning dynamics and supported by a range of internal and external school partners, including peers, families and community organizations. Extra-curricula opportunities can also be the preferable and more realistic contexts for innovation learning, and new digital technologies are another significant enabler.

As suggested by Kirkland and Sutch (2009), a school's capacity and support for innovation is usually determined by seven factors: perceptions of innovation itself; the health of a teacher's social network; levels of risk aversion amongst staff and students; the nature of the formal school environment; the type of leadership style; the existence of a shared vision; and processes for managing change. Barriers to innovation are thought to be more successfully overcome when schools find local solutions rather than waiting for the implementation of top-down strategies or blanket policies. Additionally, it will be essential to draw on the support of various networks and partnerships in learning.

Contemporary arts institutions and educating for innovation

In spite of the growing contribution of the arts sector to innovation agendas, explicit links between arts education and innovation (as opposed to creativity) are still largely under-explored in policy and research. Arts education, however, is increasingly valued and recognized for improving achievement levels in young people as well as providing a more holistic approach to learning.

This recognition prevails in a time when cultural institutions seek to be of value to

a wide range of audiences, with children, families, teachers and schools becoming increasingly prioritized visitors. As cultural institutions become more dedicated and inclusive sites for formal, informal and lifelong learning, understanding their contribution to education for innovation is ripe for exploration. Their dynamic programs can be so demanding to implement that rigorous longitudinal evaluation and research is rarely possible without additional resources and support.

Seven ways contemporary arts institutions can connect schools to innovation

Drawing on interviews with 18 major cultural organisations from Australia and the United Kingdom, this report has found seven associative links to describe the ways that contemporary arts institutions can connect schools with innovation. In short, contemporary arts institutions can:

- connect schools to artistic innovators and innovations (*content about innovation*);
- provide schools with access to, and experimentation with, new media technologies and a range of other innovative products and processes (*methods for innovation*);
- help schools to cultivate innovation attitudes and competencies such as creativity, self-efficacy, energy, risk-propensity and leadership (*the dispositions of innovation*);
- develop innovative and arts-integrated approaches to teaching and learning that energize and expand curricula and pedagogies (*pedagogies for innovation*);
- broker and build partners and relationships for supporting innovation that are long-term, reciprocal and personalized (*partnerships for innovation*);
- embody and exemplify innovative practice through organisational management and business operations (*institutional practices of innovation*);
- critically frame arts and cultural activity within the context of wider innovation contexts and philosophies of change (*the contexts of innovation*).

Roo Full Moon - Luke Davey, taken at Punmu.
Photo courtesy of
AWESOME Arts



Recommended next steps

Based on the review of literature, policy and practices covered in this report, the overarching recommendation is to forge stronger interdisciplinary partnerships that can educate for innovation. Researchers, school constituents, contemporary art institutions and other stakeholders should seek to create reciprocal learning networks that are jointly focused on initiatives that increase innovation cultures and capacities.

Optimally, initiatives would be designed in response to local contexts, challenges and ideas, and draw on the available resources of the combined partnership. Research into these initiatives should, where possible, employ a longitudinal approach to trialing and testing, so as to contribute better to policy developments and wider arts, innovation and education discourses.

Additionally:

Researchers can develop a clearer profile of the arts and cultural innovator; design more robust tools to measure innovation competencies; make links to innovation within the new national curriculum framework; and grow understandings of how innovation

cultures and competencies can be forged in extra-curricula experiences as well as the classroom.

Schools can critically reflect on their capacity to support the innovation agenda; partner and diversify their means of engagement with contemporary arts institutions; develop stronger 21st century learning environments that support the cultures of innovation; facilitate knowledge transfers beyond arts fields and curriculum contexts.

Contemporary arts institutions can actively promote the language and exemplars of innovation in the arts; provide young people and teachers with access to artists' methods and skills of innovation, which also have the potential transform approaches to learning and curricula; align with business and community partners who can philosophically and financially support ambitious learning initiatives for innovation; identify strategic ways in which the institution itself can lead change; integrate the innovation and education agenda across internal staff teams; use the institution's knowledge and networks of innovation to meet, lead and grow the ideas and interests of school constituents.



The “Elastic Frontiers” project, Arnolfini, Bristol, UK. Photograph by artist Dan Shippides.

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Introducing the project



Photograph courtesy of the
Perth Institute of Contemporary
Arts, Perth.

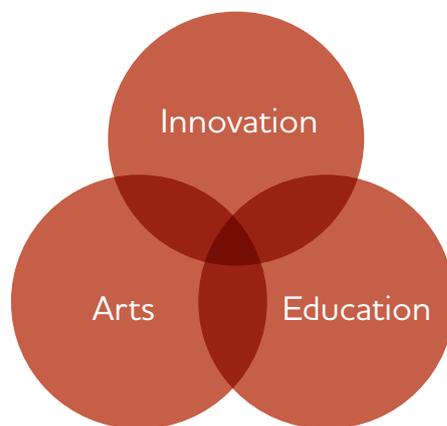
The idea

In 2008, the federal government's Review of the National Innovation System (RNIS) invited Australians to respond to a set of key questions, one of which asked:

What mechanisms could we put in place to support a culture that promotes the generation of fresh ideas and risk-taking?

Of the staggering 700+ public submissions to the review, several dozen argued that the arts and cultural sector could uniquely contribute to an innovative country. Two of those responses were by the Faculty of Education and Arts at Edith Cowan University (ECU), and the Perth Institute of Contemporary Art (PICA) in Western Australia. This initiated a dialogue between the institutions on how the contemporary arts might grow future innovators through teaching and learning programs for schools and young people.

The conversation between the institutions had currency with a range of national and global debates at the intersection of innovation, education and the arts.



Historically, connections between these domains have not been readily acknowledged let alone celebrated. For much of the twentieth century, innovation theory and policy were almost entirely concerned with scientific knowledge and manufacturing technologies. Models of formal education have become steeped in nineteenth-century industrialism rather than twenty-first century innovation. And while artists and arts commentators have long used terms like 'innovation' to describe exploratory

practice, they have mostly done so outside of innovation policy frameworks.

These days, however, many fruitful intersections are being explored between innovation (new ideas and change), arts (creative-cultural engagement) and education (teaching and learning). This trinity has informed the key questions of the *Growing Future Innovators* project and partnership:

- How might 'educating for innovation' be better served by the arts?
- How might arts-led education contribute to, and be re-imagined by, an innovation focus?
- How might the emerging 'arts and innovation' platform be interrogated and improved by the education debates?

The project

Growing Future Innovators (GFI) has been envisaged as a long-term project that aims to identify, generate, trial and evaluate the most effective mechanisms for promoting the culture and dynamics of innovation to young people and teachers in primary and secondary school contexts across arts and non-arts disciplines.

GFI has been established through ECU's Centre for Entertainment, Arts, Technology, Education & Communications (CREATEC) in partnership with PICA. Research to date has been jointly funded by ECU's Industry Collaboration scheme as well as support from The Fogarty Foundation. The ARC Centre of Excellence for Creative Industries and Innovation (CCI) has contributed by providing research expertise and exchange. The project has also benefited from the generous assistance of the broad network of cultural institutions and schools who participated in the research.

Overall, this project addresses the need to:

1. foster an innovative workforce and society;
2. place contemporary arts in the innovation debate;
3. link cultural and educational institutions to the innovation system; and
4. develop better ways of measuring the impact of arts learning and the development of innovation skills.

This report is one of the outcomes of a preliminary scoping study undertaken as the first stage of the *GFI* project. Besides sharing its findings with broader arts, education and innovation sectors, this preliminary scoping study has sought to establish the direction and design of future phases of the *GFI* project, which will include deeper consultations and a pilot program with schools, arts and cultural innovators, and business and community partners. From 2011–2013, the project is being supported by Rio Tinto as Principal Partner and will receive ongoing assistance from the Fogarty Foundation. The scope of the project also provides an opportunity for other individuals and organisations to be a part of this exciting and ambitious initiative.

This report

This report sets out the argument and background information to support a three-year pilot project in Western Australia from 2011–2013. *GFI*. The report is co-authored by Dr Julie Robson (research fellow, CREATEC) and Dr Luke Jaaniste (research fellow, CCI), with input from Amy Barrett-Lennard (director, PICA) and the assistance of many others (see Acknowledgements).

Across its five sections, this report canvasses key concepts, issues and exemplars to consider when designing arts-led innovation programs for schools, and identifies areas for more detailed, ongoing research.

Sections 1 to 3 review the literature on innovation, education and arts within policy developments and academic research. These chapters reveal pertinent intellectual and policy contexts and achievements, as well as tensions and historical biases that need to be taken into account.

Section 4 reviews case studies of best-practice learning programs of leading contemporary arts institutions from Australia and the United Kingdom based on interviews and field trips conducted by Julie Robson and Amy Barrett-Lennard. Using a range of examples, seven ways that cultural organizations can connect schools with innovation are highlighted.

Finally, in Section 5, the report outlines practical recommendations for the ongoing work of researchers, schools and contemporary arts institutions in the collaborative venture of educating for innovation via arts-led programming.

1

The dynamics of innovation



Boy Touching Sculpture,
AWESOME International Arts
Festival for Bright Young Things.
Photograph by Ken Drake, courtesy
of AWESOME Arts, Perth.

Innovation is about fostering new ideas and new ways of doing things that lead to greater civic, economic and cultural prosperity and wellbeing. Big ideas and great changes in history reveal the extent to which humans are innovative, witnessed in advances like the advent of writing, the development of musical harmony, the discovery of the theories of gravity and relativity, and the introduction of the internet. But innovation is also about the small changes we make each decade, year and day to solve challenges and take up new opportunities, whether as individuals, teams or communities.

While innovation is at least as old as humanity itself, the last decade has seen an explosion of interest in the topic. As we outline in this section, the idea of innovation has grown exponentially in public importance, in terms of those who contribute to it, and in its theoretical frameworks. Because so many people are involved in innovation in so many different ways, it is not surprising that no one overview does justice to it; what we present below simply begins to map out its current and inter-connected dimensions.

1.1 A growing global importance

Awareness of the public value of innovation has been growing over the last century and especially the last decade. As Godin has outlined,¹ the term originally entered the vernacular in the thirteenth century to describe changes in legal contracts ('novations' as they are still termed). In the early twentieth century, innovation became a focus of various anthropologists and sociologists to help describe the way human cultures change. In the United States and Europe, academic interest then merged with industry interests and government policy development.

By the 1990s, innovation emerged as an overt public concern, and it has only continued to grow in reach and significance since. This has been largely driven by the work of the OECD (Organisation for Economic Co-operation and Development), which represents the developed democratic economies of the world. For example, the OECD's 'Oslo Manual' for the measurement of innovation (with the 1st edition dating to 1992) and its ongoing National Innovation

Systems project (launched in 1997) have been significant initiatives.²

As we move into the twenty-first century, innovation is increasingly cited as the necessary response to contemporary challenges. We live in 'interesting times': a period of massive global change with many difficulties but also many opportunities. We face complex problems with global, ecological, social, economic and political issues. Conversely, developments in new media, technologies, social formations, inter-cultural sensibilities and global markets have opened up opportunities for different connections, collaborations, commerce and community.

The innovation agenda, then, is a public expression of the realisation that current ways of operating are not going to work in the future or could work better. Government, business, community and intellectual leaders increasingly acknowledge this:

Today, innovation performance is a crucial determinant of competitiveness and national progress. Moreover, innovation is important to help address global challenges, such as climate change and sustainable development.

(OECD)³

Everything is changing and it will continue to change. And the change is accelerating. If people aren't able to see the change that's coming and... take advantage of it, it's going to be devastating. That's why... forward-looking public policies around innovation are so critically important.

(Governor Pawlenty, Minnesota)⁴

If we project what the world will be like 10 years from now without innovation in health, education, energy, or food, the picture is quite bleak... However, I am optimistic that innovations will allow us to avoid these bleak outcomes.

(Bill Gates)⁵

Innovation and Humanity must serve as one, in our undisputed and collaborative efforts to create new products & services, industries, leaders and opportunities the world-over. We must all be social entrepreneurs both in and outside of the workplace. It is no longer a choice; it's the 'new normal'.

(Centre for Innovation and Humanity)⁶

¹ Godin (2008)

² OECD (1992, 1997a, 1997b, 2005)

³ OECD (2007:5)

⁴ quoted in National Governors Association (2007:1)

⁵ Gates (2010)

⁶ Centre for Innovation and Humanity (2010)

In Australia the growth of the innovation agenda has paralleled global trends. Having emerged as an overt public policy platform in the 1990s, it increased greatly in importance in the 2000s. The landmark national policy moment was the release of the Howard government's multi-billion dollar *Backing Australia's ability* in 2001,⁷ which was released after the National Innovation Summit⁸ held in Canberra the previous year. Since then, the government has led several rounds of national innovation reports, policies and inquiries. With the change of government in 2007 came the Review of the National Innovation System (RNIS), which resulted in the *Venturous Australia* report in 2008, followed by the government response *Powering ideas* in 2009.⁹ Within these two reports, the importance of innovation was again reiterated:

There are few subjects more central and fundamental to Australia's economic, social and environmental future than innovation. (Terry Cutler)¹⁰

Innovation is not an abstraction. Nor is it an end itself. It is how we make a better Australia, and contribute to making a better world—a prosperous, fair and decent world, in which everyone has the chance of a fulfilling life. (Senator Carr)¹¹

Despite sweeping statements and universal sentiments, mainstream innovation theory and policy has, however, focused narrowly on science and technology. As Godin¹² reveals, in the first half of the twentieth century, innovation came to be thought of in purely instrumentalist terms: innovation as useful, technological, commercial, and organisationally managed change. This focus arose from the coalescence of scientific research policy (from the 1940s) and technological industrial policy (from the 1960s). After two world wars, scientific and technological innovation was highly promoted in the United States, and then Europe, as a means to rebuild, feed and nurture a nation. When innovation policy became an overt and globally pursued policy platform in the 1990s, science and technology were synonymous with research and innovation. Likewise, over the years, innovation studies has matured as a sub-sector of studies in science, technology and economics. This perspective, however, is now changing.

1.2 A widening horizon: the rise of the creativity and innovation agenda

While mainstream innovation policy and studies retain a somewhat narrow focus, the interest in innovation has spread across many sectors and people—the outcome of what might be called an expanded creativity and innovation agenda. Put simply, *innovation* and its typical concerns (industry, science and research, enterprise, knowledge and large-scale systems) are now intermingling with *creativity* and its typical concerns (arts and culture, communal and personal expression, imagination and aesthetics).

The overlap of various key terms has facilitated this shift (however, care is needed here, because terms like 'creativity', 'innovation', 'design' and 'culture' can mean quite different things within different domains). New media convergences have also been influential. The internet and other online platforms have opened up a range of ways in which governments connect with the public, in which communities form and mobilize, and in which knowledge or soft media is created, shared and traded. Within this social and technological context, inter-disciplinary knowledge and inter-cultural connections abound.

As a result, the two distinct 'poles' of the creativity and innovation agenda—arts and culture on the one hand, and science and technology on the other—have been gradually approaching one another within policy, academic and public platforms.¹³

For the STEM sector (science, technology, engineering and medicine), creativity and innovation is often orientated around new ideas and enterprise. The term *creativity* traditionally implies the production of new ideas for scientific research and socio-economic problem solving while *innovation* relates to the application and implementation of new ideas as patents, manufactured goods and technical services. However, this focus is now beginning to broaden in several ways, including:

- *The recognition that complex problems cannot be solved by science and technology sectors alone.* Innovation systems thinking has revealed that the interaction of many sorts of people, skills and practices

⁷ Commonwealth of Australia (2001), see also Commonwealth of Australia (2004)

⁸ Innovation Summit Implementation Group (2000)

⁹ for details on the history of Australia's innovation policy, see Bryant et al. (1996) and Timpson & Rudder (2005)

¹⁰ Cutler in DIISR (2008:2)

¹¹ Senator Kim Carr in Commonwealth of Australia (2009:iii)

¹² Godin (2008)

¹³ Cunningham (2008), Haseman & Jaaniste (2008), Jaaniste (2009a)

are often involved in innovation, well beyond scientific knowledge and technological wizardry.

- *An increase in attention on the service sector, as it rapidly replaces the manufacturing base.* With manufacturing now moving offshore into the developing world, service sector innovation has become a more crucial part of innovation-based economies, which includes arts and cultural services.
- *A growing acknowledgement of the triple-bottom-line of economic, social and environmental value.* As such, innovation thinking has reached beyond commerce and industry, into public sector and 'third sector' non-profit organisations, where we often find arts and culture.
- *A focus on the 'culture of innovation'.* Business management texts highlight the need for a supportive organisational culture that breeds creativity and innovation, and although this is not an arts-based approach, such concerns do bring culture into the conversation.

In the HASS sector (the humanities, arts and social sciences), arts and cultural policy has been connected to the creativity and innovation agenda mostly in terms of cultural expression and distribution. In this context, *creativity* tends to refer to the expressivity and meaning-making at the heart of arts and cultural production—the making, performing and presenting of music, performance, artworks, aesthetic design, literature and the like—whilst *innovation* tends to be used to refer to new and experimental forms of cultural expression, or new ways of distributing and managing such cultural activities.

On several fronts, though, the arts and cultural sector have moved into dialogue with industry and innovation policy and its science and technology driven notions of creativity and innovation. This can be seen in:

- *The rise of creative industries discourse.* This field has sought to show how business enterprise and innovation in the cultural domain can also act as enablers of innovation across other parts of the economy and society.

- *The entrance of creative production into academic research.* Known in the arts, design and media disciplines as 'practice-led research', creative production has been shown to be a valid research activity alongside science and humanities scholarship.
- *Fusion of arts-science and arts-technology, and new media hybrids.* These have provided striking evidence of how cultural pursuits can impact and be impacted upon by innovations in science and technology.
- *Various research and policy projects on innovation and the arts/cultural/creative industries.* As these have emerged, they have at times functioned as policy bridges by various sector advocates and agencies.

The journey taken by arts and cultural domains towards innovation policy in Australia has been charted by Haseman and Jaaniste in *The arts and Australia's national innovation system 1994-2008*.¹⁴ They canvas the range of arguments made during this time: *cultural* and *educational* arguments about the way the arts can support a role for developing, encouraging and attracting innovators; *knowledge* and *application* arguments about the way the arts and creative industries can generate and apply innovative ideas; and *commercial* and *systems* arguments about the scale, significance and systemic roles of the arts and creative industries as an enabler of innovation in contemporary societies.

In Australia, there were several key milestones in the attempt to connect arts with innovation policy. During the latter stages of the Howard government, these included: the Creative Industries Cluster Study with its innovation systems report (2003),¹⁵ the *Imagine Australia* report to the Prime Minister's Science, Innovation and Engineering Council (2005),¹⁶ the *Creative innovation strategy* of the Australia Council for the Arts (2006),¹⁷ and the establishment of the Australian Research Council's Centre of Excellence for Creative Industries and Innovation (CCI, launched 2005).¹⁸

The announcement that Terry Cutler would head the Australia's Review of the National Innovation System (RNIS) in 2008 was also significant, for Cutler had worked equally with science and technologists,

¹⁴ Haseman & Jaaniste (2008), cf Jaaniste (2009b)

¹⁵ Cutler and Co & CIRAC (2003)

¹⁶ PMSIEC (2005)

¹⁷ Australia Council for the Arts (2006)

¹⁸ www.cci.edu.au



Looking for Change 2009
© Andy Aitchison Tate
Modern, UK

¹⁹ www.cutlerco.com.au

²⁰ Stratford et al. (2008)

²¹ CHASS (2008)

²² Cutler (2008), Macdonnell (2008)

²³ Research and Innovation Policy Project (2008)

²⁴ www.nesta.org.uk/publications

²⁵ NordicInnovation (2010)

²⁶ see OECD (2002:46-50, 2005:97)

²⁷ Godin (2001)

²⁸ quoted in Cutler and Co (2008: 47)

²⁹ Carr (2008)

³⁰ Barroso (2006a, 2006b)

the business community, and the arts and cultural sector.¹⁹ As part of the enthusiastic response prompted by the RNIS, several events were organised that same year to discuss the innovation agenda for arts and culture, including Island Insight in Hobart,²⁰ a workshop by the Council for the Humanities, Arts and Social Sciences (CHASS) in Sydney,²¹ Currency House forums in Sydney,²² and a symposium by Creative Industries and Innovation (CCI) in Canberra.²³

Overseas, the United Kingdom, Germany and several of the Nordic countries have spearheaded attempts to connect the arts to innovation policy. Of particular note is the work of two innovation agencies that have examined the creative industries alongside more typical areas of science and technology. The National Endowment of Science, Technology and the Arts (NESTA) in the UK has contributed many such reports since 2006 and continues to do so,²⁴ while the Nordic Innovation Centre released 17 reports on creative industries sectors between 2003 and 2008.²⁵

Expansion beyond the science-and-technology focus of innovation was also alluded to in changes in the most recent editions of the international standards for innovation (the Oslo and Frascati Manuals from the OECD), which hint at including software design, humanities and the social sciences.²⁶ Over the years, the broader remit and ecumenical nature of UNESCO compared to OECD has also been a driver in expanding innovation policy settings.²⁷

Globally, government leaders are taking the convergences between science-and-technology and arts-and-culture seriously. At the Australia 2020 Summit in April 2008, Prime Minister Rudd called on the nation to move beyond the false dichotomies enmeshed in the creativity and innovation agenda:

*This false divide between the arts and science, between the arts and industry, between the arts and the economy: we've actually got to put that to bed. As if creativity is somehow this thing which only applies to the arts, and innovation is this thing over here which applies uniquely to the sciences, or technology, or to design. This is actually again a false dichotomy: it's just not like that. Our ambition should be to create and to foster a creative imaginative Australia because so much of the economy of the twenty-first century is going to require that central faculty.*²⁸

Later that year, Senator Kim Carr (Minister for Industry, Innovation, Science and Research) stated that his desire for innovation was “not to flood the country with shiny gadgets, but to change the culture.” Besides new technologies, he said, “we will also need new institutions, new forms of community—new ways of understanding ourselves and our world.”²⁹

The public and official desire to include the arts and the broader cultural sector in the innovation agenda is most keenly expressed in European Commission presidential speeches³⁰ and through the recent European

³¹ Europa (2009)
³² DIUS (2008)
³³ www.ted.com
³⁴ Oakley (2007),
 McWilliam (2008)
³⁵ www.chass.org.au

Year of Creativity and Innovation in 2009, which was meant to better connect the arts and cultural fields with those of research and innovation.³¹ Around the same time, the UK's strategy *Innovation nation*³² signaled a clear intention to include the creative industries, actively embracing the arts, design, media and communications industries.

Inter-disciplinary connections within the creativity and innovation agenda are also promoted in various public domains. One striking example is the TED talks, a series of live and online presentations in which world experts address new ideas.³³ TED stands for 'technology, entertainment and design', a melting pot that has also branched out to include the full gamut of sciences and arts. The active and equal interest across all these disciplines, shown by the TED organisers and the growing international audience base, is reminiscent of the vitality and crossover attitudes that energized the intellectual world of the Renaissance.

1.3 Creativity and innovation in the workplace, classroom and city

A desire for the creativity and innovation agenda has strong implications across three significant sites—the workplace (business), the classroom (education) and the city (urban development).

The business sector now recognizes the cultural acumen of the arts and that creative competencies offer strong economic value and advantage. Workplace practices often associated with the arts—portfolio careers, collaborations, project-based work, flexibility, casual hours and informal workplaces—are said to be more and more the realities of the workforce in general. Consequently, education services need to shift and respond accordingly.

As 'creative workforce' researchers like Oakley and McWilliam observe, business and education sector agendas converge on this imperative to skill a creative and innovative workforce.³⁴ The growing demand for human and creative capital accounts for education reforms geared towards producing graduates with twenty-first century skills, such as collaboration and interdisciplinary expertise. One of the ways in which education institutions have responded is by offering strategically mixed science and humanities programs within schools, undergraduate courses, and postgraduate research training, a move that has been strongly advocated by the Council for the Humanities, Arts and Social Sciences (CHASS)³⁵ amongst others. That the new National Curriculum Priorities in Australia have also recently included the arts confirms the growing importance placed on creativity.

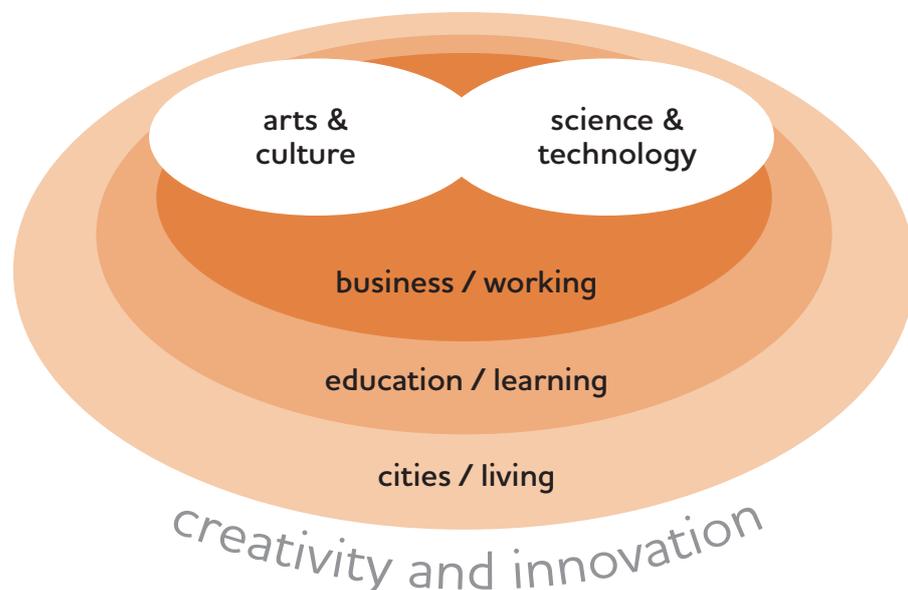


Figure 1: the intersecting fields of the creativity and innovation agenda

³⁶ Landry (2000, 2006)

³⁷ Landry (2010)

³⁸ Florida (2003, 2007)

³⁹ Florida (2007: back cover)

⁴⁰ Florida (2008)

⁴¹ www.committeeforperth.com.au

⁴² Committee for Perth (2008:3)

⁴³ Committee for Perth (2008:9)

⁴⁴ www.form.net.au

⁴⁵ Anholt (2008)

⁴⁶ Hetherington (2008: 32)

⁴⁷ Department of Culture and the Arts (2010)

⁴⁸ Department of Culture and the Arts (2005)

Thinking about an innovative and creative workforce has coincided with the rise of urban development and the 'creative cities' rhetoric popularized by Landry³⁶ amongst others. This discourse encourages governments and citizens of cities to "transform their thinking so that they look at their potential imaginatively and can plan and act with originality."³⁷ It also supports the clustering of activities that connect sciences, technologies, arts and design. Healthy and flourishing cities, it is argued, are places where community aspirations of creativity and innovation should become manifest.

Creative cities are the product of what Richard Florida has famously termed the rise of the 'creative class.'³⁸ He posits that the role and awareness of creativity in work and life has significantly transformed "our values and tastes, our personal relationships, our choices of where to live, and even our sense and use of time."³⁹ It provides the competitive edge in industry and business while also broadening options for lifestyle and leisure. According to Florida, the creative class as an economic and cultural force has grown to the point where it now determines which workplaces and cities thrive and which whither. His latest book, *Who's your city*, takes the emboldened view that "the creative economy is making the place where you live the most important decision of your life."⁴⁰

The case of Perth, Western Australia

The capital city of Perth is a striking case of the rising creativity and innovation agenda and interest in this from across the community. Many voices have been contributing to an ongoing conversation about the direction and vitality of Perth, with dialogue actively pursued by business, cultural and education sectors.

Exemplifying business sector demand for more emphasis on creativity and innovation is The Committee for Perth (TCP), an apolitical think tank established in 2006 to "actively improve the liveability of Perth."⁴¹ In 2008, with support from Curtin University, TCP undertook community and business consultation towards the research and publication of a *Cultural compact*, which offers a ten-year vision for Perth. It proposes

strategies for creating a dynamic "city of the future" that is "vibrant and innovative with a sense of place."⁴² It imagines Perth as a place where cultural appreciation and activity are a part of everyday life, where young artists are supported and incubated, and where creators of "bold and courageous art" are encouraged.⁴³

This theme has also been pursued in the work undertaken by FORM, a Perth based cultural organisation that seeks "to place creativity and innovation at the centre of Western Australia's growth of a knowledge economy."⁴⁴ FORM pursues this objective by staging various regional, indigenous and industry development projects, and 'place activation' schemes. It also hosts internationally renowned innovation and creativity experts, such as Charles Landry, Richard Florida, and John Howkins amongst others, who are able to invigorate debate. It's 2008 research report, *Comparative capitals*, surveys eight Australian cities, rating them in terms of their capacity to: keep and attract young, educated and creative workers; foster innovation across industries; and nurture liveable city environments. Amongst its findings, the report suggests that Perth is a city yet to fully and strategically 'brand' itself,⁴⁵ and that:

*Perth needs creative credibility. The demographic data tell us that the city suffers from an imbalance within its creative professional base... Like all cities, Perth requires creativity and innovation to maintain its community vitality and economic dynamism.*⁴⁶

Western Australia's arts and education policies champion a strong creativity agenda, albeit with little reference to innovation itself. The vision outlined in *Creating value: An arts and culture sector policy framework 2010-2014*,⁴⁷ emphasises creative people, communities, economies and environments. *Creative connections: An arts in education partnership framework (2005)*⁴⁸ acknowledges that education systems need renewal in the era of the creative and knowledge-based economy, and that the arts can play a role in this. The framework thus strives for:

broad public policy and community recognition of the importance of the arts in developing the unique intellectual and personal capacities of all young

*people in preparation for life and work in an increasingly challenging and rapidly changing world; and that all young people will have access to high quality arts and cultural experiences throughout their schooling.*⁴⁹

Just as arts education initiatives often do not deal directly with innovation, so too innovation departments frequently downplay arts and culture. The Western Australian state government's 2009/10 Innovation Service Directory, for example, which is designed to "showcase Western Australian innovation and to promote the importance of innovation to the development of the WA economy", does not list any arts organization.⁵⁰ This is despite research by the local and state government that has mapped a burgeoning creative industries sector with increasing employment rates and socioeconomic impact.⁵¹

Rigour in the rhetoric?

Innovation is something that more people are seeing as important and as something they can contribute to. With this comes a lot of rhetoric, big ideas and grand visions. But what does it really mean, when we talk about innovation, and changing our society and humanity as a result? A workable theory of innovation is needed.

1.4 An expanded conceptual framework of innovation

With the widening interest in innovation, understandings about its nature have grown. A contemporary, expanded framework includes more domains, dynamics and members of society in relation to stages and systems of innovation. The following overview draws on the basic concepts that underscore current innovation theory and policy, which have been elaborated on in major reports such as *Venturous Australia*.⁵²

Contemporary, expanded definitions of innovation are concerned with positive change that produces tangible value for individuals and the wider community. It allows for vital change and renewal through inspired vision, practical action and novel problem solving. Within this general view of innovation we find a range of definitions and

characteristics, relating to its types, styles, values, sectors, degrees of novelty, sources and visibility. Since the term innovation is used in many subtly different ways, referring to:

- *types of innovation*: at their most basic, innovations can be *new things, processes or forms that are brought into the world*. They may relate to: innovation in goods or services produced (*product innovation*) and the way they are produced (*process innovation*); the functioning of organisations and their intra- and inter-relationships (*organizational innovation*); and the way new marketplaces are formed and interacted with (*market innovation*).⁵³
- *styles of innovation*: innovation to come out of science and technology domains has been described as *technological product and process (TPP) innovation*,⁵⁴ while innovation that concerns aesthetic-cultural changes has been described more recently as *cultural product and process (CPP) innovation*⁵⁵ or *soft innovation*,⁵⁶ and those concerned with social change have been called *social innovation*.⁵⁷ Additionally, the products and process, as well as the organisations and marketplaces could be quite different for each of these different styles of innovation.
- *the contexts, values and sectors of innovation*: each style of innovation above can exist within a range of contexts, including business enterprise, social welfare, the public service and government, non-government organisations (NGOs) and the non-profit sector. As such, innovation can produce different types of value and change based on commercial, social, environmental and cultural values.
- *the degree of change and novelty*: *radical innovation* involves fundamental change that produces a significant disjuncture with the past, while *incremental innovation* involves minor alterations and subtle change which can often happen in a continuous manner. Global innovations are those that have never existed before and are *new to the world*, while existing innovations adopted for the first time by a person or group are local innovations *new to the organisation or individual*.⁵⁸

⁴⁹ Department of Culture and the Arts (2005:9)

⁵⁰ www.innovation.wa.gov.au

⁵¹ Telesis Consulting et al. (2007)

⁵² this section builds upon Jaaniste (2009a:215-217).

⁵³ OECD (2005:47-56)

⁵⁴ OECD (1997a:10-11)

⁵⁵ Jaaniste (2009a:226)

⁵⁶ Stoneman & Bakshi (2009), Stoneman (2010)

⁵⁷ see, for instance, Australian

Centre for Social Innovation (2010), Murray et al. (2008)

⁵⁸ cf OECD (2005:57-58)

- *the sources of innovation*: who drives the development of innovation and where it comes from can vary. Accordingly, terms like *research-led*, *market-led* and *user-led* innovation have coined. And while innovations can be the brain child of individuals or specific teams—*individual innovation*—it is also possible to have *collective innovation*, which is based on “connected, open, and collaborative process”⁵⁹. These can often be facilitated by online platforms as described in Charles Leadbeater’s *We Think*.⁶⁰
- *the visibility of innovation*: innovation which is not captured in official innovation surveys and statistics has been described as *hidden innovation*, as opposed to what might be called *reported innovation*. As Michael Harris from NESTA points out, “despite not being measured, hidden innovation often represents the innovation that matters—the innovation that most directly contributes to the real practice and performance of a sector.”⁶¹

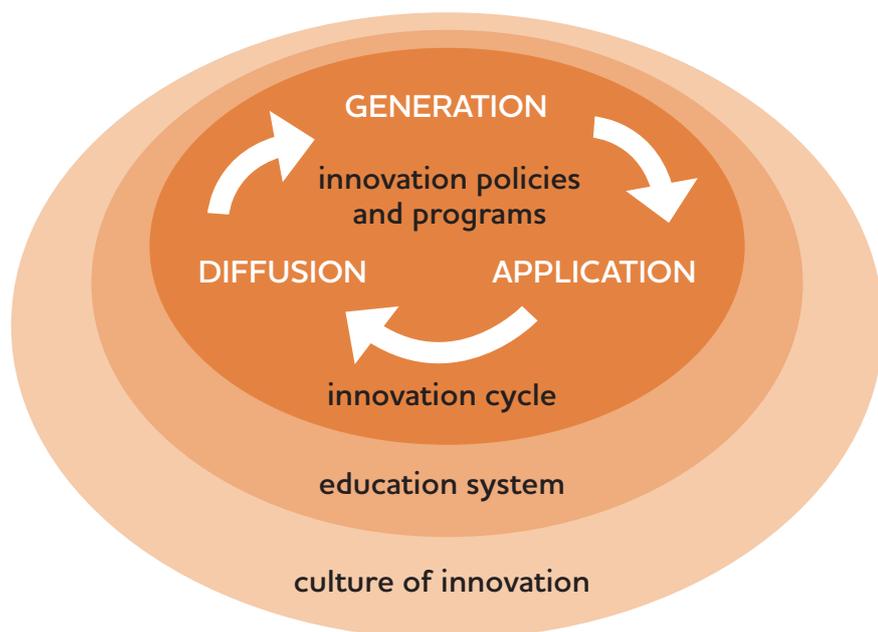
Traditionally, mainstream innovation researchers and policy-makers have focused on innovations that are: radical; research-driven; new to the world; led by individuals and small teams; involving technological products and processes; and readily observed and reported. But this is changing. As part of the broadening creativity and innovation agenda, researchers and policy makers have

also begun to examine innovation that is: incremental; user-driven; local; social; hidden; relating to organisational, marketing, service-based and other forms of low- and non-technological innovation.

So how do all these innovations come to be? Scholars and policy-makers now think of innovation as flourishing in a complex ecology that encompasses a cycle, people, institutions, and various supporting mechanisms (which is represented visually in Figure 2).

Innovations move through a three-stage cycle from their specific, generative beginnings to their practical application and wider diffusion, which can then stimulate further innovation. This characterisation of the innovation cycle has its origins in the mid-twentieth-century economic theories of Schumpeter⁶² and while typically applied to scientific knowledge and business enterprise, it can also be applied to many if not all disciplines and domains of innovation activity. These three stages of innovation are:

- *generation*—creating and producing new knowledge, ideas, forms and processes
- *application*—applying new knowledge, ideas, forms and processes in practical contexts for tangible benefits
- *diffusion*—the spread of new knowledge and applications until it is absorbed into our way of life



⁵⁹ Slawsby & Rivera (2007:3)

⁶⁰ Leadbeater (2009b)

⁶¹ Harris (2007), see also NESTA (2007b), Miles & Green (2008)

⁶² OECD (2005:29)

Figure 2: the ecology of innovation

Knowledge *generation*, or origination, is thought of as the ‘research’ end of the innovation cycle. Some of this activity is curiosity-driven and highly esoteric (sometimes labeled ‘pure’ research), while some is directed towards practical problems and applications (sometimes called ‘applied’ or ‘strategic’ research, or else research-and-development [R&D]).

In the *application* phase, new ideas and forms are put to use, for economic and/or broader social value. Economic applications are forms of ‘commercialisation’ whilst non-commercial applications for social benefit have been labelled ‘utilisation’⁶³ or else social innovation. For Schumpeter and many others, if new ideas, processes or forms are not taken up and applied, they are said to remain ‘inventions’ only, awaiting to become ‘innovations’.

Diffusion also relates to both economic and broader social contexts. The innovation’s uptake and integration relies on various factors, such as its relative advantage (over the older practice), compatibility (with organizations, cultures and values), complexity (how difficult it is to adopt and adapt), triability (how easy it is to try and the risks involved), and observability (visible benefits to those who are adopters).⁶⁴ Depending on these factors, diffusion may be instant or take years to assimilate. It can be mapped across definable areas, over discrete periods of time and can exhibit different patterns of movement. For example, not everyone hears of every innovation, and not everyone who hears of one is interested in adopting it.

Those that take up, use, consume and adopt innovations also vary. These different *types of adopters* have been analysed by diffusion theorists, such as Everett Rogers,⁶⁵ and include those who first use an innovation (innovators), and those who come next (early adopters), those who wait a while (middle adopters) and those who lag behind (late adopters and laggards).

The ‘innovation cycle’ is supported by the ‘innovation system’, a complex network of people, organisations, institutions, government regulations and policy.⁶⁶ This systems-based approach to innovation emerged in the 1990s and governs much of the current thinking on innovation policy.

The schema factors in the ways that ideas, people and products interact and flow, and exists more as an organic eco-system rather than any closed mechanical system.

The main components of the innovation eco-system are comprised of agents and agencies, hard and soft infrastructure, and a supporting backdrop of culture and education:

- *Agents (individuals)*—including researchers, innovators, entrepreneurs, managers and support staff, policy-makers, consumers and citizens; and
- *Agencies (organisations and institutions)*—including research centres within and outside of universities, businesses and firms, government services and departments, the non-profit sector and NGOs, and collection agencies such as libraries, museums and other archival centres.
- *Physical, online and corporate infrastructures*—including equipment and tools, venues and centres, and libraries and archival facilities.
- *Policies, regulations and programs*—including research and innovation policy, R&D incentives, intellectual property (IP) laws and mechanisms, venture capital and enterprise funding schemes.
- *Supporting education system*—including general schooling through to specialist tertiary education, vocational training and skills development.
- *Background culture of innovation*—also called the ‘climate of creativity’⁶⁷ or the ‘ideas culture’.⁶⁸

The overall goal of innovation policy and programs is to increase the capacity of the innovation system and its agents and agencies, so that we can be more innovative, more of the time. Such initiatives could focus on making certain parts of the ecosystem work better or on making the links between them stronger.

This implies that government has a range of roles to play and can deliver support to many parts of the innovation ecosystem, such as: direct funding of individuals and organisations, public information campaigns, legislative reform, and by

⁶³ Commonwealth of Australia (2003:25,161)

⁶⁴ Rogers (1995: ch6) as discussed in Kirkland & Sutch (2009:9)

⁶⁵ Rogers (1995: ch7)

⁶⁶ OECD (1997b)

⁶⁷ Australia Council for the Arts (2005:2)

⁶⁸ Innovation Summit Implementation Group (2000)



Baltic Quay maths teachers.
Photograph by Dan Brady,
courtesy of BALTIC Centre
of Contemporary Art,
Gateshead, UK.

being an early adopter and procurer of innovation throughout its public services and departments. While government cannot force a society to be more innovative, it can create incentives, provide infrastructure and remove obstacles.

Sectors and organisations can also increase innovation capacity by fostering their own culture of innovation, seeking out new ideas and rewarding those who challenge the status quo. Organisations can team up and sector associations can offer awards, circulate information or establish relationships and mentorships that build knowledge, experience and opportunity.

⁶⁹ SKE (2007:3)

The supporting backdrop of a cultural milieu and education system also plays important roles within the innovation system. A society that affirms innovation can encourage and enable creators through to consumers and citizens to be more involved in innovation activity, such as risk-taking, experimentation and enterprise. As the Society for Knowledge Economics has commented, “a nation’s social value system—the beliefs, attitudes, spirit, values, and culture of its people—is often an important facilitating factor of innovation and creativity in society and business.”⁶⁹ Education, both formal and informal, can generate this broad understanding and skills base, and it is to this most important issue that we now turn.

2

The role of education in innovation



The Creative Challenge project
“FEAST”, Jarlmadangah Community.
Photograph by Max Kordyl, courtesy
of AWESOME Arts, Perth.

2.1 The links between education and innovation

The education sector can foster innovation by developing the skills and values required for an innovative workforce and society.

While education alone cannot produce a more innovative society, formal and informal opportunities for learning have a significant part to play in building innovation cultures and capacities. Investing in this component of the innovation system is sometimes described as investing in the ‘human capital’ of innovation. As the federal Department Education, Employment and Workplace Relations puts it:

*Innovation is fundamentally a people-driven exercise and a nation’s capacity to innovate is inextricably linked to the breadth and quality and focus of its education and training systems.*⁷⁰

The education system, then, needs to be calibrated with the features of innovation⁷¹, and it is argued that the most important areas to focus on are “the mental and emotional habits of mind that underpin innovation, and ... the cultural practices of schools and colleges that invite and strengthen those habits.”⁷²

In the academic and policy literature at large, educating for innovation is discussed in terms of innovation *skills* and *values* that can be developed through various approaches to structuring content and *delivery*.

- *skills*—building the skills, dispositions and habits of innovation, as varied and problematic to define as these may prove to be.
- *values*—encouraging the spirit of innovation, by encouraging the attitudes and ethos to have positive experiences of experimentation, risk, collaboration, resilience and the like.⁷³
- *content*—providing stories and experiences of innovations and innovators, across disciplines and in formal and informal contexts.
- *delivery*—developing and utilizing new technological and personalized platforms of learning suited to the 21st century environment.

Educating for innovation is the responsibility of many yet the contribution of schools is critical given their reach across society and their involvement in the early years of learning. In reality, the educational system is a very broad network and all within it have a part to play. As the Victorian Government has acknowledged:

Developing skills for innovation is a responsibility shared by governments, education and training institutions, research organisations, businesses, unions and individuals.⁷⁴

Developing innovation skills and attitudes at a young age, however, is a key long-term strategy. This places a stronger emphasis on teachers, schools and education policy to foster an innovation agenda.⁷⁵

For their part, schools in many parts of the world now recognize innovation as a key component of 21st century learning. Further research on how to implement this agenda is, however, now a priority. In an international review of learning frameworks, Lucas and Claxton conclude that many first world countries are beginning to register and infuse both creativity and innovation as priority areas. Still, more attention needs to be paid to how this is undertaken in practice, not just theory. According to Sawyer, “educational researchers have paid very little scholarly attention to the recent shift to an innovation economy, although it has substantial implications.”⁷⁶ In Australia, The Society of Knowledge Economics called for a study into how the education system could be improved to create a more innovative nation (2007:9). And as one NESTA report points out:

*In the short term, the role that existing school-focused programmes play in innovation, and how these link in with initiatives beyond the school gate, should be reviewed. More should be done to facilitate learning between schools on how the best among them encourage and enable innovative behavior.*⁷⁷

Since these claims were made in 2006 and 2007, various preliminary research projects have been initiated.

The gap in knowledge is being addressed via the recent work of organizations such as NESTA and Futurelab in the UK, whose

⁷⁰ quoted in Cutler and Co (2008:45)

⁷¹ cf Hearn & Bridgstock (in press)

⁷² Lucas & Claxton (2009:4)

⁷³ Lucas & Claxton (2009:4), SKE (2007:3)

⁷⁴ Victorian Government (2007: 24)

⁷⁵ SKE (2007:3), NESTA (2007b)

⁷⁶ Sawyer (2006:41)

⁷⁷ NESTA (2007a:1)

research and reporting has made significant inroads into issues related to with educating for innovation. In Australia, the topic has also been raised by Wyn's report *Touching the future: Building skills for life and work*, released by the Australian Council for Education Research in 2009.⁷⁸ In what follows, we draw heavily on such reports, highlighting the possibilities and tensions of educating for innovation through the school system by focusing on:

- the skills and dispositions of innovation;
- the creative ecology of 21st century schools;
- the learning partnerships for innovation;
- the factors that influence the innovation capacity of schools.

2.2 The skills and dispositions of innovation

Developing skills for innovation is no longer optional but essential. In America, for example, this can be seen in the work of The Partnership for 21st Century Skills, an advocacy body established in 2002 by the U.S. Department of Education and founding organizations such as Apple and Microsoft, and the National Education Association.⁷⁹ In its vision for schools, which has now been adopted by 14 American states, core subjects are accompanied by the commitment and the resources to develop (1) learning and innovation skills, (2) information, media and technology skills, and (3) life and career skills. The framework states:

*Learning and innovation skills increasingly are being recognized as the skills that separate students who are prepared for increasingly complex life and work environments in the 21st century, and those who are not. A focus on creativity, critical thinking, communication and collaboration is essential to prepare students for the future.*⁸⁰

Innovation skills are multiple, interdependent and complex, with wide debate over the appropriate terminology (eg: skills versus dispositions), classification of levels (eg: basic, hard, soft, wide) and varying styles (eg: affective, cognitive, socio-cultural).

Innovation capabilities are generally classified according to three levels. The first level is often referred to as the *basic* or *fundamental* literacy and numeracy skills, which provide the platform for individuals to develop deeper and more applied capabilities for innovation. The second level, termed *hard* skills, implies more disciplinary-specific, technical or occupational skill sets. The third level is frequently referred to as *soft* or *deeper* skills. These are related to communicative, attitudinal, socially interactive or emotive capabilities, and manifest in meta-tasks like problem solving, decision-making, networking, collaboration, adaptation or motivation.

Soft skills are also commonly associated with *wider* skills, a broad set of competencies that are sometimes seen as “intangible, difficult to influence and problematic to measure,” such as “foresight, imagination, self-awareness, curiosity and the capacity to take informed risks.”⁸¹ These skills are understood to extend beyond a cognitive modality:

*Explicit, rational, deliberate thinking is a powerful tool, but so are the skills of sophisticated practicing, of learning from one's mistakes, of mental rehearsal and dreamy visualization, and of reading one's own and other people's emotional signals.*⁸²

These *wider* skills, to which innovation competencies are regularly linked, are in turn aligned with *life* skills. Life skills, it is argued, are the aptitudes more easily hidden or under-recognized within teaching and learning systems: “Teaching someone to develop an enquiring mind or a resilient disposition is self-evidently more complex than explaining soil erosion or quadratic equations.”⁸³ Typically, these skills are not overt or embedded into school curriculums.

Students tend to perceive that the school system predominantly offers hard skills and qualifications,⁸⁴ however, it is the ‘advanced’ third level of soft, wider or life skills which are in increasing demand. As one NESTA reports states: “Employers are now reporting greater shortages in problem solving, communication skills and teamworking than literacy and numeracy.”⁸⁵

Developing the three skill levels and judging when to apply them is a complex process, which reveals the sophisticated,

⁷⁸ Wyn (2009)

⁷⁹ www.p21.org

⁸⁰ Partnership for 21st Century Skills (2004)

⁸¹ Gresty cited in Lucas & Claxton (2009:3)

⁸² Lucas & Claxton (2009:9)

⁸³ Lucas & Claxton (2009:20)

⁸⁴ NESTA (2007a), Wyn (2009)

⁸⁵ NESTA (2007a:2)

multidimensional and interdependent nature of innovation competencies. By way of acknowledging this complexity, Lucas and Claxton strongly advise against even using the term 'skills' to describe them.⁸⁶ Their argument is that the word does not sufficiently distinguish between the possession of skills and the practice of them, offering the example that a person who *can* use imagination is significantly different from one who *does*. More accurately, suggest the authors, they should be described as 'habits of mind', 'dispositions' or 'orientations': terms that connote more implicitly that these are the skills that are *exercised* by innovators. Even classifying them as 'levels' such as basic, hard or soft, is for Lucas and Claxton quite problematic, for it can set up artificial hierarchies and boundaries which do not always distinguish true value, impact or grouping.

While there is no definitive list of innovator 'dispositions', core elements have been identified. In the 2009 report *The identification and measurement of innovative characteristics of young people*, Chell and Athayde conclude that it is possible to identify primary attributes common to the many innovator 'types': the inventor innovator; the cultural innovator; the corporate innovator; the innovative entrepreneur; the social innovator; and the economic entrepreneur. While the emphasis on skills may vary accordingly, innovators are collectively recognizable by their high levels of:

Creativity: imagination, connecting ideas, tackling and solving problems, curiosity

Self efficacy: self belief, self assurance, self awareness, feelings of empowerment, social confidence

Energy: drive, enthusiasm, motivation, hard work, persistence and commitment

Risk-propensity: a combination of risk tolerance and the ability to take calculated risks

*Leadership: vision and the ability to mobilise commitment*⁸⁷

Detail on each of these attributes is available in the report, although an additional few points are worth highlighting here. The predominance of these skills, note the authors, will inevitably vary according to

the different stages of the innovation cycle, with some more suited than others for the phases of 'ideation', 'opportunity recognition', 'opportunity formation' and 'opportunity exploitation'.⁸⁸ In their critique, Lucas and Claxton argue that Chell and Athayde have been the most successful in identifying these 'habits of mind' but add concern that other important competencies, such as resilience, tolerance of ambiguity, intuition and questioning, are not included.⁸⁹ As Chell and Athayde have said, more work can be done within this area and probably will be over the next few years. Risk-taking, for example, is one of the most neglected and under-researched of the dispositions, while leadership discourse, on the other hand, is already well understood.⁹⁰

Given opportunity and encouragement, the skills and dispositions of innovation can be developed in everyone—not just the extremely talented or those in certain subject disciplines. Experts like Chell and Athayde propose that innovators are not born but made, a view that is forged by a belief in the power of social learning and dynamics to shape people's behaviors, beliefs, attitudes, values and skills. Formally known as a 'social cognitive approach', this contrasts with the perspective of trait theorists who propose that the impact of genetic disposition on personal experience is more likely to limit or fix one's scope.⁹¹ The impact of social learning and dynamics on young people, however, has been shown to have great significance on self-identity and capacity building, particularly during notoriously challenging times like the transition from primary and high school.⁹² Relevantly, the one thousand young people monitored in the study by Chell and Athayde revealed that, "the more academically gifted students were no more likely to develop innovative capability than those who were less academic."⁹³ This finding corroborates what Sawyer has previously argued, which is that "schools should not try to identify and nurture a few special geniuses; instead, they should prepare all students to participate in complex creative systems."⁹⁴

Similarly, innovation relates to all subject disciplines, for many of them can provide pathways for innovation skilling, including the sciences, arts or vocationally orientated subjects. Admittedly, some disciplines may

⁸⁶ Lucas & Claxton (2009:9-10)

⁸⁷ Chell & Athayde (2009:4)

⁸⁸ Chell & Athayde (2009:13-14)

⁸⁹ Lucas & Claxton (2009:29)

⁹⁰ Chell & Athayde (2009: 28-29)

⁹¹ Chell & Athayde (2009:10-11)

⁹² Wyn (2009)

⁹³ Chell & Athayde (2009:23)

⁹⁴ Sawyer (2006:43)

be more predisposed to cultivating certain abilities than others. Yet, as Lucas and Claxton suggest, perhaps the most productive, although challenging, emphasis is teaching the transferability of these skills, from the discipline where they may have first been learned to the application or refinement of them in another.⁹⁵

Listing innovation attributes poses challenges but designing the delivery, assessment and measurement of them is the harder and more important part of the exercise. Lucas and Claxton observe that ‘wish lists’ from around the world that contain desirable attributes for creativity and innovation have proliferated. Whether these have been developed by government, research or ‘third sector’/industry departments, they reflect the growing needs and anxieties of economically competitive markets and globalized workplaces, but also a rising social development agenda focused on wellbeing and good citizenry.⁹⁶ Yet in an assessment of learning frameworks from countries such as Australia, New Zealand, Finland, Ireland, America and the UK, Lucas and Claxton describe the lists as generally lacking in at least one, and usually a number, of ways. They may lack in conceptual coherence and precision, in that terms are inadequately differentiated or overlapping; they can ignore that some are perhaps more difficult or desirable than others to foster or achieve; and they can disregard how different learning environments may affect their cultivation. Furthermore, lists or frameworks usually have implementation assumptions that are naive. While some have been more rigorous than others in addressing these kinds of issues, the important implication here for any education program or reform is that:

Unless the specific detail of wider skills is balanced with an equally clear description of how they are to be cultivated – in real schools, in real time, with real young people – teachers are likely to be bemused, and the wider community may well react with incomprehension, or even hostility to the proposals.⁹⁷

This kind of pragmatism for how skills should be cultivated should also extend to how they are evaluated.

Developing ways to accurately assess and measure innovation competencies is likely to be a major project for years to come. As Wyn has pointed out, there have been great advances in the last 20 years when it comes to measuring within schools, for “technologies of measurement have expanded to the point that we have unprecedented evidence about the outcomes of teaching and learning.”⁹⁸ To some extent, we are now drowning in the plethora and problems of this data. “Teachers and parents can access data about student satisfaction, teacher satisfaction, learning outcomes, school climate, academic achievement, post-school destinations and many other things.”⁹⁹ Although this may be the case, there are in fact very few measures that have been specifically designed to evaluate innovation characteristics in young people (or indeed any other group), whether in regard to an individual assessment task or the longitudinal impact of training over months or years. The creativity and ‘out-of-the-box’ qualities of innovation mean that traditional modes of appraisal may need significant re-thinking.

The research project led by Chell and Athayde was explicitly set up to address this distinct lack of accurate and reliable methods in the teaching and learning field. As one of the first efforts to measure innovation, they describe this challenge and its premise as follows:

In seeking to embed new practices, those advocating education for innovation are frequently thwarted by the lack of a recognized system for identifying and measuring the innovative capacity of young people and the impact of specific initiatives. Devising such a measure would help young people to become more aware of their innovative potential and support them in developing their personal profile. Moreover, this awareness should relate to the educational and employment pathways that young people explore and arm them with a set of skills that enables them to deal more effectively with increasingly complex socio-economic environments. From a policy perspective, this should help address the issue of long term capacity building.¹⁰⁰

This endeavour resulted in the creation of a web-based questionnaire, developed over 3 years. It was trialled with the involvement of roughly one thousand young people

⁹⁵ Perkins cited in Lucas & Claxton (2009:22)

⁹⁶ Lucas & Claxton (2009:8)

⁹⁷ Lucas & Claxton (2009:22)

⁹⁸ Wyn (2009:36)

⁹⁹ Wyn (2009:36)

¹⁰⁰ Chell & Athayde (2009:18)

in the sixth form (17-19 years old), who were from twelve specialist arts, science or technology schools based in both city and rural settings in the UK. Focus groups and a review of relevant policy and academic research supported this case study work. Creating the tool required refining the aforementioned key innovation competencies in order to know what to track. Its design also required embedding a *personal* and *developmental* emphasis so that, when used with appropriate and meaningful feedback, it could cultivate and monitor core dispositions of the individual over time, as opposed to an exam or 'test' that crudely distinguished innovators from non-innovators. Regardless of the student's stated intention to pursue an innovation pathway, the questionnaire was nuanced in order to discern tendencies towards the various innovator types and those who are perhaps 'nascent innovators'. The tool is currently being developed even further, yet it is still only one of many others that could be created by research and education partnerships.

2.3 The creative ecology of 21st century schools

The capacity to educate for innovation depends on the range of people and practices that forge the health and creative ecology of the school itself and its adaptability to a 21st century landscape. In a 2008 study, *What's next? 21 ideas for 21st century learning*, Charles Leadbeater argues that an education framework for our time differs considerably from 19th and 20th century models and assumptions. Given such rapid and radical social and technological change, it has become necessary to revise not just *who* we are learning from but also *how*, *where* and *when* we are learning, the way achievement is *assessed or benchmarked*, and even the ways in which learning is *funded* (see Figure 4). Proactive schools are starting to revise and lead these new approaches, and reports like Futurelab's *What if... Re-imagining learning spaces*,¹⁰¹ are dreaming up creative scenarios for what education and schools of the future might look like.

¹⁰¹ Rudd et al. (2006)

Learning feature	Past	Future
Where learning takes place	Mainly in schools	In schools (including Studio schools, learning villages and open campuses), cultural centres, businesses, homes, virtual centres and other places across the city
Who learn from	Teachers	Teachers, parents, other skilled adults, peers and social networks
Learning mode	Instruction	Interaction, collaboration More learning by doing and discovery
When	In school terms and hours	All the time, in different periods that more suit people's individual learning
Assessment	End of the line Focus on cognitive skills	During learning for better learning More peer-to-peer evaluation and self-evaluation against learning plans More focus on non-cognitive skills
How	In classrooms, from books, whiteboards	More real world learning Schools as productive units
Funding	To schools and school boards	More to pupils, learning and networks
Standards / measures	Top down	More bottom up targets and self-evaluation

Figure 4: **Schooling—past and future (from Leadbeater 2007:69)**

For Leadbeater, this new learning r/evolution offers renewed hope. It counteracts a succession of educational reform approaches that have grown tired, irrelevant or staid, and whose limitations continue to perpetuate (and even accept) high levels of inequity and achievement gaps, most commonly amongst young people from lower socio-economic, culturally diverse or geographically challenged backgrounds. The sum of these inadequacies, brought about by entrenched systemic, historical and social processes, creates what Ladson-Billings frames as a growing 'debt'.¹⁰² In relation to this cost, Wyn says, "it takes time to repay an educational debt to a community and the return on the payment can, like the first momentous repayments on a mortgage, seem trivial."¹⁰³

Leadbeater's diagnosis and call for change is corroborated by Wyn's extensive and critical review of Australian education policies and systems, which are revealed as outmoded, inflexible, nonresponsive and inequitable.¹⁰⁴ Although policies have long recognized the need for education to respond to social change, they still tend to rest on traditional assumptions about the preparation of young people to serve the economy. There is a disjuncture between educational policies that continue to frame education within an archaic, industrial model (instrumental and vocationalist) and requirements that encourage young people to be good navigators of new economies, to live well and engage with complexity and diversity.¹⁰⁵ The problem lies in Hoffert's assertion that "we educate for knowledge, not for innovation in it."¹⁰⁶

In thinking about ways to educate for innovation one inevitably confronts the structural weaknesses at the very heart of schooling systems and policy initiatives.

As Keating states in the 2009 proposal for a national reform agenda, *A new federalism in Australian education*:

*There are structural rigidities in Australian schooling that are restricting the quality of education and education policy in Australia. These rigidities are located in relationships between the state education systems, the non-government sectors and federalism.*¹⁰⁷

Without more flexibility, it will remain difficult to achieve the government's priority goals: "schooling that promotes equity and excellence" and where "all young Australians become successful learners, confident and creative individuals, and active and informed citizens."¹⁰⁸

Even without major national reforms in education, however, a paradigm shift in teaching and learning is occurring. In his study of six innovative schools, Leadbeater sees this change most clearly in those that are "embracing the family, workplace and community as well as the school as centres for learning."¹⁰⁹ He concludes that the kinds of personalized learning relationships forged within this wider network are what ultimately secures student engagement and maximizes their achievement and satisfaction.

2.4 Learning partnerships for innovation

Within the 21st century education paradigm, teaching and learning is being framed as inherently a partnership endeavor, one that is based on personalized relationships and flexible, reciprocal networks.

Teachers as partners in learning:

Hattie, McWilliam & Leadbeater have all observed that children achieve and enjoy most when learning *with*, as well as from, their teachers at schools. Contemporary approaches to pedagogy re-conceive the student-teacher relationship as most productive when it is based on a co-learning dynamic.

Changes in the traditional role of the school teacher are described by McWilliam as the move away from a 'sage on the stage' authority figure to a 'guide-on-the-side' or a 'meddler-in-the-middle'.¹¹⁰ She argues 21st century teachers do considerably more than deliver 'content packages' derived from set curriculum; they design learning opportunities, which offer students: strategies for 'what to do when they don't know what to do'; supportive environments for experimentation where failure or risk taking are not shamed; styles of engagement where 'noise, uncertainty and argument are part of the fun of learning'; and cross-disciplinary

¹⁰² Ladson-Billings (2006)

¹⁰³ Wyn (2009:53)

¹⁰⁴ Wyn (2009)

¹⁰⁵ Wyn (2009:9)

¹⁰⁶ Hoffert (2005:152)

¹⁰⁷ Keating (2009:22)

¹⁰⁸ MCEETYA (2008)

¹⁰⁹ Leadbeater (2008:back cover)

¹¹⁰ McWilliam (2008:86-89)

experiences that fearlessly integrate new technologies and become enriched by working with cultural diversity.¹¹¹

It is also well documented, however, that teachers are frequently so overstretched in tending to a wide range of student needs that there is little time to reflect upon or refresh pedagogical style or content. This is especially so, given that:

*Current approaches to teacher professional development in Australia are pitifully fragmented and often superficial. In-depth learning that can support innovation and change... is not recognized in teacher salary scales or working conditions.*¹¹²

If, as McWilliam says, “teachers embody for a student what a learner looks like,” then they too must model the habits of learning expected of students, and must also be given opportunities and support to innovate within their specialties, curriculum, pedagogy or school.

Teachers, it is argued, can invite young people to become partners in the responsibility and design of dynamic learning. As Wyn suggests, young people can be enrolled as empowered decision makers, networked collaborators and engaged co-creators rather than passive learners. Given that they are the ones who are in fact “touching the future,” she says, “their active engagement in the collective task of building skills and knowledge for life and work is perhaps the most important element to be harnessed.”¹¹⁴ In her view, students who experience their own autonomy or influence in learning not only enrich their important task of identity building, they also forge a crucial perception of themselves as learners and ‘self-navigators.’¹¹⁵

Pedagogical research suggests that what works for the teachers of innovation will work for the students of innovation. In an epic synthesis of 50,000 studies and 800+ meta-analyses from around the world within the last fifteen years, John Hattie distills key features that best support learning in school-aged students. While an enormous number of innovations have been explored in teaching practice over the years, Hattie’s finding is that:

*Visible teaching and learning occurs when learning is the explicit goal, when it is appropriately challenging, when the teacher and the student both (in their various ways) seek to ascertain whether and to what degree the challenge goal is attained, when there is deliberate practice aimed at attaining mastery of the goal, when there is feedback given and sought, and when there are active, passionate, and engaging people (teacher, student, peers and so on) participating in the act of learning. The remarkable feature of the evidence is that the biggest effects on student learning occur when teachers become learners of their own teaching, and when students become their own teachers.*¹¹⁶

Educating for innovation in schools, then, is a partnered exercise. When goals are negotiated upfront and made appropriately challenging, students and teachers alike can exercise commitment, leadership and learning. Chell and Athayde’s 2009 previously mentioned study, although much smaller than the two million students implicated in Hattie’s meta-analysis, also found that goal-setting and its rewards were “an essential component of building a safe environment in which pupils could take risks, be creative and increase self-confidence.”¹¹⁷

Beyond the student-teacher relationship, learning also occurs *with* and *from* a range of internal and external school partners, including peer-to-peer and child-to-parent dynamics. Leadbeater, in particular, argues that we have undermined the importance of student’s networked learning.¹¹⁸ In his words:

*Children learn as much outside of school as in it. Unless schools can build new relationships with their communities, they will miss vital opportunities to influence how children learn. Yet as they are currently organized schools are ill placed to be able to engage in this wider mission’.*¹¹⁹

Echoing this sentiment, Australia’s *Melbourne declaration on educational goals for young Australians* states a need and commitment to develop stronger partnerships between all school sectors and the broader community.¹²⁰ Parents, carers, families, businesses and other education and training providers are all included in the definition of community,

¹¹¹ McWilliam (2008:108-109)

¹¹² Wyn (2009:5)

¹¹³ McWilliam (2008:127)

¹¹⁴ Wyn (2009:59)

¹¹⁵ Wyn (2009:48-50)

¹¹⁶ Hattie (2009:22)

¹¹⁷ Hattie (2009:26)

¹¹⁸ Leadbeater (2008:6)

¹¹⁹ Leadbeater (2008:47)

¹²⁰ MCEETYA, 2008:10-11

yet critics of the ministerial declaration point out that under the current organizational structure ways to achieve this are not well understood.¹²¹

Peers as partners in learning: Hattie states that various studies of the past decade have now shown that “the effects of peers can be considerable although it is noted how infrequently peers are involved in the teaching and learning process.”¹²² Friends and classmates, he says, assist each other in learning by “providing social comparisons, emotional support, social facilitation, cognitive restructuring and rehearsal or deliberative practice”¹²³ — all of which are highly relevant to cultivating innovation competencies such as creativity, energy, self-efficacy, risk propensity and leadership.

Parents as partners in learning: Hattie also found that, out of all the influential factors such as family structure, environment and various kinds of parental involvement, it was parental aspirations and expectations that ultimately had the most significant impact on student achievement. A disjuncture or breakdown can occur, however, when parents themselves “struggle to comprehend the language of learning and thus are disadvantaged in the methods they use to encourage their children to attain their expectation.”¹²⁴ These kinds of experiences and influences must also be taken into account when designing an education framework for innovation.

Community partners in learning: In the *What’s next?* report, Leadbeater notes that fostering community networks and learning partnerships will usually require radical reform within the school itself. In spite of the numerous challenges and disincentives this presents, however, he says that some schools are developing stronger relations with their communities through the following four approaches:

drawing on resources from the community to augment the school’s own resources to expand opportunities for learning ...

making available their resources to benefit the community ...

distributing their resources in smaller packages within the community so that learning can take place in different settings ...

*and, most ambitiously ... attempting to lead community regeneration initiatives linking education, culture and employment.*¹²⁵

While there are many opportunities within schools to educate for innovation, extra-curricula opportunities currently appear to be the preferable and more realistic contexts for innovation learning. This argument proceeds from the observation that extra-curricula projects tend to allow students and teachers to follow their interests more easily. They can be engaged more fully in appropriately difficult projects over longer time periods, and explore their own risk-propensity with stronger permission and support. The fact that they can provide an experiential, expressive and developmental focus as opposed to a more academic, assessment-based approach, may account for their appeal.

Interestingly, in a study of Australian innovators across the science, technology and creative industries, Bridgstock et al. found that all had pursued extensive extra-curricula opportunities giving them high level discipline-specific knowledge as well as a range of innovation capabilities, starting at around middle school.¹²⁶

Chell and Athayde also conclude that innovative potential in young people can be stimulated through a wide range of opportunities outside the formal classroom, whether the activity is engaging in a drama production, catering course, fashion show, a design, technology or an art exhibition.¹²⁷ Other NESTA research states:

*Many schools are beginning to embrace the concept of ‘extended schools’, and are deepening community links and functioning as hubs for extra-curricula activities.*¹²⁸

Ten years on from the work of Shirley Brice Heath, author of *Imagine actuality: Learning in the arts during the nonschool hours* (1999), there is strong agreement that:

*Initiatives such as these could potentially improve education for innovation – whether through improving opportunities for the development of soft skills, linking academic subjects to real-world problems, allowing schools to develop deep technical specialisms or allowing greater freedom in how to teach the curriculum.*¹²⁹

¹²¹ Wyn (2009:46,48), Keating (2009)
¹²² Hattie (2009:104)
¹²³ Hattie (2009:104)
¹²⁴ Hattie (2009:61)

¹²⁵ Leadbeater (2008:43-46)
¹²⁶ Bridgstock et al. (in press)
¹²⁷ Chell & Athayde (2009:26-27)
¹²⁸ NESTA (2007a:3)
¹²⁹ NESTA (2007a:3)

The existing pressures on teachers and schools, the sluggishness of top-down education reforms, and the freedom and vibrancy of existing extra-curricula initiatives, are all reasons why non-classroom environments are sometimes the more feasible and proactive way of fostering innovation.

The take-up of information and communication technologies (ICTs) is also an important factor that enables a school's innovation capacity. Organizations like Futurelab and Becta in the UK are designed to assist teachers in embracing technological innovations and making use of new digital resources. This kind of technological change is only increasing, and schools are still finding ways to effectively engage with it. In a 2007 report entitled, *2020 and beyond: Future scenarios for education in the new age of new technologies*, Daanen and Facer predict that we are rapidly moving towards an environment in which:

*Interaction with digital technologies will be more pervasive, seamless and invisible than today and will facilitate much of our everyday lives – enabling ongoing interactions with people, buildings and materials and with a constantly connected network. We will be able to tap into unimaginable computing power and reliable storage capacity on the network, which will enable us to interact with more intelligent (and responsive) technologies, to ‘outsource’ memory, and to use simulations and visualisation tools to solve problems, experience alternative realities and prepare for new experiences.*¹³⁰

To keep pace, a number of research and initiatives have been set up that allow schools to take advantage of existing Web 2.0 technologies and provide the ‘stories of practice’ from digitally enhanced classrooms. Futurelab, for example, established the program Teachers and Innovations, in order to “develop prototype technologies, tools, techniques and exemplars to support innovation and model new and dynamic educational practices.”¹³¹ The rigour and investment in such programs helps education institutions to avoid being left behind. Some educational authorities, however, have imposed firewalls for schools, which inhibits the use of ICT's in classrooms or formal

learning situations. While these policies are often about protecting students, they can sometimes read like censorship or an unwillingness to enable innovation.

2.4 Fostering a culture of innovation in schools

A school's capacity and support for innovation is usually determined by seven factors: perceptions of innovation itself; the health of a teacher's social network; levels of risk aversion amongst staff and students; the nature of the formal school environment; the type of leadership style; the existence of a shared vision; and processes for managing change. These seven factors were identified by Kirkland and Sutch in their 2009 literature review *Overcoming the barriers to educational innovation*,¹³² which reveals the range of practical and philosophical inhibitors played out in micro to macro education contexts. To paraphrase, the factors can be understood as follows:

- The capacity for innovation in schools depends heavily on how *innovation* itself is perceived or constructed within the school community. The value or success of any specific ‘innovation’ initiative is usually forged by establishing a shared understanding of its distance from current practice (how far or close it is from existing pedagogy), and its dependence on un/available resources (its viability and impact). Kirkland and Sutch observe that the kinds of innovations most likely to be adopted and supported will be those that can be: replicated easily within local conditions, used by different practitioners, and that also offer longevity. Otherwise, the effort and the innovation are often perceived as too wasteful of time and too cumbersome to trial.
- Innovation in schools is strongly determined by the health of a teacher's *informal social support network*: students, colleagues, friends, and the personalized learning networks in and out of school. If these networks provide an atmosphere of creativity and innovation, a culture of sharing new knowledge practices, and/or the spirit of a cohesive team, then an educator's own enthusiasm, capacity and resources to try out new ideas will increase.

¹³⁰ Daanen & Facer (2007:26)

¹³¹ www.futurelab.org.uk

¹³² Kirkland & Sutch (2009)

- Levels of innovation also rely heavily on the *formal environment* of the school, that is, the ethos shaped by its infrastructure, policies, funding and relationship to national industry bodies. This commonly dictates levels of support and training for staff to pursue innovation agendas. It can also affirm or impede the amount of internal and external partnership activity, which then affects the teams and resourcing required for innovative ideas or programs.
- *Risk aversion* is another key factor that determines a school's tendency or disposition to innovate—"risk of failure, risk of wasting time, risk of expenditure that couldn't be justified, and risk of criticism from parents, inspectors, governors or students."¹³³ Overcoming these fears and concerns usually relies on whether a school's management style or iterative change processes can evaluate and supervise the risks involved. A wider scope and higher reward for the risk will usually create more innovation capacity.
- Effective *leadership* within a school also affects innovation levels, for it has the capacity to empower staff and build morale, share responsibility for change and inspire outward looking practice. It can also harness the power of larger regulatory bodies. Leadership will also assist in consolidating and communicating shared visions amongst school constituents.
- *Shared visions* create a sense of joint ownership and understanding of any agenda or goal. When these are strategically linked or aligned with local or national perspectives—such as wider innovation policy and agendas—it can impact strongly on innovation's wider practice.
- Finally, a school community's systems for accommodating change will profoundly determine the practice and support of innovation. Effective *change management strategies* will usually involve staff at all levels and allow time to integrate or renew appropriate skills. If change is managed well, innovation can be integrated and encouraged as a continuous process rather than a one-off event.

Barriers to innovation are thought to be more successfully overcome when schools find local solutions rather than waiting for the implementation of top-down strategies or blanket policies. As Kirkland and Sutch's review concludes, individuals and schools will often be the more productive trouble-shooters and drivers of good ideas, for "a model of change that requires national strategies to pass down new approaches to teaching and learning is too slow and blunt a mechanism."¹³⁴ Finding more particular solutions to school-specific problems within the resources available is more likely to inspire new practices that might then find traction and diffusion in wider, system level innovation. In other words, a culture of innovation will be more effective if fostered from the ground up, dealing with real solutions and local challenges.

As this section has sought to illuminate, the goal of educating for innovation is a complex challenge for any school. It requires a shift away from an industrial-era paradigm towards teaching and learning strategies that are more in tune with the 21st century landscape. If schools wish to develop a creative ecology and innovation culture it will be essential to draw on the support of various networks and partnerships in learning. Accordingly, the next section of this report looks specifically at arts education and the role of contemporary arts institutions in this collaborative endeavour.

¹³³ Sutch et al. quoted in Kirkland & Sutch (2009:27)

¹³⁴ Kirkland & Sutch (2009:3,8)

3

Contemporary arts institutions and educating for innovation



Priscilla Bracks, Gavin Sade and Matt Dwyer, *Charmed (2007)*, Australia. Photograph courtesy of the Performance Space, Sydney.

3.1 Arts education for innovation

The arts have been connected to the innovation agenda and system in a number of ways, and their capacity to educate for innovation is one of the themes most strongly argued. The literature suggests that the arts are important in this area for two intersecting reasons: the dispositions involved in art making and presenting are similar to those required of innovators, and the immersive, collaborative and project-based modes of arts education pedagogy help to foster these.

Yet the explicit links between arts education and innovation are still largely under-explored in policy and research. This is one of the points made by Oakley, author of the report *Educating for the creative workforce: Rethinking arts and education* (2007). She states:

*Recent work on innovation across the economy suggests that it is precisely the habits associated with artistic creativity that are a vital, if neglected, element of current innovation policy.*¹³⁵

Oakley also notes, however, that:

*...what we currently have is a notion of innovation that looks very much like those practices developed in the arts, but very little research on how that connection takes place.*¹³⁶

Much arts education research discusses and tests the benefits and value of creativity and the arts, as opposed to *innovation*. And while creativity is surely an integral part of innovation, the relationship between them is rarely teased out.

What is clear, however, is that arts education is increasingly valued in society, for it can improve achievement levels in young people and provide a more holistic approach to learning. As Michelle Obama puts it, “arts education is essential for building innovative thinkers who will be our nation’s leaders for tomorrow.”¹³⁷ A recent survey commissioned by the Australia Council for the Arts, *More than bums on seats: Australian participation in the arts* (2010), found that 90% of people believe that arts should be an important part of the education of every

citizen, and that they are an important way of helping people think and work creatively. Similarly, in a 2009 survey commissioned by the Department of Culture and the Arts, 94% of respondents believed that it is important for school children to have access to learn and have access to music, painting, writing, drama and the like, as part of their education.

The last few decades of investigation into the impact of arts learning has done much to cultivate this broad support, with landmark longitudinal studies such as *Critical links: Learning in the arts and student academic and social development* (2002), and the Fiske report, *Champions of change: The impact of the arts on learning* (1999). These detail the ways in which arts learning is inclusive, engaging, collaborative, inspiring, challenging and highly relevant for negotiating the realities of the twenty-first century society and workplace.

The overall thesis, reaffirmed in a wealth of arts education literature, concludes that, “the arts can and do serve as champions of change in learning,” and that “we must make involvement with the arts a basic part of [young people’s] learning experiences.”¹³⁸ In Australia, the more recent report *Partnerships between schools and the professional arts sector* (2009) continues to affirm this. Drawing on exemplars of arts partnerships with Victorian schools, it argues they strengthen “student engagement, social learning, personalised learning, innovation and the development of arts-related knowledge.”¹³⁹

Arts education can be embraced in formal school environments but can also improve informal learning opportunities outside of this system. Reports such as *Imaginative actuality: Learning in the arts during the nonschool hours* (1999) by Brice Heath and Roach have helped to build the case that arts education can be usefully deployed in extra-curricular contexts beyond the classroom (a point that has also been noted in Section 2). This opportunity, says Fiske, is not always realized to its full potential:

The experiences we offer too many young people outside of school are often limited in their purpose and resulting impact. They provide recreation, but no sense of creation. They provide recess, but no

¹³⁵ Oakley (2007:5)

¹³⁶ Oakley (2007:35)

¹³⁷ Obama (2009)

¹³⁸ Fiske (1999:11)

¹³⁹ Donelan et al. (2009:i)

*sense of success. Arts learning outside of schools can also enhance the sense of accomplishment and well-being among our young people.*¹⁴⁰

¹⁴⁰ Fiske (1999:11)

¹⁴¹ Personal interview (2009)

For Anna Cutler, Head of Education at the Tate Gallery, the intrinsic power of arts learning lies in its holistic and deeply humanist approach, which is enabled by three key aspects embedded in the creative process:

*The first is that it makes the abstract manifest, which is a very tricky thing, and a very philosophical problem. And all the things we don't teach anywhere else in the lives of children start to become critical. You have to imagine, you have to think forward. You have to not know. You have to explore. You have to tolerate. You have to persist. I mean, these are all fantastic disciplines of mind for innovation... So, firstly, it is making the abstract manifest. We do need to do this. It matters in the world. And then, secondly, you have to account for your object or your thing, which means that it gets taken into the public realm. It suddenly becomes this big social and critical enterprise. It's flexing your intellectual muscles, because you have to negotiate the public realm. And then, thirdly, it's deliberately engaged with the emotions. And that's what art does—it deliberately takes that on to communicate something about who we are. ...therefore it's terribly personal. So you see, you have the three realms that make you a human being—the intellectual, social and personal... And that, I would claim, is the added value of what our art and culture brings, because nothing else in that combination does that.*¹⁴¹

3.2 Learning through contemporary arts and cultural institutions

As the burgeoning field of gallery and museum studies shows, the last few decades have seen contemporary art institutions place significant emphasis on developing arts learning programs for young people. This has been part of a larger shift undertaken by cultural institutions more generally, where museums, galleries and libraries have increasingly prioritized visitor

experience, participation and education. Areas of scholarship such as Institutional Critique and Museology document this 'education turn', which began in the early twentieth century but has come into its own in the twenty-first.¹⁴² Hooper-Greenhill describes this sector change as follows:

*At the beginning of the twenty-first century, museums are re-orienting themselves through imagining afresh what they can become; familiar practices are being reassessed and tired philosophies are being overturned. New ideas about culture, society and new policy initiatives challenge museums to rethink their purposes, to account for their performance and to redesign their pedagogies... One of the key dimensions of the emerging 'post-museum' is a more sophisticated understanding of the complex relationships between culture, communication, learning and identity that will support a new approach to museum audiences; a second basic element is the promotion of a more egalitarian and just society; and linked to these is an acceptance that culture works to represent, reproduce and constitute self-identities and that this entails a sense of social and ethical responsibility.*¹⁴³

More than ever before, cultural institutions reach and seek to be of value to a range of audiences beyond traditional, specialist or elitist groups. As part of this access and inclusivity, children, families, teachers and schools have become prioritized visitors, evidenced in the significant resourcing of staff, space and finances for initiatives variously described as 'education', 'learning', 'engagement' or 'participation' programs. These programs are no longer a token or on-the-side component.

Increasingly these organisations are dialoguing with young audiences and finding ways to inspire, educate and engage. An example of this can be seen in the extensive consultation initiative, *Today Tate*, curated by Tate Modern, one of the most popular contemporary art museums in the world and with 60% of its audience now under 35 years. In association with Creative Partnerships¹⁴⁴, British Telecom and Channel 4 Television, *Tate Today* is described as "one of the most extensive consultations ever

¹⁴² Xanthoudaki et al. (2003), Howell (2009)

¹⁴³ Hooper-Greenhill (2007:1)

¹⁴⁴ Creative Partnerships is the UK Government's flagship creative learning program, designed to develop the skills of children and young people across England, raising their aspirations, achievements, skills and life chances. It has delivered programs in almost 2,500 schools in 36 of the most deprived areas of England. www.creative-partnerships.com

organised with young people across Britain on Tate's plans for the future." The press release of the time reads:

On 29 May 2007, 150 young people from across England will be invited to Tate Modern to take part in a day of workshops, which will explore different options for the new development of the building. The event will culminate with the first ever "giant sleepover" in the Turbine Hall in tents generously donated by Millets, which the young people will paint themselves taking their inspiration from the Tate Collection. There will be a programme of late-night workshops and films created by leading contemporary artists. The consultation will be developed nationwide through an online programme created in association with BT and a series of 'shorts' commissioned by Channel 4. In Autumn 2008, Tate will stage the first From My Space to Your Space Conference which is planned to take place simultaneously in all four Tate galleries. This will be organised by young people themselves and adults will only be able to attend by invitation. The conference will culminate with the publication of the first ever young people's Creative Manifesto for Britain in the 21st century.¹⁴⁵

4. *Let us have opportunities to take risks so that we are not afraid to try new things.*
5. *We need mentoring help to get us into the creative industries. We don't know how it works.*
6. *We need to gain confidence in ourselves.*
7. *Allow us to learn from each other, to get fresh ideas from cultures other than just our own. We want to mix it up.*
8. *We need it to be easier to use the internet at school.*
9. *Invest money in us because we are the future.*
10. *We are prepared to start at the bottom and make our way up.*
11. *We want time for out of school activities and we want them to count towards our qualifications*
12. *Give us the choice between exams or course work.*

Significantly, this list covers many of the points made in Section 2 of this report, which addressed what schools required in order to educate for innovation. It suggests students want room to be more creative and innovative.

Contemporary art institutions have proactively sought to become inclusive, accessible spaces, and more organized sites for formal, informal and lifelong learning. A skeptical view might suggest this phenomenon has been driven by an underlying consumerist and audience development agenda rather than a genuine education interest, feeding the somewhat critical view of "the museum as provider of the extraordinary, of spectacle and sensation."¹⁴⁷ As Andrew Clark, Deputy Director, Programming and Corporate Services, *Queensland Art Gallery* comments, "when we started out, there was a lot of cynicism around 'Oh, it's just a marketing exercise', which I found really a bit disingenuous towards what we were trying to do."¹⁴⁸ The sheer sophistication of training resources, programs and staff in the field of arts education and gallery based learning suggests that, at its core, there is considerable expertise and value in this work. In the words of Andrew Clark, "working with some of the world's leading contemporary artists to develop works for a children's audience is really a very exciting part of new museology today."¹⁴⁹

The eighteen-month consultation engaged over three thousand 11-19 year olds through online discussion, face-to-face conversations, group debate and video interviews by young people canvassing the views of their peers. Debate focused on questions such as "How could schools be different? What could their teachers and other people working in the creative industries do to help? How could they develop the best environment in which to make creative decisions and form ideas? How do organisations respond to their needs?"¹⁴⁶ It culminated with ten school groups each presenting a manifesto point to the Cultural Secretary of England. Two additional points were voted on and added later. In order to be more creative, they proclaimed:

1. *We want less formality in schools and more creativity in the classroom.*
2. *Change the curriculum so that our subjects reflect our lives.*
3. *Create spaces where we can vent our creativity.*

¹⁴⁵ Tate Modern (2007)
¹⁴⁶ Creative Partnerships (2008)

¹⁴⁷ Xanthoudaki et al (2003:1)
¹⁴⁸ Personal interview (2009)
¹⁴⁹ Personal interview (2009)

Manifesto for a Creative Britain (2008), photograph by Andy Aitchison.
Photo courtesy of Tate Modern, London.



Notably, the study of innovation as it relates to contemporary art institutions has had little analysis and reporting, but this is starting to change. One of the few studies addressing this topic directly is the NESTA report by Bakhshi and Throsby, entitled *Innovation in arts and cultural organisations* (2009). It acknowledges that, “recent studies say next to nothing about innovation types and processes as they relate to publicly supported arts and cultural institutions.”¹⁵⁰ Their literature review points out a key difficulty in entering this under-reported field:

The concept of innovation itself is not at all clearly defined when applied to organisations in the arts. Little is known about the various ways in which these institutions engage with, adopt, utilise and contribute to processes of innovation. This is partly because of a lack of a systematic understanding of how innovation relates to the functions of such cultural enterprises, and partly because of a lack of an established methodology for quantitative analysis of innovation processes in the cultural sector.

This gap in knowledge about innovation in arts and cultural institutions creates the potential for serious confusion, as arts funders call on organisations they are

*supporting to be more ‘innovative’ in their work without being explicit about what they mean by ‘innovation’.*¹⁵¹

For Bakhshi and Throsby, creating better ways to track the innovation-based activities of cultural institutions is in itself an important area of innovation. They hope to see cultural institutions “searching for new ways to measure the economic and cultural value they create for audiences and their wider group of stakeholders, and to translate these into terms that policymakers, funding agencies and private investors can relate to.”¹⁵²

3.3 A question of evidence

While asserting the links between contemporary arts programs and educating for innovation is ripe for exploration, problems of evaluating and appraising are ongoing for researchers. As Sections 1 & 2 of this report have already emphasised, identifying and measuring innovation itself remains difficult. Additionally, research within arts education can encounter problems of reliability, with controversy over appropriate and valid methods of evaluation. Oakley has precised many of these concerns, which suggest that scholarship is not always providing ‘robust empirical data’.¹⁵³ She states, for example, that the replication of

¹⁵⁰ Bakhshi and Throsby (2009:3)

¹⁵¹ Bakhshi and Throsby (2009:2)

¹⁵² Bakhshi and Throsby (2009:5)

¹⁵³ Oakley (2007: 31-35)

studies is rare, consistency of measures are often non-existent, terminology can be poorly defined or vague and also that this work can too often adopt an overly advocacy-like approach. In addition, criticisms have been made about the absence of control groups, the small scale and sample sizes of research projects, and that the field at large has an over reliance on the case study method. This complexity of metrics and design is further compounded by a general lack of longitudinal critique, making it difficult to accurately assess learning and impact of arts learning over a substantial period of time.

As already noted, measuring capabilities such as imagination, intuition and creativity is an ongoing project for researchers. More thinking and experimentation is required to generate new and reliable assessment tools and methodologies concerning innovation, but also arts learning. To satisfy many of the concerns, only a diversity of quantitative, qualitative and creative-based approaches is likely to provide a thorough, inclusive picture.

As many of the interviewees for this scoping study confirmed, the implementation of programs is often so demanding that longitudinal evaluation and research by internal staff alone is rarely possible. This echoes the findings of an international group of arts education researchers who state that:

...in the rush for lively programming which is so often imposed as a result of institutional pressure or expectations, a great deal of innovative practice goes unreported and many educational issues do not get adequately debated in the wider world.¹⁵⁴

Evaluation is undertaken to the extent that funding is able to be acquitted or program approaches and relationships can be refined. But to explore the broader connections deeply and over time, and to bring a formal rigour and analysis to this body of work will usually require collaboration with research partners and networks.

Previous research into the impact of museum learning can be used to inform the cogent design of new research models for understanding innovation within the educational programs of cultural institutions. Much can be learned, for

example, from the gallery-based learning organisation *Engage*,¹⁵⁵ who coordinated the largest systematic review in England to focus on how children and young people can learn through galleries, contemporary art and artists.

From 2004 to 2008, the enquire programme was carried out through clusters—or teams—of galleries, partner schools/youth groups and artists, and higher education institutes which constituted the national research consortium. The aim was to work collaboratively across the professions to develop exciting opportunities for children and young people to learn through engagement with contemporary art, whilst researching the learning benefits and conditions for that learning.¹⁵⁶

Much of the work of enquire deepened the findings of an earlier UK study, the *Learning Impact Research Project* (2001–2004), undertaken through the *Inspiring Learning For All* initiative.¹⁵⁷ LIRP refined a succinct framework for understanding aggregated learning outcomes of museum and gallery learning, which, in generic terms, are described as the capacity to 1) provide enjoyment, inspiration and creativity, 2) enhance attitudes and values, 3) impart skills, 4) develop knowledge and understanding, and 5) improve action, behaviours and progression.¹⁵⁸ If the idea of educating for innovation is brought to bear on these five points, then we may well develop a tool to understand and evaluate the impact that contemporary arts institutions and their educational programs can create. That is, we could evaluate: the enjoyment and inspiration of innovation; the values and attitudes of innovation; the innovation skills; the knowledge and understanding of innovation; and the innovative actions and behaviours.

Whilst drawing on the richness of existing research projects like LIRP is important, in this scoping study we have also attempted to survey first-hand the way leading contemporary arts and cultural institutions can connect schools and young people to innovation. These findings are outlined in the following section on the form of seven associative links.

¹⁵⁴ Xanthoudaki et al (2003:3)

¹⁵⁵ www.engage.org

¹⁵⁶ Enquire (2009)

¹⁵⁷ www.

inspiringlearningforall.gov.uk

¹⁵⁸ Hooper-Greenhill

(2007: 44–62)

4

Seven ways contemporary arts institutions connect schools with innovation



The Learning area at the BALTIC Centre for Contemporary Art, vinyl drawing by Yoshitomo Nara. Photograph by Dan Brady, Courtesy of BALTIC, Gateshead, UK.

This section draws on many examples of learning programs for young people and schools that were gleaned from interviews with eighteen major contemporary arts and cultural institutions across Australia and the UK. Garnering this range of voices has helped us consider if and how these initiatives might be linked to innovation. We are grateful to the interviewees and their host institutions for giving us their time, expertise and enthusiasm. Whilst the study has not yet solicited the voices of artists, young people or teachers, future phases of the research intend to include these.

Within Australia, eight well-known organisations were chosen that encompass the visual and performing arts as well as music, two of which were festivals rather than venue-based institutions:

- *The Alfred Brash SoundHouse*, Victorian Arts Centre, Melbourne (Peter Wakefield, Program Manager, and Adrian Alexander, Manager of Digital Content and Multimedia Learning)
- *AWESOME Arts, Perth* (Jenny Simpson, Chief Executive Officer)
- *The Australian Centre for Contemporary Art (ACCA)*, Melbourne (Shelley Hinton, Schools Education Coordinator, and Andrew Landrigan, Public & Education Program Manager)
- *The IDEAS Festival*, Brisbane (Michael Peterson, Artistic Director, and Jane O'Hara, Education Program Director)
- *Malthouse Theatre*, Melbourne (Fiona James, Head of Education)
- *The Museum of Contemporary Art (MCA)*, Sydney (Emma Nicolson, Senior Manager of Education and Access)
- *The Performance Space*, Sydney (Talya Rubin, Audience Development Officer)
- *The Queensland Art Gallery (QAG) / Gallery of Modern Art (GoMA)*, Brisbane (Andrew Clark, Deputy Director, Programming and Corporate Services and Kate Ryan, Curator, Children's Art Centre)



Jambird's "Metadance in Resonant Light" (2008). Photograph courtesy of the Perth Institute of Contemporary Arts, Perth.

‘Good Vibrations’ caravan. Photo courtesy of the Museum of Contemporary Art



In order to provide a fuller, comparative picture, ten contemporary art institutions were also interviewed in England, as the UK has supported a range of ambitious arts education programs and innovation discourse initiatives. These organisations were:

- *Arnolfini, Bristol*
(Helen Davies, Head of Education and Jill Nicol, Head of Interaction)
- *BALTIC Centre for Contemporary Art, Gateshead*
(Helen Burns, Schools and Colleges Programmer)
- *Battersea Arts Centre, London*
(Alexandra Tomkinson, Participate Director)
- *Camden Arts Centre, London*
(Anna Vass, Education Project Programmer, and Ben Roberts, Program Coordinator)
- *Contact Theatre, Manchester*
(Baba Israel, Artistic Director, and Suzie Henderson, Head of Creative Development, with Seda Jackson-Smith, youth leader and Uwe Gröschel, researcher)
- *FACT: Foundation for art and creative technology, Liverpool*
(Angela Cowan, Education Manager, and Anna Kronenburg, Education Coordinator)
- *Serpentine Gallery, London*
(Sally Tallant, Head of Programmes)

- *Tate Britain, London*
(Felicity Allen, Head of Learning, and Harriet Curnow, Head of Young People’s Programmes)
- *Tate Modern, London*
(Anna Cutler, Head of Learning)
- *Whitechapel Gallery, London*
(Selena Levison, Schools Curator)

Semi-structured interviews with each organization triggered discussion across a range of subjects, including: the institution’s curatorial remit and if there was an implicit or explicit objective to be innovative; the institutions’ perception of their more innovative programs for schools and the relationships of those programs to school curricula; ways in which those programs were thought to model or impart skills for innovation; barriers or inhibitors to innovative programming, and the partnerships that offered leverage in overcoming these challenges. Unless otherwise cited, quotes within this section are taken directly from these interviews.

Ideas and events discussed in the interviews have been selected and organised around the seven key themes that emerged from the project’s findings. It found that that contemporary arts institutions can connect schools to innovation through their cultivation of: content, methods, skills and dispositions, pedagogies, partnerships, institutional practices, and contexts.

#1 CONTENT

Contemporary arts institutions can connect schools to artistic and cultural innovations and innovators...

by presenting real-world examples of new and historical innovations and innovators and connecting audiences to the stories of conceiving, applying and disseminating ideas.

Presenting new ways of making, representing, critiquing and imagining the world and human experience is 'core business' for contemporary arts institutions and one of the things they do best. Their programs expose audiences to devised and experimental works that often push the boundaries of what has gone before. Jenny Simpson, from *AWESOME Arts* in Western Australia, describes the contemporary arts as putting "oxygen and energy" into the culture. At its most powerful, explains Anna Cutler from London's *Tate Modern*, art can restructure boundaries around thought: "...it asks, 'What if?' It takes us beyond ourselves. That's why it's not just entertainment." For Fiona James of the *Malthouse Theatre* in Melbourne, innovation is quite simply the 'curriculum' of these organizations.

One example of innovative content is the *Rider Spoke*¹⁵⁹ performance by Blast Theory, presented recently by the multi-arts centre *Arnolfini* in Bristol. This was a collaborative performance using game play, bicycles, wi-fi technology and handheld computers in the style of personalized 'choose your adventure'. Spectators co-created the event while cycling through the city finding hidden places to make and exchanged intimate recordings based on personal memories. This kind of event would have been unthinkable before the advent of game theory, new media technology and the growing interest in site specific performance.

Contemporary artists are often commissioned by institutions to make innovative works that specifically invite

young people to be creative. *The Asia Pacific Triennial (APT)*, hosted by the *Queensland Art Gallery* has created a tradition of facilitating collaborations between internationally acclaimed artists and young people as part of the exhibits since it began in 1999. In the most recent *Kids' APT*, a rich and varied program included a major work created by the artist Shirana Shahbazi with children. Andrew Clark explains:

To create Shirana Shahbazi's painting for Kids' APT, a workshop was conducted at the Children's Art Centre with a group of local Brisbane children. Discussions introduced the painting project, the artist and her work, as well as a brief history of the still-life genre, inspiring the participants to compose their own still-life arrangements. The subject of the arrangements was a range of tropical fruits, flowers and vegetables readily available in Queensland. The resulting composition of coconuts, hibiscus, foliage and fruits was professionally photographed and sent to Shahbazi, who is based in Zurich, Switzerland. The artist then selected an image and prepared it for the next stage – the image was transformed into an immense painting by billboard painters in Iran. After passing through many hands across the globe, the end result is a collaborative painting on display in the Children's Art Centre for APT6.¹⁶⁰

In a variation on developing original artworks with young people and schools, the *Museum of Contemporary Art (MCA)* in Sydney commissioned New York sound and media artists Bruce Odland and Michale Luck Schneider through the Bella Program for Youth with Specific Needs. "They had worked with students and with children with special needs in their hospital in New York" says Emma Nicolson from the MCA, "and they discovered that they responded really well to vibration and to sound." For the commission, this led to the making an interactive installation called *Good Vibrations*, a highly tactile, multi-sensory and technological environment designed for mixing found images and sounds. Elaborating on the result of the two-month residency, Emma Nicolson reflects:

¹⁵⁹ See full description at Blast Theory (2010)

¹⁶⁰ Queensland Art Gallery (2009:213)

Local school children create still-life compositions to be sent to artist Shirana Shahbazi for use in *Still life: Coconut & other things 2009* for 'The 6th Asia Pacific Triennial of Contemporary Art'. Photograph: Natasha Harth.



So what we have is a 1960s caravan that's been completely gutted and turned into this kind of multi-sensory space. It goes out to schools and we deliver workshops. The caravan kind of operates almost like a brain. If you imagine, the front of the caravan is the face and it has its eyes and ears. The eyes of the caravan are two live-feed video cameras that come in, and there are two windows. Students can manipulate the image, with squeeze handles. Then there are two coiled pieces of tubing that go out with microphones and into the surrounding environment collecting the sound, which is brought in to the caravan. Through the squeeze handles, you can manipulate what you can see and hear.

At the back, at the rear, of the caravan is what we call the "memory", where there are stored images and sounds gathered at each site by students who participate in the workshops. So we gather this information and it gets fed into the computers at the back of the caravan. With our A/V techs, a sound is matched to an image. The image is manipulated in Photoshop so that the tonal qualities can change. When that's all in place, again depending on the level of ability of the students, they will work with the A/V techs to see how sounds and images get matched and how the programs work. Through touch panels, much like a visual mixing desk, you can pull up and change the image and the sound. But you really need only to have very little mobility or motor skills.

The programming of talks, tours, catalogues and interactives that commonly accompany exhibitions and performances help to story and personalize the process of conceiving, making and innovating. The Queensland Art Gallery, for instance, has led the way in designing novel interactives for young people. One of many examples is Cai Guo Qiang's 'Bridge crossing', presented at the third Asia Pacific Triennial:

Designed to complement his major work in APT3, Blue dragon and bridge crossing,— a large scale installation encompassing a 30-metre long bamboo suspension bridge constructed over the Gallery's Watermall – Cai extended an invitation to children to design and construct a bridge using the simplest of materials: tape and cane. To provide children with inspiration, the artist sketched 79 line drawings of various bridges, revealing varied approaches, some fanciful, others basic and fundamental. Over the course of the exhibition, children visiting with parents and carers engaged with the artist's ideas through the engineering of their own bridge models.

Interactive projects and events such as this bring audiences closer to the creators, their influences and impact, even in the case of historical luminaries. During the 'blockbuster' exhibition of Andy Warhol at the Queensland Gallery of Modern Art, the Children's Art Centre was transformed into the artist's famous New York studio, The Silver Factory. As well as viewing the bold and pioneering works that made history, children could take part in a range of related activities. They could, for instance, watch a live Warhol-inspired fashion parade; view the superhero cartoons that inspired the artist; take an online quiz or access biographical animations through computer touch screens; create Warhol-esque time capsules, photo-booth portraits and shoes; have a screen test to experience the idea of '15 seconds of fame'; and design the missing letters of Warhol's alphabet pictures. Perhaps it was this immersed engagement that inspired one child's insightful description of Warhol, expressed in his entry for the 'What I think about Andy Warhol' competition, as "an ordinary guy who made extraordinary art with ordinary things."¹⁶¹

¹⁶¹ Queensland Art Gallery (2007)



A young visitor's bridge construction made as part of Cai Guo Qiang's Kids' APT artist project for 'The Third Asia Pacific Triennial of Contemporary Art' in 1999. Photograph: Natasha Harth.

Young visitors to The Silver Factory: Andy Warhol for Kids interact with Warhol's 1966 installation *Silver Clouds* at the 'Andy Warhol' exhibition in 2007. Photograph: Natasha Harth.



Engaging with innovators of all ages and domains was the focus of *The IDEAS Festival* in Brisbane, a triennial event established “to present ideas, promote public debate, and to foster and celebrate innovation.”¹⁶² In 2009, Queensland’s ‘Year of Creativity’, the festival launched its first dedicated program for schools, the *Think Do Tank*, which was held in the cultural precinct of the *Queensland State Library* and the *Gallery of Modern Art*. This program for students in years 6 to 10 consisted of lectures, panels and short workshops with artists, futurists, inspiring youth, scientists, urban planners and many other kinds of innovators. Jane O’Hara, the festival’s Education Program Director, says “there’s actually something very powerful about being in the same room as someone as they speak passionately.” As she sees

it, broad exposure to actual innovation exemplars helps to reinforce that “there is no one formula” for innovating. Her choices in programming were informed by young people themselves, through a consultation group she set up at the start of her appointment:

The advisory team was from an inner city local primary school, ten Year 7 students, and they brought such air to those programming considerations. Their interest in design, ecology and the environment, and their role in creating a sustainable future for themselves, really gave me an opportunity to study and to listen to what they were saying and then interpret that.... And we made sure we had young people speaking on the stage as well, so they could really relate to them.

¹⁶² www.ideasfestival.com

Institutions make strong efforts to develop access and communication strategies that ensure these venues, programs and artists are easier for schools and young people to engage.

In cases where travel was too expensive or time consuming, *The IDEAS Festival* utilized web technologies through a partnership with *The Learning Place*.¹⁶³ Midway through the event, Jane O'Hara said, "there's been 1500 kids in classrooms across Queensland in the last two days talking online to our speakers."

Revealing another approach, Lyn Seear, Deputy Director, Curatorial and Collection Development, *Queensland Art Gallery* says, "One of the most important tools we use in providing our children's programming, in all its diversity, is language."¹⁶⁴ Elaborating on their extensive use of interpretive language and signage for younger audiences she states:

*In these programs, a specialist language about art and artists, developed just for kids, their parents, teachers and carers, is a frontline tool, every bit as important as display methods or other interactive strategies. We use this language everywhere—in labels and didactics, in activity booklets, information sheets, timelines, on our website, in floor talks and during workshop activities.*¹⁶⁵

At the heart of this strategy, notes Seear, is the use of story: "we reach out to them with a narrative about every work."¹⁶⁶ In much the same way, contemporary art institutions at large are introducing young people and schools to stories of innovation and innovators, through direct engagement with artworks and artists.

¹⁶³ *The Learning Place* is an eLearning initiative by Education Queensland that promotes online learning and communication tools for staff and students, such as virtual project rooms and playgrounds, synchronous chats, threaded discussions, voice and data conferencing—see <http://education.qld.gov.au/learningplace>.

¹⁶⁴ Seear (2009:32)

¹⁶⁵ Seear (2009:33)

¹⁶⁶ Seear (2009:33)

#2 METHODS

Contemporary arts institutions can provide schools with access to, and experimentation with new media technologies and a range of other innovation products and processes...

by cultivating active creators rather than passive consumers and sharing inter/disciplinary ways of engaging with the cycles and phases of creativity and innovation.

Beyond their presentation programs, workshops offered by contemporary arts institutions can give practical experience and introduction to ways that artists manage ideas, materials, processes and technologies. The value in this, says Fiona James from the *Malthouse Theatre*, is that it enables participants to originate, to “imagine for themselves, and actually create something that’s not given to them, that’s their own.” Jenny Simpson from *AWESOME Arts* believes the importance of such opportunities is much broader than the potential to generate young artists and is often more

about exposing students to various tools, “giving kids other options, other ways of thinking, that they may choose to take up or not.” Methods used by contemporary artists are often highly generative and reveal ways in which innovation can be seeded. “I’m looking at the collection not in terms of objects, but in terms of practices,” says Anna Cultler from the *Tate Modern*. These practices she sees as encapsulating the model of creative learning whereby “you identify a problem, have divergent thinking about it, and stretch for originality.”

Some arts organisations assist schools with the access and uptake of new media and web technologies, developing visual and digital literacy and new ways to realize ideas. The *Alfred Brash SoundHouse*¹⁶⁷ is this kind of arts education hub. Based at the *Arts Centre of Victoria* it specializes in the use of music technology and electronic media such as video, animation and web design. Adrian Alexander, the director from 1991 to 2005, explains that the guiding philosophy of its founding father, Alfred Brash, was to “create a legacy that provides an opportunity for kids to experience the creative process... and if they didn’t go on to develop a particular passion and become part of the ongoing creative process, at least

¹⁶⁷ SoundHouse is an internationally affiliated network and this particular node was established in 1986.



Photograph courtesy of the Alfred Brash SoundHouse, The Arts Centre, Melbourne

to understand what the creative process is.” Programming at *SoundHouse* is driven by the firm belief that young people are better as active creators rather than passive consumers of music technology, and also the idea that “experimenting with new technologies and exploring their application in the classroom is vital to creating more challenging and innovative learning experiences for young people.”¹⁶⁸ Reflecting on his first year of running the organisation, Adrian Alexander says:

my immediate response to the powers that be in the industry and the Arts Centre was to say, look, we really need to do something that allows kids to create, and allows them to take away the products that they create. So, we need to look at extending their visitation, we need to look at them being able to be the creators of the product, whether they come for a whole day, or they come for a series of twohour session over six weeks, and achieve curriculum outcomes via their participation.

In realizing this vision, *SoundHouse* facilities include industry standard digital audio and video workstations, interactive whiteboards, projectors, musical gear and the like. Adrian Alexander describes why and how a school visit to these creative studios occurs, and the skills transfer the programs strive to encourage:

Often, it might be that schools will come in who, back at school, have three or four computers with a particular software, but they have a class of 25 or 30. So, that means they're trying to run multiple activities in the classroom so some kids can use technology. And that's just not fair, and incredibly demanding on teachers. So, one of the ways of doing this is saying, “OK, let's come in here.” And we'll go through the process of what it is that we're trying to create, what is a brief, how does it fit, what skills we're learning on the way. Let's do the evaluation as we go. Let's constantly monitor the product. And at the end of the day, we get to take something home that is the full creation.

But, we're also saying, at the very end of that process, “Now that you've done that, why don't you think about that as a means, the skills that you've learned,

the visual thinking that you've had to do why don't you think of that as a potential way of dealing with other curriculum requirements... So, when somebody says you've got to do a presentation, whatever the theme or the topic or the focus might be, we say, 'well, you could do a PowerPoint, you could write an essay, or you could do a talk in front of the class. Or another way you could do this is to use the media skills that you've developed, to actually go out and use some of the available technologies, use the video cameras in the school, do some audio recording, write some music, put together something comprehensive.'

And then, with schools that are well and truly ahead of this and starting to develop that Web 2.0 engagement, the kids go, “Let's upload this.” And they start commenting on it and get feedback on it, using it as a resource that the teacher might be able to use as stimulus for something else, and it's another level of curiosity for kids.

SoundHouse also provides an outreach initiative called *SoundHouse on Tour*, a portable creative technology expo, with low-cost training days across regional Victoria. Its director Peter Wakefield says of *SoundHouse*, “It's about equity and access—giving to kids that don't have access to this kind of technology and expertise.” Whether on-tour or onsite, curriculum-linked workshops are offered to students as well as teachers for, as Adrian Alexander explains, “unless we were able to influence the people who were operating back at the coal face, the chalk interface... then our impact upon the uptake of the technologies and the applications of those very early themes about kids being creators would have a limited life.”

Coaching teachers and students in the uptake of new technologies is also an aim of the *Foundation for Art and Creative Technology (FACT)*, in Liverpool. Based in a state-of-the-art purpose-built cinema, art gallery and media suite, its aim is “to pioneer new forms of artistic and social interaction with emerging media and raise public debate around the social impact of new technologies.”¹⁶⁹ Not unlike *SoundHouse on Tour*, the organisation recently established an initiative called *FACTs in a Box*, a self-starter

¹⁶⁸ The Arts Centre (2010)

¹⁶⁹ www.fact.co.uk

kit containing film equipment, cameras, books and work sheets, which can be booked out from local schools or City Learning Centres. The outreach kits can be used independently, or, as Angela Cowan says, “we can also send an artist in to deliver quite short skills-based workshops with them so they can use the equipment.” Where regional audiences are concerned she says, “it is better for us to go there to have a bigger impact on that community.”

Overcoming distance in a different way is *FACT*'s online filmmaking and social networking initiative designed for grade 12 students. Set up in collaboration with the art and technology center *Eyebeam in New York*, the project is conducted across class time & study periods. *FACT*'s Education Coordinator, Anna Kronenburg, explains the concept:

We live link schools based in New York with schools based in Liverpool and they start off by having Skype conversations and debates based on various themes. We do a couple of these and then set them a film challenge, which starts by thinking of ten questions to ask each other based around a chosen theme. Each student then makes a two-minute film in any media, like a mobile phone film or a camera. Sometimes it will be that they have to come back and pitch to us ideas. EyeBeam in New York has been working on a platform for them to upload it to... and the young group from the other side can comment and blog and put things on, and it is a safe environment for them to share what they are thinking. The last students who did it got such a buzz and were like “Ahh!” I have just seen eight films, and so we can now look and critique or review them. We're not too sure about the next stage of that project. I think that at the moment the idea is they will be set up with a pal who will be responsible for sending over a brief and taking you on using the platforms to keep in touch, like virtual pen pals.

As well as embracing new technologies, contemporary artists are renowned for using old and familiar materials or processes in new and surprising ways, revealing a range of unexpected possibilities. The *Arts Immersion* program, a joint initiative between the Malthouse Theatre, the Australian Centre for Contemporary Art

(ACCA) and *Chunky Move Dance Company*, exemplifies this idea. The one-day rotational program for high school students offers multiple ways of interpreting a single theme or concept using generative methods from visual art, dance and theatre. The collaborative approach was conceived by Meg Upton, an Education Officer from the *Malthouse Theatre*, who saw the advantage of having three complementary organisations operating within a small cultural precinct. “Meg’s idea was to broaden students’ experiences,” explains Shelley Hinton, from ACCA, “particularly for years 9 and 10, from government, disadvantaged and regional schools, to enable them to enjoy a cross-arts experience within this precinct.” Elaborating on the program design and one of its many iterations at ACCA, she says:

Students undertake three workshops presented by a professional artist within each organisation, all on the one day. We do that by way of linking the workshops to one work in a current exhibition of ACCA to create a central theme. The education staff within each organisation work as facilitators but the workshops are primarily led by a professional contemporary visual artist, dancer or theatre practitioner.

One of many workshops at ACCA was conducted during the exhibition, Uncanny Nature, with the artist Alex Pittendrigh. Alex had previous experience working with students, so I knew and felt confident that he would work well in the workshops. He had created a range of Baroque inspired 2D-3D friezes on board using BlueTac, which completely fascinated the students. They loved the idea of using an office related product or material for art making and the fact that they were very beautiful, delicate and finely sculpted 2D, 3D images.

It was decided that the central theme for the workshops would be ‘relationship’ and ‘connectivity’ and the students would make an individual work on board, which would in the end connect to make a large-scale piece with all the other students’ works. Instead of just using standard BlueTac, we decided to use fluoro Tac, because we knew it would inspire the students, which it did. So to begin, the students heard Alex talk about his work in the Gallery, and were then led through a discussion



Two Goannas - Bec Juniper taken at Punmu. Photograph courtesy of AWESOME Arts

on the Baroque and Rococo periods and then made amazing fluorescent coloured Baroque and Rococo inspired imagery on board. To enable the work to connect, each student's work had to connect to the work on either side in colour and style at one point. At the end of the workshop, after all the students' works were laid out on the floor, it created this giant Baroque/Rococo inspired fluorescent frieze. The students loved it.

In a similar vein are the longer process-driven workshops for young people by AWESOME Arts and the *Creative Challenge* initiative. Two-week residencies are staged throughout ten regional and remote communities of Western Australia each year. Each engages a pair of complementing artists, which allows participants to "undertake research, conceptual development and implementation of an artwork that will communicate the uniqueness of their community."¹⁷⁰ In the 2008 iteration of the project, *FEAST*, participants artfully extemporized on the theme of 'playing with your food':

¹⁷⁰ Awesome Arts (2010a)

¹⁷¹ Awesome Arts (2010b)

*Each community was asked to create a gift box for another. The gift boxes were made up of objects and materials that had a special significance to that community. The gift boxes were then swapped and each community was asked to give their own explanation on what they thought the gift box represented. Each community then created a life size installation of a scene that represented their community. In other words a 3D mural, to represent and promote who they are. The young people then brought their installations to life, using food, materials from within the community and their gift boxes. The culinary creations of each community were celebrated at the end of each residency. Selected artworks were brought to Perth to be showcased in the *Creative Challenge* exhibition at the 2008 AWESOME Festival.¹⁷¹*

As these various examples reveal, the workshop programs of contemporary art institutions can introduce school communities to a range of innovation materials and processes that utilize multiple artforms as well as cutting edge or familiar technologies.

#3 SKILLS & DISPOSITIONS

Contemporary arts institutions can help schools cultivate innovation attitudes and competencies such as creativity, self-efficacy, energy, risk-propensity and leadership...

by designing immersive, experiential and reflective learning opportunities that are artist-driven or youth led, and where genuine experimentation and empowered questioning can thrive.

Integrated and sustained modes of engagement, such as long workshops and artist residencies, are perhaps the more effective way of developing innovation cultures and skills with students and teachers. As Oakley reports, “the extrinsic benefits of the arts (including the development of non-cognitive skills) are brought about by a prolonged or habitual interaction with the arts.”¹⁷² This deeper form of engagement is embedded in many of the examples that follow.

The development of innovation competencies requires a culture and practice of open-ended enquiry that contemporary arts learning programs can create. Prescriptive approaches and overly specific outcomes, on the other hand, tend to shut down innovation. As Anna Cutler from the *Tate Modern* sees it, “the point where you say, ‘We are going to make this and this is how we are going to do it’, you have stopped innovating. And that, unfortunately, often describes the educational system.”

Avoiding this approach demands a level of trust in the creative process as well as an understanding and tolerance of failure within experimentation. “If we want to innovate we are going to have to throw out the practice and see where it lands” says Anna Cutler, “and some people will do it better than others and some people might get toes curled, and you have to let that happen.” This idea is reiterated by Baba Israel, from *Contact Theatre* in Manchester, who explains that without flexibility and relaxing a certain amount of control organizations only stifle innovation:

[Creative freedom] is what sparks innovation, you need some structure, but if

you have structures that are too formal or too trapped in tradition, they kind of put a strangle hold on innovation. I think that there’s always a little bit of risk with innovation, and there’s always a little bit of uncertainty, and a little chaos.... There’s a good amount of managed chaos.

In describing the lead up to the *Creative Manifesto* project cited earlier as part of the *Tate Today* project, Anna Cutler comments that it was crucial to prepare young people by developing the art of questioning. With regard to the ten schools they engaged across the country, she says:

...we worked with them for 18 months to talk about creativity and what they felt they needed to be creative and innovative... The question was, “What do you need to be creative and achieve?” And what I always hate about these things is that horrible idea that you just put a child down and ask them there and then. It’s not possible. So we worked with them for a year and a half to talk to them about asking questions. Of course, we work in creative partnerships to do that, and the children had definitely been discussing it. So, again, it’s about making the task explicit. Once you know that’s a possibility, as a child, you can start to talk about it, instead of this ‘thing’ that’s there. Or isn’t. You don’t see it, because you don’t know it’s there.

She says she was surprised to hear how much fear was associated with putting up a hand to ask a question and notes, “that’s when you think everything’s gone horribly wrong here. Because it is no longer about curiosity and exploration, it’s about receiving information. It is about passing a test. You come out of the test and you realize it relates not at all to the world you live in.”

Supportive environments where genuine experimentation and empowered questioning can thrive allow the skills & dispositions of innovation to flourish. As detailed in Section 2, there are various levels of innovation skills that are sometimes referred to as basic (foundational), hard (disciplinary), or soft (wider, life skills). Chell and Athayde’s research (2009) suggests that the skills commonly exercised by a range of innovators across disciplines are creativity, self-efficacy, energy, risk-propensity and

¹⁷² Oakley (2007:5)

“Supertoys”, by Kahve-Society. Photograph courtesy of Arnolfini, Bristol, UK.



leadership. The program exemplars that follow, whilst somewhat artificially separated into these five areas, reveal how these innovation competencies appear to be encouraged within the arts-led learning initiatives for young people and schools.

Creativity:

Super Toys, a workshop and exhibition by Arnolfini, suggests creativity at work when children were offered the opportunity to construct interesting and fun new toys from old ones. The multi-art centre’s Education Officer, Helen Davies, describes the concept for this program and its long incubation:

Super Toys began as a school’s project. Artists from The Kahve Society, worked with young people to reconstruct old toys and construct “super toys.” The initial premise was recycling. You bring in your old toys, you take them apart and you make new toys. There was always the intention that this project should come back into the gallery. So last year, Super Toys returned to Arnolfini incorporating a group exhibition and a toy factory. Elements were participatory; visitors could make super toys for themselves. Alongside that there was a group exhibition that explored themes of play, robotics and interaction design.

It’s interesting that an exhibition can be initiated through a learning and interaction project. Altogether Super Toys probably ran with the work that we did in schools for five years prior to the exhibition. A long time in the making.

The Kahve Society ran a pilot in London and from there we worked extensively in Bristol. It was a longer-term commitment with Bristol schools that started off with one school, Headley Park.

For the actual exhibition, we brought in other schools. We recruited young people to work in the galleries as stewards. They were trained and located in the toy factory as facilitators. They rose to the challenge. During their time at Arnolfini, their increased confidence in working with the general public led to an expansion of their role into public gallery tours for visitors.

Self-efficacy:

The artist in residence project *Transitions*, curated by the Camden Arts Centre in London is perhaps exemplary of how creative endeavour can build self-efficacy in young people. Each year, the project works with three local primary schools and the secondary school they feed into, engaging students who are graduating from one to the other. Research has shown this transition period to be one of the most significant times in the lives of young people for developing qualities such as self-esteem and social confidence, impacting strongly on levels of achievement and wellbeing in school as well as throughout life. Anna Vass, Camden’s Education Program Programmer, notes, “*Transitions* is an incredibly reflective project and involves tracking the feelings and experiences of young people as they go through that change, because it’s such an incredibly powerful moment where there’s a lot of uncertainty and inciting of questions.”

The 2008 iteration of *Transitions* commissioned the contemporary artist Emma Hart, who worked with live art and video. She facilitated an exploration of the 'transition' theme while also reflecting on performances inherent within education and how artists might operate within a school environment. Using low-tech audio-visual equipment common to schools, she created a series of live performances and projections for the classroom.

¹⁷³ Enquire (2009:48)

Anna Vass says Hart's residency and her engagement with young people and teachers evolved in a highly organic and consultative way:

¹⁷⁴ Enquire (2008:68)

Emma Hart was based in a studio on site for two months... She had specific kind of questions and specific ways of engaging with those pupils in order to gain reflections on what questions they had about primary school.

When she went into the secondary school, she worked during lunch times and after school in a classroom that was designated specifically for her projects. And that became known as "The Questions Department". So it was maintaining itself as a lunch club and an after school club where pupils could drop in and spend time and was a place where, through conversations with Emma and her presence on a weekly basis, every Tuesday, some ideas evolved and the project took shape. So it was developed in consultation with those young people in terms of how it materialized.

What Emma found was that there came a point within the course of that first year, where [she and the teachers] felt that the nature of her time spent at the school would start to then shift into the classroom. The project then benefited from having a greater number of young people and integrating some of the students who had been spending a lot of time with her during their lunch periods after school...

She was encouraging the pupils to actually consider their relationship to school and their relationship to each other, and to their teachers also, as conscious performance acts. And I think in that respect, from the outside you might see that the project has met certain objectives, but it didn't necessarily stake those as part of its agenda in the outset.

Risk-propensity:

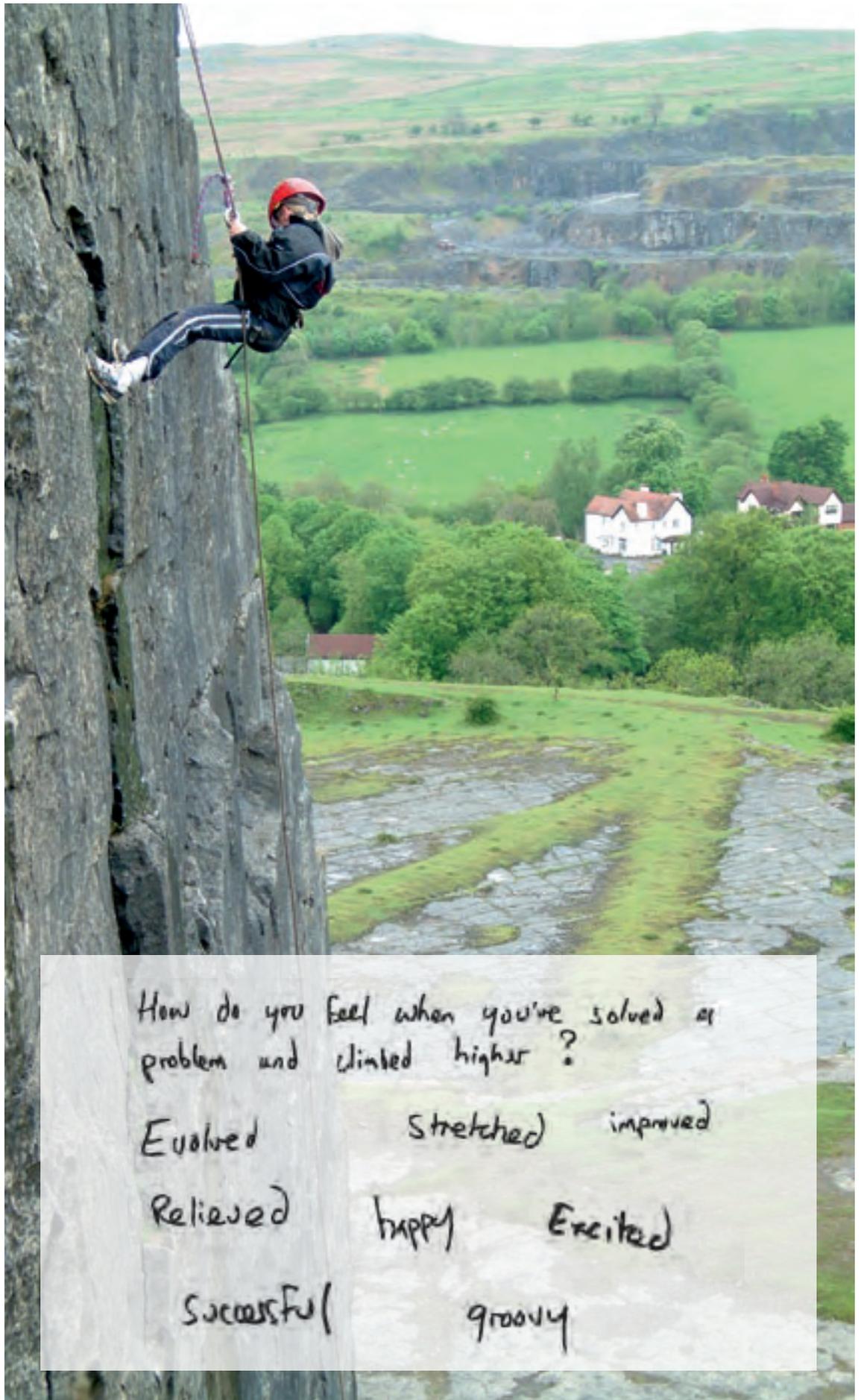
Through one of the UK *Creative Partnerships* initiatives, *Whitechapel Gallery* in London was the lead institution for a collaborative research project asking 'In what ways does gallery education contribute to young people's learning?'¹⁷³ One of the findings was that high school students were learning how to experiment, collaborate, analyse and engage. Another observation was that their schooling contexts appeared to inhibit risk taking:

*All the young people interviewed talked about experimenting with different materials and developing new ideas. However within the current education climate the emphasis on standards and assessment is foremost, and so doing things in new ways and taking risks is not always encouraged. Risk was an alien concept to nearly half of the young people interviewed, many of whom asked: 'What do you mean by taking risks?'*¹⁷⁴

Tackling the theme of risk-taking in a direct and inspiring way was the residency project *Elastic Frontiers*, produced by *Arnolfini*, which explored notions of frontiers, risk, failure and success through art making integrated with abseiling. Over a twelve-month period (2005-2006), artist and mountain climber Dan Shippesides worked with a group of six children at Oldbury Court Primary School, a school whose motto is "achieving together through challenge, curiosity and creativity." The project began with climbing exercises and writing poems about frontiers, which graduated into ventures like scaling local churches and cliff faces. The artist himself describes the residency and some of its artistic outcomes as they discovered about the worlds of climbing and art:

They tried and explored ways of climbing and making art using the school buildings, surroundings areas, local climbing centre and places out in the landscape as their learning environments. The equipment they used ranged from traditional art materials to tables and chairs to specialised climbing equipment. These processes of learning, problem solving, taking risks and discussion were recorded in video, photography, drawing and writing.

An exhibition of this work was held at the school and at Arnolfini. This included my new climbable sculpture, 'The Big Cheese',



The "Elastic Frontiers" project, Arncliffe, Bristol, UK. Images by artist Dan Shippides.

an almost vertical 'slab' wall made of school tables, with holes cut to act as hand and foot holes....

Working, really for the first time, within a school environment, I was aware of discussions about success and achievement and how these are measured... Asking the ubiquitous questions of "how has the project affected you?" or "what is the impact of the project?" 'Height with magazines' uses a stack of (vintage) mountaineering magazines to suggest an absurd way of measuring or assessing an expansion or 'growth' in stature, knowledge and experience. This work accumulated names and height through the exhibition period.

Images from my collection of vintage magazines appear in the photographic series of Untitled landscapes. The magazines acted as a resource throughout the project and the group became quite attached to them—often having favourite images and making drawings from images. The magazines were selected by each young person and they were asked to consider their pose, how they held the magazine and their expression for the photograph. Some fun responses came about through their inventiveness and response to the images.¹⁷⁵

¹⁷⁵ Shippesides (2006)

¹⁷⁶ <http://fact.tv/>

Leadership and energy:

Increasingly common to contemporary arts institutions are 'peer-led' programs—social clubs functioning as project groups that are run by young adults for young adults but with support from the institution to realize ideas. Summing up the concept and approach, Anna Kronenburg of FACT explains, "the young people decide what it is they want to learn and how they want to do it and we facilitate that for them."

Even though peer-led programs are usually extra-curricula, participants are still regularly recruited through contact with school programs. Members range from young people who are simply curious about creative media through to those more focused on developing an arts portfolio and career. The groups engage onsite and online, utilizing project websites or social networking media such as Twitter, Facebook and Myspace.

FACT's peer-led program began in 2007 and emerged out of a project involving a group of local skateboarders who had been interested in making films about skate boarding. While undertaking this creative endeavour, they came up with the name *Freehand*. They began developing its brand and also worked with a design company to establish its web site.¹⁷⁶ The initiative now includes *Freehand TV*, an arts-based channel, like you-tube, that acts as a platform for youth-led events, ideas and innovation. Anna Vroneburg explains the early impact of the program:

They've done a number of projects together [but] they've only started to peer lead. So they didn't peer lead straight away. They were gaining new skills. Then once the older young people involved started to gain those skills became aware of where they should go next, they were quite keen then on recruiting new young people and actually showing them how to make a documentary film, for example, through the things that they've learned here.

The program is aimed at 13 to 19 year olds who have an interest in film and new media, technology. Some things they get involved with are just watching films and talking about them afterwards. And then there are sort of sub groups, depending on their interests. There's an online group that meet and they specifically want to work on the web site and Flash animation. Then there's another group who tend to fundraise and make their own films, documentaries, and fiction films. They pick and choose the areas that they're interested in.

I worked on a project last year with a group of young people and they basically took control of it from start to finish... They knew that they wanted to work with an artist to create a project to work with other young people from different areas in response to a FACT exhibition. So they wrote the application themselves, they put it in, and were successful in getting funding. We brainstormed together, but they led it. Then they put a call out for artists. They read through the applications to shortlist themselves, then interviewed six artists when they came to pitch. They selected an artist and then worked with a quite hard to reach group from Liverpool to deliver it.

“Freehand” members.

Photograph courtesy of the Foundation for Art and Creative technology (FACT), Liverpool, UK.



That was quite successful. And it led to six sessions and then a showcase event at the end where they had this celebration. They take it that far, some of them.

An older peer-led initiative of this ilk was set up through the *Young Tate* scheme. All four Tate galleries recruit young people aged between 13 and 25 years old who are then inducted via a peer-leadership training course. Over the years, projects by these groups have ranged from making fanzines, comics, and transnational exhibitions to creating films inspired, made and screened within the gallery:

One night, one hundred people came to Tate Britain to make horror films. With permission to switch off the lights they invented stories about gallery attendants trapped in time and zombies climbing out of paintings.¹⁷⁷

¹⁷⁷ Tate (2010a)

And at the Tate Modern one year,

They wanted to create a different kind of audio tour as a backdrop for looking at 16 selected art works. The tour produced offers a combination of interviews, sound and music as an alternative way of looking to provoke the viewer to investigate other ways to read that artwork.¹⁷⁸

¹⁷⁸ Tate (2010b)

¹⁷⁹ www.twentyforharperroad.blogspot.com

The Tate Modern’s peer-led program is called *Raw Canvas* and its website states, “Everyone is involved in the decision making process at *Raw Canvas*. You name it—project management, workshops, meetings, team work, training, design, marketing, branding.” Anna Culter also

explains, “They do something called the *Tate Takeover*, where they take over a space or part of Tate Modern and they often take over the [Millennium] bridge and run a series of events on it. It’s always unbelievably popular and busy and they are definitely generating a different feel.” The collective have recently staged a month long event called *Twenty For Harper Road*,¹⁷⁹ with free events, activities and workshops “for people to assemble and talk, think and make creatively,” with varied programming that included instrument-building, moustache-making, Art Walks, and an Aroma-Diner.

Anna Cutler says that peer-led programs can be very time-consuming to administer and expresses concerns they are somewhat limited by how many young people they actually can support as well as the level of responsibility participants are sometimes expected to carry. One of the strengths, however, is in the management experience and motivational skills these schemes cultivate. A testimonial from one of the members of *Raw Canvas* states, “the tasks we set ourselves are almost always a challenge but the sense of achievement when they are finished is unbeatable.” For these groups to be successful, however, the leadership opportunities should not be token or inauthentic. Sally Tallant from *Serpentine Gallery* in central London cautions against making a false offer, and says, “I wouldn’t go down that road unless you’re really ready to go full on into what they say.”

At *Contact Theatre* in Manchester, mentoring and the peer-led concept are infused into the entire organisation, with young people 13–30 encouraged to participate in every aspect of its venue management and live performance program. It has been set up as “a young people’s theatre, where you can grow, learn and make decisions as a young artist, audience member, organiser or leader.”¹⁸⁰ Young people are often trained ‘on the job’ to create and/or manage a range of live performance events in genres such as dance, theatre, spoken word, live art, installation or music. Young people are recruited and paid to be on the board and are requisite members on staff interview panels. Some even facilitate workshops for adults on how to work with young people. Suzie Henderson explains that *Future Fires* is *Contact*’s most intensive leadership program, originally inspired by a visit from *Afroreggae*, a Brazilian music group that engage arts as a tool for community activism. The yearlong scheme amplifies the idea at the heart the peer-led philosophy:

Young people are given the opportunity to have training and development and come up with their own project they’d like to run within the community or with a group of people they are connected to or feel a part of or think they want to work with. And they’re supported to have all the skills that they need to manage that project from concept right through to delivery. They learn how to raise funds, how to manage the budget, they have risk assessment training, job protection training and so on. They learn about marketing and a whole range of skills. They have mentors as part of that and training for them as a group. There’s some training that may help them to find individuals that they need because of the nature of their project. And then, either on their own or in pairs, they can run these projects.

The whole program is a year, including all of their developments. It might be four months in before they actually start to work with their group. Last time, we piloted that program with five young people, and we had everything from somebody making a film, to a hip hop project with young people, to street-theatre Carnival based projects, so quite different outcomes.

In Australia, peer-led style learning has not been as common an offering amongst the programs of contemporary arts institutions.

This may be because the government’s youth arts policies, which have always positioned young people as creators in their own right, have given rise to well established organizations that already provide these kinds of opportunities, such as Youth Arts Queensland (YAQ) and Propel Youth Arts WA, or youth-driven arts festivals, like *2High*. The national peak body Young People and the Arts Australia (YPAA) also does much to cultivate leadership, energy and other dispositions of innovation.

What is significant about the initiatives outlined here is that they offer authentic opportunities for young people to test out ideas and practice skills. Testing ideas is the premise of the *Scratch Festival* staged by *Battersea Arts Centre (BAC)*. Renowned for making some of the most cutting-edge new theatre in the UK, *BAC* is housed in a grand, cavernous building that was once the *Battersea Town Hall*. Famous historically for its radical politicians, the venue is now home to those who seek ‘to invent the future of theatre.’ One way it achieves this is by staging and testing new ideas called ‘scratches.’ In the words of Alexandra Tomkinson:

Scratches are a process of theatre development where you start with a teenyweeny idea, and then get feedback from that, and then grow the work from there. I think BAC started that about 10 years ago, and it’s now used all over the place.

In a festival context, emerging and more experienced artists take over the building, attics and all, to present new performance ideas as little as 5–10 minutes long. These can be seen alongside full-length, finished works that evolved through this very process. *BAC* says it has built up whole audiences by inviting them to be stakeholders and constructive critics of works-in-progress. Alexandra Tomkinson explains, “we say ‘Come and be part of creating the next best idea... you might see the thing that ends up on the main stage in the National Theater in three years time. Be part of that journey.’” *BAC* also has a range of curriculum-connected projects for schools, and as their relationships with teachers and students have developed they have brought the culture of ‘scratches’ into classrooms. With the regular practice of methods such as these, innovation skills and dispositions can be exercised and affirmed.

#4 PEDAGOGIES

Contemporary arts institutions can develop innovative and art-integrated approaches to teaching and learning that energize and expand curricula...

by devising novel resources and interesting project collaborations that interpret, amplify and exceed classroom agendas and in sophisticated ways.

Learning theory and pedagogical knowledge is now a specialism of many arts education curators¹⁸¹ who, in collaboration with artists, teachers and young people, are pioneering new ways of teaching and learning that embody twenty-first century learning principles. Just as there has been a recognizable shift from the educator as 'the bearer of content' to 'educator as the facilitator of learning', Adrian Alexander from *SoundHouse* sees firsthand that young people want teachers to take new approaches:

Kids want to learn in different ways. They want to learn in the here and now. They want to learn in their own time frame. They want to learn in groups. They want to learn socially. And the processes that SoundHouse are engaged with allow that discussion to happen; the focus groups,

the kids who have got to come up with a concept, work it, socialize, evaluate it, constantly research, use and assign different tasks, manage their own learning. All those things create engagement...

In partnership with contemporary art institutions, pedagogical innovations can be developed that address broad curriculum goals and whole-of-school priorities.

"It's not to say that there aren't traditional teaching methods that stand the test of time and are the most efficient ways of doing things," says Adrian Alexander, "but, opening up the spectrum of ways of expression and creativity, if that's what we describe as innovative, I'd say let's go for it."

In this spirit, *Tate Britain's* program *The Ideas Factory* worked to develop new, effective pedagogies for delivering the National Literacy Strategy Framework by facilitating "a multi-sensory and multimodal engagement with literacy through the arts."¹⁸² The program had been running for several years before a formal research component was introduced in 2005-06 and published as *The Tate Britain Ideas Factory Action Research Project (2007)*. The study asked "how can working in collaboration with artists and writers in schools and the gallery help with children's literacy development, particularly those children who have English as an additional language?" Over 300 primary students from grades 3 & 4 were involved

¹⁸¹ Charman (2005:6)

¹⁸² Diamantopoulou (2007:1)



"Get the Message" project (2010). Photographers: Judith Brocklehurst and Georgie Manly, courtesy of Camden Arts Centre, UK.

and the Tate Collection was utilized as a key resource for developing a series of multi-modal workshops held across the gallery and school classroom. The project culminated with a family day and exhibition of the young people's work at *Tate Britain*. The research report states:

*Throughout the programme, the art educators have successfully used the museum resources in order to design a range of activities that would enable children to explore writing in a variety of contexts and through different perspectives (role play, poetry, lyrics writing and picture books). In an attempt to build bridges between the artworks and the school writing skills that had to be achieved and served by the project, the artists designed 'creative' and 'innovative' metaphors that could possibly generate the desired outcome.*¹⁸³

In one scenario, punctuation was taught through a series of visual and kinaesthetic activities inspired by artworks, such as *Standing Mobile*, a painted metal suspended structure by Alexander Calder. "The yellow, red and green shapes attached to the mobile were transformed into full stops, commas and exclamation marks," which through cut-out projects and drawing exercises were also transformed into lively caricatures of animals and monsters.¹⁸⁴

Part of the success of this innovative literacy project was deemed to lie in its 'integrated approach' and the finding that "literacy events can take place in spaces that the curriculum does not make provision for, such as the gallery space."¹⁸⁵ The research team acknowledged that government policy, school curriculum and arts programming can align with undeniable synergy, yet it also observed that these frameworks compete and at times create tension. This raises the issue of how much cultural institutions can or should work to the dictates of a school curriculum.

Contemporary arts institutions tend to privilege the artists' ideas and processes first and then build the relevant school curriculum links where necessary or desirable. As Jenny Simpson of *AWESOME Arts* says, "we program first, and then we look at how it fits." Across the eighteen interviews conducted for the *Growing Future Innovators*

scoping study, the level of curriculum integration was cited as either high or medium but very rarely was it considered to be low or non-existent. Resource packs, for example, were almost always created for teachers in order to relate exhibition and performance programs to classroom activity and agendas.

The valid concern of Ben Roberts at *Camden Arts Centre*, however, was that contemporary arts institutions should not be seen as providing a form of surrogacy for the school system. With regard to the curriculum, he notes "obviously, we need to be aware of those things because if we're talking about developing relationships with the teachers and the schools, certainly in the first instance it would be difficult to create that sort of relationship without being able to make that sort of link." With regard to *Camden's* learning programs at large, Anna Vass adds, "you could easily look at some of our projects and end up with the same number of correlations to the curriculum as you might if you'd have set up that project to meet those in the first place." One way of perhaps clarifying the interrelationship is offered by Fiona James who, speaking about the *Malthouse Theatre's* program, says "it doesn't in any way replace the classroom experience but what it really does is provide an excellent springboard into better classroom experiences."

Many arts organisations make it a high priority to provide relevant, practical and inspiring opportunities for teachers who could then innovate with their colleagues and their students. "We've recognized that it's one thing to be able to provide those opportunities to kids, but it's another thing to actually be influential in what happens in schools" says Adrian Alexander from *SoundHouse*. "So, the growth of the program for students" he continues "was accompanied by the development and growth of a very broad professional learning program for teachers." For the *Performance Space* in Sydney, this kind of professional development support has recently manifested as a Teachers' Club, which arranges a series of meetings, workshops and new performance showings for local teachers who want to explore the possibilities of interdisciplinary arts.

¹⁸³ Diamantopoulou (2007:125)

¹⁸⁴ Diamantopoulou (2007:88)

¹⁸⁵ Diamantopoulou (2007:125)



Baltic Quay maths teachers.
 Photograph by Dan Brady,
 courtesy of BALTIC Centre
 of Contemporary Art,
 Gateshead, UK.

At the *BALTIC Centre for Contemporary Art* in Gateshead, the professional development program *B Creative* includes the novel scheme *BALTIC Buddies*, a hands-on form of ‘expert collaboration’ between artists and teachers that looks at how contemporary art can inspire learning within and across subject areas. Over a series of workshops held at the gallery, art teachers partner with fellow teachers from non-arts subjects to develop a program of work that is then implemented with students. Helen Burns from *BALTIC* describes the model as follows:

Beginning with a contextual talk from the KS3 New Curriculum Regional Subject Advisor, teachers went on to work with an artist, visiting an exhibition and exploring methods for questioning and interpreting art, so as to be able to repeat this with pupils. Emphasising the fact that there are no ‘right answers’, that engaging with art involves personal interpretation and that responses are not judged, was key. If we can nurture this understanding, we open up minds to make connections which can lead to exciting personalised and collaborative learning opportunities.

After looking at the art, the pairs of ‘buddies’ worked as a group to discuss the possible curricular links which could be made through the art they had experienced and working on an idea for a possible

cross-curricular project. After reflective discussion, the process undergone at this point was used as a model to develop a project plan by each pair of buddies.

The pairs used the gallery’s library and archive resources to investigate art and artists as a suitable stimulus for their particular pairing of subjects. Art teachers were paired with teachers of geography, English, history, religious education, science, technology, drama, maths etc., which made for an interesting selection of art and artists.

The whole session was visually mapped and wall spaces were used to progressively display what was produced, providing materials for reflection and gradually making the creative process visible. An added benefit of this was to demonstrate the value of displaying work in progress, rather than only the ‘perfected’ end results.¹⁸⁶

The program has proved so popular that in order to accommodate for its growth Helen Burns says, “we are now developing ideas to create a digital network in which buddies work collaboratively, sharing expertise to socially construct knowledge.”¹⁸⁷

On another scale entirely is the project *Edgware Road* by the *Serpentine Gallery*. It involved artists working with all of the

¹⁸⁶ Burns (personal correspondence, 2009)

¹⁸⁷ Burns (personal correspondence, 2009)

teachers from one school for more than a year and overhauling the entire curriculum in the process. Sally Tallant explains the radically innovative approach:

We invited a collective called Ultra Red into St. Albert's School, sound artists whose members are based in nine different countries. And they decided, because the secondary education curriculum has opened up a little bit here, to turn the entire learning for the school, across all subject areas, for the whole year, to the Edgware Road. So, they rewrote the entire curriculum for the school across history, geography, English, everything—I didn't ask them to do this, they did it... The Head's great there, and she said 'we don't just want art, we want to really practice art'. She's amazing. So the whole school, all subject areas, maths, everything, studied the Edgware Road. And the person who went into the school from Ultra Red is an educator at Columbia. By training he's actually an ethnographer but he's an artist. He was really interested in this whole process, so that was quite helpful...

What they ended up with was looking at migration stories and citizenship, which they started in their geography and history classes, and then they ended up writing a libretto, which became the first part of an experimental opera. And this will be staged in 2011 on the rooftops up and down the Edgware Road.... Ultra Red have been in

there all year, on and off. Not all the time. All the teachers have been brilliant. And they did something incredibly radical, which I also didn't expect (and this is what artists do that you can't plan for)—there are teachers who are performing alongside the students in the work. And they love it. So, that project is going really well, and that takes it into a different level of engagement for us.

It's amazing to find schools that are willing to rewrite the entire curriculum. The artist did it because he was really interested. And he did it with the teachers... and we used the expertise in the school...

Delivering through the teachers isn't something I've ever tried before. The traditional method would be that you send the artist into the classroom, and they do all this stuff alongside the teachers. Actually empowering the teachers to deliver the work, and be part of the project in that way, it's working really, really well. Suddenly our reach is like "foom!" we can literally send one artist in and work with 2000 kids... And the teachers... they're really on board, and they're all excited. It's great.

As examples like these suggest, art-integrated teaching and learning approaches can energize and expand school curriculums. At the heart of this approach is the valuing of authentic partnerships in creative learning and innovation.

#5 PARTNERSHIPS

Contemporary art institutions can broker and build partners and relationships for supporting innovation that are long-term, reciprocal and personalized...

by considering the teacher-student relationship but also looking beyond it to other partners in learning, such as artists, peers, parents and families, as well as business or community groups.

The momentum for building partnerships between cultural and educational institutions is growing, and healthy relationships are characterised by what Leadbeater refers to as “the art of working with,”¹⁸⁸ (as opposed to the service model of *for*), allowing for open, sharing, democratic and participatory modes of engagement. Xanthoudaki et al. observe that:

*as far as school education is concerned, museum visits are seen no longer as an end-of term treat or as ‘unfocused’ outings, but as the ground for developing creative and lasting partnerships between museums and galleries and educational institutions.*¹⁸⁹

For over six years the *Creative Partnerships* scheme in the UK has provided government funding that has enabled hundreds of experimental collaborations between artists, art institutions, teachers and young people. In this context, universities have been working with these partners, helping to facilitate and report on learning outcomes. These stories of collaboration and co-production have been published in the *Enquire* research project and are indicative of widening networks and learning support within the arts and education sector.

A growing area of programming within contemporary art organisations is ‘family learning’, an intergenerational, experiential and playful style of co-learning involving young people and their parents, carers and relatives. While these programs are still largely under-researched in terms of their impact, one of the rationales operating within them is that “provision conceived jointly

for adults and children can lead to enduring creative and critical enrichment for both.”¹⁹⁰ Outcomes, for example, might be improved literacy or numeracy skills, yet, as Pringle stresses, the more important opportunity being offered to families is healthier attitudes towards learning via “an open, varied, non-threatening, experimental, challenging, playful, enjoyable experience with ideas and objects.”¹⁹¹

Reinforcing the impact of parental involvement on student achievement that is discussed in Section 2, Sally Tallant from *Serpentine Gallery* suggests that one of the reasons institutions establish family learning programs is because “one of the big barriers for children is their parents, who are intimidated and don’t know the kind of questions to ask. And if they can learn alongside their children then it’s much easier for them.” This is a motivating factor in why *Serpentine Gallery* invites whole families to engage with artists and their work. Recently, for example, workshops were staged with Abäke Design Collective and Yan-Ki Lee based on imagining the family of the future. Families could also ‘drop in’ on artists-in-residence Polly Brannan and Imogen Luddy to create new artworks and discuss their ‘future self’. The value of this kind of involvement, says Kate Ryan, Curator Children’s Art Centre, Queensland Art Gallery, is that:

Parents can also see that [the arts are] a valid form of existence in the community. It’s real work. There are outcomes which bring enjoyment and pleasure to people’s lives.

Peer-to-peer styles of learning can also be enabled through the various programs of contemporary art institutions that recognize the agency and affect of these relationships. In addition to the peer-led project groups identified earlier, another model relying more on the involvement and coordination of schools is the *Tate Modern’s Turbine Generation* project.¹⁹² Sponsored by Unilever, this online education initiative enables cross-cultural exchange and collaborative learning between students, and by 2012 is expected to include classrooms from over thirty countries. Each year the projects take their theme from the artist who is commissioned to build a work for the *Tate Modern’s* architecturally dramatic Turbine Hall. Anna Cutler says:

¹⁸⁸ Leadbeater (2009a)

¹⁸⁹ Xanthoudaki et al. (2003:8)

¹⁹⁰ Pringle (2010:2)

¹⁹¹ Pringle (2010:6)

¹⁹² Tate (2009)

What happens is we join up two schools across the world via another hub gallery or arts organization. We're trying to encourage them to go to their local one but use us as a catalyst. The program is based online where they share information and ideas and eventually artwork.

As an example, one school from India sent a series of photographs to their English school and the English school did the 'before and after' photographs of what they interpreted. To imagine, to look at the composition, it's all a brilliant way of encouraging people to learn how to look closely, because it's got incredible purpose to it for them—they try to find out about each other.

The relationship between the paired schools is forged throughout a year of joint enquiry, assisted by artist-designed project packs. Various kinds of artistic media can be used and the creative results are uploaded onto the project's online gallery.

As the contemporary art sector has built this reputation for experimentation, it has become a beacon for business and community organisations seeking to engage with innovative practice and learning. Jenny Simpson observes that “the more businesses and organizations get hemmed in, I think that drives their need to think about things differently, and they look toward companies like *AWESOME Arts* to build their own ideas and their thinking.” In describing her experience of partnering with industry and community, she says “They come to us and say, ‘We’ve got this great idea. You people are crazy enough to do it. Let’s give it a try’. Andrew Clark from the *Queensland Art Gallery* explains this by saying, “they’re attracted to the gallery because, to them, we’re presenting creativity, and in the whole corporate world at the moment there is big talk that the businesses that will survive in the 21st Century are the innovators, are the creative ones.”

In Australia, building capacity through community and arts organization partnerships is now a priority. This is reflected in federal government policy and programs such as the “Creative Communities Partnership Initiative” of the Australia Council for the Arts, designed to stimulate innovation across arts and non-arts sectors.

Business and community partnerships for Serpentine Gallery’s *Edgware Road* project grew to involve local residents and shopkeepers, and a project base was installed in the local neighbourhood called *The Centre for Possible Studies*. Modeled in many ways like a school, projects are structured around three terms, curriculums can be proposed and artists work like research fellows. Another of the *Serpentine Gallery’s* projects, *Skills Exchange*, supported by a range of arts and non-arts partners, enabled artists to collaborate with elderly people, market traders, care workers and young people in order to “swap skills and develop ideas for social and architectural change.”

These kinds of partnerships and learning collaborations create value and forge new and visionary thinking that philanthropy can support. The call for rigorous and highly engaged arts learning can be heard in Anna Cutler’s provocation:

When are you going to stop doing the mosaic? When are you going to stop doing the mural? When are you going to tell them the truth, which is you are going to do something really difficult, complicated and challenging and exciting?

Crucially, as the sophistication of these ambitious projects grows, so can the resources required to produce them. The *Edgware Road* endeavour, for example, had to fundraise over a quarter of a million dollars in order to be realized. As Sally Tallant from *Serpentine Gallery* sees it, a significant shift in traditional attitudes towards support for these kinds of initiatives is essential. Historically, she explains, “there’s a benign philanthropic approach to the notion of what education is and it seems to be a nice thing to do to help the nice poor people and to empower people.” Challenging this premise she says, “it seems empowering as opposed to what it actually is, which is a crucial part of us understanding the world of the museum and gallery as producing knowledge and... creating value.” The point she ultimately makes is that “we should be thinking this is the most exciting work we do, the most innovative work that we do. Not the most worthy needy work that we do.”

#6 INSTITUTIONAL PRACTICE

Contemporary art institutions can embody and exemplify innovative practice through their organisational management and business operations...

by undertaking research and development, engaging in new businesses practices and leading by example rather than waiting for others to do so.

Contemporary arts institutions can model better ways of doing things, as already evidenced by the invention of new online collections and platforms, digital broadcasting, self-guided tour devices, or the inspired architecture of the venue itself. Through the institutions systems and personnel, the organization can function as an innovation hub. Whether driven by market competition or sheer curiosity, Adrian Alexander notes that staff at *SoundHouse* strive to model best practice yet also develop next practice, picking and evaluating market trends that “help build a program of the future.” Citing one example of how they are leading the digital revolution in education, he says:

[W]e are saying: why are we giving kids DVDs, or CDs that are given to the teacher and then the teacher has to go back to school, and then burn those and distribute them to kids. Why, at the end of a session, aren't we simply saying, as you walk out, by the time you get back to school, go to this link, and it will be on a website... you have it instantaneously.

An innovative trend occurring in some institutions is the use of a horizontal management structure to bolster and integrate the education team and agenda as opposed to departmentalizing it. Reflecting on the significant emphasis that the *Queensland Art Gallery* put on learning for young people many years ago, Andrew Clark recalls that “when we started out doing this whole programming for children... I thought we were being

innovative and radical and risk-taking, saying to our profession we are actually going to place this body on a level-pegging with all the other ones.” Since then the education agenda has become embedded or ‘normalized’ across the entire organization, becoming the priority of many staff:

So, if you look at something like the Asia-Pacific Triennial—and I think that's a really good benchmark out there of how far we've taken it—we've got the full lead head curatorial team out there, when they're looking for the artists, thinking about projects for children. What a change that is. They're thinking about, “Well, this person could be in, and they could do something for children as part of that show.” I think the other interesting thing is that the audience, then, is really responding to this, because they're saying they can see quite clearly that there's something in it for them.

I think we're at a point where we're very fortunate. We have a very supportive director and board of trustees... They get as excited about the success of it as we do. That just means you have got that drive and motivation to really keep things going and I think the staff are driven to make the latest thing the best thing they've ever done. The idea is that we have to make whatever we do reach some kind of new standard in some way. Now, it's not to say we haven't done projects that stand out more than others, but there's a sense that we're always trying to achieve that best, highest-quality experience.

Andrew Clark acknowledges that to achieve the learning program's objectives, the institution's internal and external governance plays a vital role. “It's trustees, it's government, it's all these people saying this is actually a valid policy direction that is integral to the gallery's success.”

Arts and innovation expert Eric Booth states that arts and cultural organisations must experiment boldly in order to maintain high engagement and relevance with their communities. At a 2009 seminar in Perth, Western Australia,¹⁹³ he emphasised that innovation need not

¹⁹³ Booth (2009)



Photograph courtesy of the Foundation for Art and Creative technology (FACT), Liverpool, UK.

assume or necessitate large or difficult change. Many things can actually be achieved through modest adjustments that tap the existing competencies and resources of the organisation. “The real art of change is about identifying specific things that will have this influence of re-direction over time,” says Booth. To illuminate, he refers to the ‘trim tab’ metaphor first used by the engineer

Buckminster Fuller. Attached to the rudder of a ship, trim tabs are a small piece of ingenious technology that helps to guide or turn a large vessel around with minimal effort or disruption. Reflecting on the use of ‘trim tabs’ for organisations, Eric Booth asks, “what is one thing we can change that can be quietly radical and promote whole new directions of thinking?”¹⁹⁴

¹⁹⁴ Booth (2009)

#7 CONTEXTS

Contemporary art institutions can connect schools to innovation by overtly framing arts and cultural activity within the broader context of innovation and philosophies of change...

by comparing, contrasting and fusing arts-based innovation with other disciplines and communities that contribute to the flow of innovation.

Given the highly interdisciplinary nature of contemporary arts, innovation is often at work in the collaborative practices and programs. The work of Lousia Bufardeci featured at the *Museum of Contemporary Art* was innovative in its use of statistical data and numerical information recycled from sources like the CIA Fact Book, the national census, the World Bank, UNESCO and opinion polls.¹⁹⁵ Emma Nicolson explains that for the MCA's in-service sessions for teachers they recruited an innovator in the field of mathematics to team-teach these

workshops, and which drew on Bufardeci's vivid and provocative colour charts, maps and architectural diagrams. This instance of connecting arts-based innovation with that of other disciplines amplifies the strategy of the *IDEAS Festival*, which has focused on "the exchange of ideas across sector, across industry, across generations and across the room."

While an institution's central mission is to bring contemporary art and culture to the public, it can also help develop the terminology and understanding of innovation as it relates to the arts and beyond. As Haseman and Jaaniste caution, "If the arts are to be valued as an integral part of Australia's national innovation system" then one of the things we must do is "develop an understanding of arts-based knowledge that connects it to innovation."¹⁹⁶

Finding the language, the tools and the time to articulate stronger links between contemporary arts institutions and established innovation discourses is likely to result in better understandings of arts-led learning initiatives and their impact. As Jenny Simpson from *AWESOME Arts* acknowledges, "the hardest things to capture

¹⁹⁵ Museum of Contemporary Art (2009)

¹⁹⁶ Haseman & Jaaniste (2008:5)



Lecture at the 2010 IDEAS Festival. Photograph by Richard McLaren, courtesy of the IDEAS Festival.

are those stories where you make a huge difference to a young person's life. There's story after story after story where you get feedback but they're stories that you can't really put into your data as such."

Ongoing innovation studies should assist this sector in harnessing more of a shared language for innovation and suggest ways to employ this framework in the evaluation of programming. The idea of arts-based innovation can be so implicit within practices or institutional culture that, as Kate Ryan from the *Queensland Art Gallery* says, "we don't get caught up in those sorts of conversations too much." This is not to imply that innovation isn't operational or expertly recognized within the sector but to say that without a functional or more precise language, the dynamics and accomplishments of arts-based innovation can remain hidden or submerged, especially to those outside

the sector. Anna Cutler from *Tate Modern*, comments on the implications of this obfuscation and acknowledges that:

in cultural institutions, people tend to do quiet things behind closed doors... But I don't think we can just do that. I think we have to be a more explicit about what we're doing. Otherwise, nobody will see.

Part of this difficulty, she continues, is to do with issues of materiality and scale. It is not only that "learning and creativity are often invisible" but the fact that "small innovations happen all the time and we never pull them out and show them, so they just go back into the cycle." The task at hand is to continue to evidence clearer links and a stronger case for how contemporary arts, the institutions that promote it, and the learning programs based on it, are actively engaged in growing innovation.

5

Recommended next steps



Light drawing workshop. Photograph courtesy of the Foundation for Art and technology (FACT), Liverpool, UK.

The overarching recommendation of this report is to forge stronger interdisciplinary partnerships that can educate for innovation. Researchers, school constituents, contemporary art institutions and other stakeholders should seek to create reciprocal learning networks that are jointly focused on increasing innovation cultures and capacities.

Optimally, these initiatives would be designed in response to local contexts, challenges and ideas, and draw on the available resources of the combined partnership.

Research into these initiatives should, where possible, employ a longitudinal approach to trialing and testing, so as to contribute better to policy developments and wider arts, innovation and education discourses.

The following particular recommendations are proposed for researchers, schools, and contemporary arts institutions:

Researchers:

- Build a clearer profile of the arts and cultural innovator, including more detailed definitions of competencies in relationship to other innovator ‘types,’ and the factors that help or hinder the development of these dispositions.
- Develop more robust tools to measure innovation competencies and employ these to evaluate the impact of arts-led programming in education contexts with teachers and young people.
- Critically review the new national curriculum framework to evaluate the extent to which it supports innovation content, values, skills and delivery.
- Explore extra-curricula learning contexts, in addition to classroom experiences, for forging innovation cultures and competencies.

Schools:

- Directed by the seven key factors identified by Kirkland & Sutch (2009) reviewed in this report, critically reflect on the education institution capacity to support and engage with the innovation agenda.

- Diversify the means of engagement with contemporary arts institutions to include alternative but accessible teaching and learning initiatives and technologies, and to promote dialogue and exchange between innovators and school constituents.
- Partner with contemporary arts institutions to offer teachers, students and other learning partners *genuine* opportunities to exercise creativity, risk taking, self-efficacy, energy and leadership.
- Establish ‘expert collaborations’ between teachers and contemporary artists and curators that develop 21st century learning environments and a culture of innovation with staff and students.
- Explore the ways in which contemporary arts experiences and dispositions are transferrable across disciplines and of use to learning and innovation in non-arts fields and contexts.
- Employ contemporary arts-led programming that can reinforce or scaffold curriculum but that can also exceed it via extra-curricula opportunities.

Contemporary arts institutions:

- Clarify the arts terminology of innovation in relationship to other sectors as part of promoting existing innovation that is hidden, submerged or under-acknowledged.
- Cultivate ways for schools to access innovative content and creators, drawing narrative strategies to communicate more clearly the innovation in the world and work of artists.
- Actively experiment with new technologies and virtual reality platforms that can overcome geographic and economic barriers to engaging with school audiences.
- Offer teachers and young people practical, hands-on opportunities to experience the methods, materials and cycles of creativity and innovation that artists use.
- Partner with schools to grow habits and dispositions of innovation through sustained engagements like artist residencies or long-term, immersive projects that are mindful of curricula yet not limited by these frameworks.

- Avoid instrumentalist, overly outcomes based approaches to designing learning initiatives. Instead, develop a culture and practice of open-ended enquiry and questioning where genuine experimentation and empowered questioning can thrive.
- Focus heavily on professional development opportunities for teachers that energize their pedagogical practice and inspire them to foster innovation with students.
- Seek to align with business and community partners who can philosophically and financially support ambitious learning initiatives as well as innovation frameworks and objectives.
- Identify ways in which the institution itself can lead change and actively participate in research and development towards better ways of doing things.
- Integrate the innovation and education agenda across staff teams rather than departmentalizing it, developing a staff-wide responsibility and agenda that encourages continuous and collective innovation.
- Utilize the institution's own resources and knowledge of innovation to meet and grow the ideas and interests of school constituents.



Alfredo & Isabel Aquilizan
In-flight (Project: Another Country) 2009, installed for 'The 6th Asia Pacific Triennial of Contemporary Art' / Recycled materials, sticks, string, wool, sound files. Photograph: Ray Fulton.

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