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Educating the creative workforce: new directions for 21st century schooling

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Abstract

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In this paper, we set out reasons for arguing that creativity is not garnish to the roast of industry or of education –ie, the reasoning behind Mihaly Csikszentmihalyi (2006) assertion that creativity is “no longer a luxury for the few, but...a necessity for all” (p.xviii). This paper investigates three key domains – scholarship, commerce and learning – to argue the importance of moving creativity from the margins of formal education to its centre. First, we elaborate the scholarly work being done to bring definitional clarity to the concept of creativity, moving it from the realm of mystery, serendipity and individual genius to a definitional field that is more amenable to analysis. We then provide evidence about the extent to which creative capacity is being understood to be a powerful economic driver, not simply the province of the arts and the hobbyist. Finally we examine new learning theory and its implications for formal education, noting both the possibilities and pitfalls in preparing young people for creative workforce futures.

Educating the creative workforce: new directions for 21st century schooling

The relationship between formal education and the workplace has traditionally been a vexed one. Teachers have long argued that the value of their work is much more than simply preparing young people for work, while at the same time industry has bemoaned what they perceive as the skill deficits of young people entering the workforce. When ‘creativity’ is thrown into the mix, the relationship becomes even more vexed, given the nebulous nature of what ‘creativity’ actually means, our lack of understanding of whether and how it is acquired, and what its value to industry is argued to be.

While this state of affairs might have been tolerated in the twentieth century, it will be costly if it continues to be the status quo in this millennium. The industrial sector cannot ignore the benefits of a creative workforce to commercial enterprise, just as educators cannot ignore the importance of developing a disposition to creativity in young people. In this paper, we argue that creativity is not garnish to the roast of industry or of education. It is, in Mihalyi Csikszentmihalyi’s (2006) terms, “no longer a luxury for the few, but...a necessity for all” (p.xviii). We examine three domains of activity that are driving the move of creativity from the margins of formal education to its centre - scholarly, commercial and learning - to demonstrate both the importance of creativity as a 21st century capacity, and then examine some possibilities and pitfalls in formally preparing young people for creative workforce futures.

Creativity: Definitional clarity

Creativity continues to be regarded by many both within and outside education as so mysterious and serendipitous that it defies definition. Thus any attempt to foster it systematically is thought to be doomed to failure. In schools it is relegated to the province of the music or art or drama teacher; in universities, to those

‘alternative’ people working in the creative arts. Moreover - and perhaps as a result of this demarcation - it is still widely held that creativity is only relevant to a small percentage of future professional workers. Put simply, it is about artistry, not industry!

Recent research in media studies, cultural studies and business studies has challenged these propositions as myths, asserting that creative capacity is an observable and valuable component of social and economic enterprise (Haring-Smith 2006; Cunningham 2005; 2006; Hartley 2004). It is not garnish to the productivity roast, but fundamental to a highly complex, challenge-ridden and rapidly changing economic and social order. Of all the new forms of capital being generated in and through new organisational cultures and their accompanying technologies, creative *capital* - the human ingenuity and high level problem-solving skill that leads to fresh opportunities, ideas, products and modes of social engagement is emerging as the most valuable. Writing in *Harvard Business Review*, Richard Florida and Jim Goodnight (2005) are emphatic on this point:

A company’s most important asset isn’t raw materials, transportation systems, or political influence. It’s creative capital – simply put, an arsenal of creative thinkers whose ideas can be turned into valuable products and services. (p.125)

Creative capital exists at every level of an organisation. This means that the creativity is not limited to computer ‘geeks’, or suited executives, but is best understood as distributed throughout a profession and/or an organisation. Salespersons are a source of creative capital when they enrol their customers in productive social relationships that provide timely and authentic feedback about the products they are producing and might produce. Teachers are a source of creative capital when they develop powerful peer-to-peer engagement processes that enhance their students’ learning. Public servants are a source of creative capital when they

engage in the sort of strategic planning that streamlines staff support and career development opportunities. It is not positioning the hierarchy but human capability in all its ingenious forms that is the essence of creative capital, and it is creative capital that is being heralded – not just by Richard Florida but by many other academics, as an observable and value-adding asset of the 21st century business organisation.

Learning theorists have contributed to the ‘de-mystification’ project in arguing that creativity consists of three components - domain relevant skills, creative processes, and intrinsic task motivation – all of which can be fostered through formal and informal learning (Sternberg 2007; Robinson 2000; Simonton 2000). Thus, while highly individual ‘genius’ is likely to continue to defy neuro-scientific ‘discovery’, at least in the foreseeable future, there is an emerging consensus around the view that creativity works as both a way of thinking associated with intuition, inspiration, imagination, ingenuity and insight, and a novel and appropriate response to an open-ended task (Byron 2007). These creative capacities can be developed in the right learning environment – they are neither simply innate nor are they so vaporous as to be unlearnable.

Support for de-mystifying creativity comes from social and organisational analysts, who show that the sort of creativity that leads to innovative organisational practice is more likely to be *an outcome of adaptation* – new re-combinations of what currently exists (see Leadbeater 1999; Lessig 2005) – than of ‘flash-of-inspiration’ moments or the radical invention of something out of nothing. This builds on understandings first made public over fifty years ago in Arthur Koestler’s *The Act of Creation* (1964), in which he identified the decisive phase of creativity as the capacity to “perceive... a situation or event in two habitually incompatible associative contexts” (p.95). This work draws attention to the capacity to select, re-shuffle, combine, or synthesise already existing facts ideas, faculties and skills in original ways as evidence of creativity at work. Similarly, David Perkins argues in *The Mind’s Best Work* (1981) that skills like pattern recognition, creation of analogies

and mental models, the ability to cross domains, exploration of alternatives, knowledge of schema for problem-solving, fluency of thought and so on, are all indicators of creativity as a set of learning dispositions or cognitive habits.

Likewise sociologists have added valuable insights into the nature of creativity within business organisations. Ronald Burt (2004), for example, insists that the value of an idea is more important than the source of an idea, the implication being that people who can 'broker' ideas successfully, moving them from one domain in which they may appear to be quite mundane, to another in which they come as fresh and exciting new concepts, are more important to the creative capacity of an organisation than the genius myth allows. He says:

People connected to groups beyond their own can expect to find themselves delivering valuable ideas, seeming to be gifted with creativity. This is not creativity born of genius; it is creativity as an import-export business. An idea mundane in one group can be a valuable insight in another.... An idea is as valuable as an audience is willing to credit it as being. (p.388)

What Burt demonstrates through his empirical study of the social structures of contemporary organisations is that the value of our ideas is not always immediately evident. An idea may only be deemed valuable once it has been transported into a different location in which there is a constituency "more ignorant than you and poised to benefit from your idea" (p389). So the capacity to move an idea from one location in which it seems mundane, to another in which it comes as a value-adding discovery, counts more, in value-adding terms, than generating a new idea. When understood this way, creativity looks more like successful brokerage capacity than genius.

A further significant contribution to the definitional work has been made by Mihaly Csikszentmihalyi's (1999), in his insistence on *the community, not the individual*, as the unit that matters when seeking to foster creativity. By implication, this proposition challenges conceptions of creativity that are limited to personal psychological traits. It moves the focus to the sorts of environments in which collaborative efforts are fostered and rewarded, including the social conditions that pertain to such enabling environments.

Creativity: Economic significance

According to the Australian Research Council's Centre of Excellence for Creative Industries and Innovation¹, a creative workforce has a much wider brief than the cultural industries, although 'creatives' as a professional 'class' include many widely recognised cultural activities. In 2002, Harvard economist Richard Florida (2002) estimated that the creative class included 38.3 million Americans, roughly 30 percent of the entire U.S. workforce---up from just 10 percent at the turn of the 20th century and less than 20 percent as recently as 1980. He estimates that this trend will continue because the future of paid work will be increasingly about turning symbolic knowledge into valuable economic and social assets and this will apply to a much wider range of industries than what are now termed 'the creative industries'.

Claims that creative capability is the key to economic growth and human capital development are growing more vociferous (Smith-Bingham 2006). Daniel Pink, author of *A Whole New Mind* (2005), estimates the value of these creative industry assets at \$6.1 trillion in 15 years time. Pink goes on to argue that a profound shift has occurred in the story of "affluence, technological progress and globalization", a shift that he characterises as moving us from an Information Age (in which knowledge workers are highly valued) to a

¹ <http://wiki.cci.edu.au/confluence/display/NMP/CCI%27s+Creative+Industries+Definition>

Conceptual Age in which creators and empathisers ie, workers with high concept/high touch aptitudes, will be most valued as ‘creative’ human capital (p.49).

All of the above activity to give definitional clarity to, and to demonstrate the significance of, ‘creativity’ serve to unhook it from ‘artiness’, individual genius and idiosyncrasy, render it economically valuable, team- or community- or organisation-based, observable and learnable. This makes it difficult for educators to step around creativity’s challenge to orthodox teaching and learning. It moves us on from the romance of the remote artist-in-a-garret who has no need of pedagogical engagement, and compels us to focus on ways of thinking and doing that are observable and replicable processes and practices within daily economic and social life. Always and inevitably complex, creativity becomes less mystical, and it is in this definitional form, and with empirical evidence of its economic and social significance, that it can be engaged intentionally as an outcome of pedagogical work.

In simple terms, we do not have to wait for the field to be more coherent and self-disciplined to begin considering what educating for creativity might look like. If we cannot ‘transmit’ creativity, we can certainly teach *for* creativity.

Creativity in action

The burgeoning field of scholarship on creativity and innovation (eg, Cunningham 2002; Hartley 2004; Howkins 2001; Caves 2000) has demonstrated the economic importance of digital content industries such as computer games, digital video and film, post-production, animation and websites (Cunningham 2005). Yet the creative industries alone do not represent the full array of enterprise that is benefiting from creative capital. Creative capabilities are now regarded as important vocational capacities in *all* globally competitive enterprises (Florida 2002). The creative workforce now includes those employed in a wide variety of

industries including computing, engineering, architecture, science, education, arts and multimedia. Similarly, economists and policymakers are coming to see creativity, innovation and human talent as the engines of economic growth and social dynamism.

A further factor that is mobilising creative capacity building for competitive economic ends is the unprecedented speed of workplace productivity cycles. According to Kevin Byron (2007), post-millennial relationship marketing, global competition, boom and bust cycles, and rapid technological change have all seen the product cycle of Innovation-to-Diffusion-to-Stasis accelerate from 1970s (when the Innovation period could be anything from 6 to 32 yrs, and the Diffusion period from 15-20 yrs) to become, in 2000, a cycle of 1-5 years for Innovation and 1-5 years for the Diffusion phase to be completed. Indeed, companies Intel have found that 90% of the products they deliver on the last day of the calendar year did not exist on the first day of that same year (Craig Barrett, cited in Haring-Smith, 2007, p2). Thus all enterprise associated with global production is now faster and less certain, demanding more tolerance of ambiguity, more risk-taking, and more capacity devoted to experiment, variety and adaptation on the run (Weisberg 1999). As Peck (2005) points out, we are in a “fast policy market” in which the “demand for creative fixes” (p.767) continues to speed up, as urban planners and developers vie with each other for competitive advantage.

The advent of the speeded up, plugged in, template-free workplace has mobilised national government interest in workforce development. In particular, governments at all levels are seeking ways of developing “skilled flexible workforces that facilitate economic competitiveness and high standards of living” (McMahon & Haines 2006, p.22). In Australia, we have seen a relatively recent shift away from narrow workforce competencies for building Australia’s capacity in “a global knowledge-based economy” (DEST 2004, p.1), to the naming of creative capacity as a key economic driver. *Imagine Australia: The role of creativity in the*

innovation economy (2005), a national policy of the Prime Minister's Science, Engineering and Innovation Council, overturns narrow scientific and technological definitions of the sort of creativity that leads to innovation. It argues instead that "the creative imagination knows no divide between science and art" (p.1).

In parallel with this development in labour market policy, we have seen a growing body of research focused on the employability of young people, and how they experience work (eg, Buchanan et al 2001; Kearns 2001; Bullen, Robb & Kenway 2004; ACER 2005). Manuela du Bois-Reymond (2004) describes contemporary European youth as 'trendsetters' who set their own learning agendas which involve less formal education and more informal and non-formal learning (p.187). In similar vein, connectivist theories of learning are helping us rethink the dynamics of a creativity-enhancing learning environment by paying less attention to the sources of our information and more attention to processes through which knowledge and information are transferred and translated within and across our social networks.

Connectivism, according to learning designer George Siemens (2005), understands the nature of our personal networks are dynamic, capable of organising and adapting in order to allow us to form new connections within what is essentially the "messy, nebulous, informal, chaotic process" (p.10) of learning. By implication, the work of a designer of learning environments begins with an acknowledgement that the act of learning is "a function under the control of the learner" (p.10), and will be enhanced if and when the personal networks within which the learner can move with confidence and agility.

Information and communication technologies have a very important role to play in enabling the development of these personal learning networks. As Siemens puts it:

Blogs, wikis and other open, collaborative platforms are reshaping learning as a two-way process. Instead of presenting content/information/knowledge in a linear sequential manner, learners can be provided with a rich array of tools and information sources to use in creating their own learning pathways. The instructor or institution can still ensure that their critical learning needs are achieved by focusing instead on the creation of the knowledge ecology. The links and connections are formed by the learners themselves. (p.10)

This current interest in how 21st century young people may actually learn somewhat differently from previous generations points to the need to adapt to emerging patterns of informal learning, and to reasons why formal degrees are increasingly being considered less important than /tailored credentials' acquired in work-related settings. Futurist Sandra Welsman (2006) argues that young people are now likely to need "one good qualification plus edgy know-how" (p.50) if they are to have successful work futures. The precise nature of this "know-how", and how it is acquired, continues to be somewhat elusive, despite some scholarly work suggesting that dispositions to flexibility, adaptability, self-management and the cultivation of an "enterprising self" are key elements of a 'creative' disposition to the workplace (Garrick & Usher 2000; du Gay 1996; du Gay & Pryke 2002).

We are, however, able to be more precise about what are employers looking for beyond a formal credential. According to a recent report of the UK Higher Education Academy (Yorke, 2006), 'employability' – the combination of a person's achievements and potential to obtain paid work – is achieved through complex learning that includes disciplinary learning but also 'generic' or transferable capacities that can map onto an employing organisation's vision or strategy. Put another way, employability in both high-end personal *and* impersonal services involves two kinds of expertise, one of which derives from a particular field of

knowledge that is the focus of an undergraduate degree, and one that is about deploying such knowledge and understanding to optimal effect. Those individuals who possessing this combination of skills are highly employable as ‘creatives, ie, symbolic analysts who can do the imaginative thinking and doing that builds the capacity of an organisation to compete in a highly demanding economic environment.

A symbolic analyst adds value to an entrepreneurial organisation through their capacity to:

- theorise and/or relate empirical data or other forms of evidence using formulae and equations but also innovative models and metaphors;
- see the part in the context of the wider and more complex whole;
- intuitively or analytically experiment with ideas and their products; and,
- collaborate with others in ways that increase opportunities for successful innovation. (Yorke, 2006: p.5)

These capacities demand more than basic communication, literacy and numeracy skills. They also demand more than a capacity to use information technology. This runs counter to the idea that ‘core work skills’ have not changed beyond those so loved and cherished by ‘back to basics’ advocates. Neither ‘back to basics’ nor ‘the shelter effect’ of staying longer in formal education will of themselves be guarantees of employability. Being educated is crucial, but it is the *kind of educational experience* rather than the number of years spent in formal education that will make the real difference for the creative workers needed in twenty-first century workplaces.

Educating for creative capacity

What it means to educate for such outcomes in sustainable and replicable ways is a matter that has had less attention from governments in Australia (still heavily reliant on the mining boom) or China (still heavily reliant on manufacturing) than in other countries such as the UK, Singapore and Korea. The perceived literacy deficits of school and university graduates have been much more prominent as a policy matter than the call to creative capability building. This is somewhat ironic, given all the evidence that “short messaging capability” (Hartman, Moskal & Dziuban 2005, p.6.4) and the capacity to navigate “at blinding speed...across the vast reaches of the Internet” (Seely Brown 2006, p. 3) are likely to be much more commercially valuable as workforce capacities than the ability to write a six hundred word essay in mistake-free prose. Creative capacity is not built by ignoring traditional literacies, but they are of themselves *not sufficient* to prepare for creative workforce futures.

It needs to be acknowledged here that bemoaning the decline of ‘literacy standards’ is part of a larger set of agendas that are as much about moral training and moral panic as they are about literacy. Traditional concepts of value, progress and identity are always played out in the pushes and pulls around educational reform, so governments who promise to get tough about ‘basics’ are sure to be on a winner with the voting public. As a result of the fantasy that formal education can and should solve every problem (McWilliam & Lee 2006), we now have school curricula over-crowded with social deficit mitigation (resilience programs, obesity programs, safe-driving programs, stranger danger programs and the like). Standing like a not-so-silent sentinel above all these imperatives, bad spelling reigns ludicrously supreme.

There is little doubt that learning “the digital vernacular” (Seely Brown 2006, p.3) is as much a generational issue as it is about curriculum and pedagogy. It has been noted by a number of scholars (eg, Beck & Wade

2006; Hartman et al 2005) that using MP3s, mobile phones, PDAs, and communicating through wikis, blogs and texting is, for the Net Generation, simply *living*. For their mostly baby boomer teachers, such practices come as ‘technology use’, full of mystery, complexity and potential to do harm to ‘real’ (disciplinary) learning. Once again, concerns about how to keep mobile phones or texting from ‘interrupting’ classroom practices have predominated over opportunities for developing different sorts of curriculum and pedagogy that mirror the ‘trial and error’ learning of the Net Generation (Beck & Wade 2006, p.12). As Sieman’s (2005) argues, we need to value and understand the personal learning networks of young people – their significance to learning, and the extent to which new forms of communication technology are changing *when* and *how* they learn, as well as *who they learn from*.

While digital savvy is indisputably a core attribute of 21st century learning, creative capability is not simply about ‘going digital’. There is no doubt that new computer-centred network technologies and their capabilities have impacted powerfully on social systems and social relationships in the workplace. Yet it is also true that digital technologies *may or may not* result in a new or improved set of social dynamics (Sassen 2004).

Furthermore, technological competence alone is not necessarily aligned with creativity. It is for this reason that Florida, Siemens and others have come to focus more sharply on social relationships in their discussions of 21st century skills, rather than technological innovation *per se*.

Florida’s (2002) work also challenges us to think differently about what counts as ‘talent’. His notion of ‘talent’ is not to be conflated with ‘high achievement’ in formal education. Guy Claxton’s (2002) research already appears to indicate that highest achievers may not be our best learners. If “building learning power” is, as Claxton says, more important than formal test results, then what learning power is – and how learning power is acquired – is a more useful quest than bemoaning the apparent superficiality, or literacy deficits or

lack of resilience of young people. Moreover, if Zygmunt Bauman (2004) is correct, young people will simultaneously need 'talent' for unlearning ie, for breaking with habits that have served well in the past. Bauman (2004) asserts that "learning may in the long run disempower as it empowers in the short", and therefore, "[all] skills and know-how are as good as their last application" (p.22). Thus what counts today as workforce capability may have a very short shelf-life: today's capabilities may be tomorrow's casualties.

Implications

So what role for formal education? Many ageing teachers and academics have watched as policy enthusiasms come and go, leaving behind perhaps a few pockets of advocacy and some pioneers whose efforts are neither sustainable nor replicable. So it would be hard to blame those who might respond to the 'creative capital' wave with a 'business-as-usual' rebuttal. However, as indicated above, twentieth century business is not *as usual*. Nor are the young people who are supposed to be the beneficiaries of our systems of education (see McWilliam 2005; Seely Brown 2006; Hartman et al 2006; Beck and Wade 2006). They are much more likely than their predecessors to be familiar with the latest technology and to enjoy multi-tasking, and much less likely to learn through listening or watching than through doing.

As the 'experience' generation, stimulation and simulation in the here-and-now are what matters, and they are willing to 'buy' enjoyable experiences and to make very quick decisions about their choices. In their world, truth comes not as a set of fixed values but is in constant flux, appearing and disappearing in endless sound bites, half baked ideas, gossipy tid-bits and media grabs. They are not particularly interested in what older people know, nor do they rely on instruction to navigate their worlds. They are unlikely to see themselves as having a 'career', and are more likely to drift, churn and park in their quest for speedy gratification, a set of

characteristics that to a baby boomer generation, looks awfully like lack of commitment, not to mention hyperactivity disorder.

It has been clear for some time that young people's aspirations and influences are not simply developed in schools, Technical and Further Education (TAFE) colleges and universities. They read, see and make new cultural objects at home, online, at work and at play. Thus they are changing their experience of work and play (Lessig 2005) at the same time as the labour market itself is changing. Choices about work, career and work-life balance depend on techniques of self-reflection, self-cultivation and the capacity to 'plug in' to social networks and flows of information. Young people will generate creative capital if they can acquire and discard both skills and bodies of information at speed, while consolidating their professional experience in personal and professional narratives and personalities and in the ways they use their face-to-face and online social networks to adapt media representations, fashions, lifestyles and aspirations (Kelly & Kenway 2001). The skills of navigation and interactivity are paramount in this self-fashioning work. It is not a matter of style winning out over substance. 'High concept/high touch' abilities merge style and substance, and, in so doing, they render such binary logic culturally absurd.

For many current teachers and policymakers in Australia, educating for 'self-actualisation' sits well as an educational goal, at least in theory, given its apparent student-centredness and its hope for personal fulfilment through 'critically reflective' learning. However, the current generation of baby boomer teachers, marked by a liberal-progressive ambivalence about 'the Market' and about 'Style', are likely to be less sanguine about educating the 'entrepreneurial subject'. Indeed, fears have already been expressed in the educational sector that the "free flow of ... ideas and artefacts in the public realm" will be reduced to "commodification", if creativity is reduced to vocationally saleable skills (Bullen et al 2004 p.16) and "shopping for a lifestyle" (Bill

2004, p.1). The competitive advantage that can be secured through “ideas and intangible assets” and “creative cool” (Flew 2004) is of much less interest to the current generation of teachers than the idea that education is for raising self-esteem and helping young people reach their full potential, the latter concept usually remaining undefined and free-floating as a vague vision of personal fulfilment.

One of the problems that has arisen from this apparently laudable goal is that it can and does collapse into a “therapeutics of affirmation” (Furedi 2004:122), a condition which makes it possible to achieve “easy success” (Dweck 2006) rather than struggle with the instructive complications of error. Meanwhile, we have seen educational institutions come under increasing pressure to make their quality calculable, with quality assurance being tied more specifically to funding. So paradoxically, we have a baby boomer teacher culture of benign humanism co-existing with an institutional culture of performativity and accountability. It is indeed a curious cultural mix.

Getting into an ‘either/or’ debate about students performing well or ‘being happy’ is not helpful. Carol Dweck’s (1999) research is useful because it does not take self-esteem as a starting point, but looks at the ways in which high performance and learning power (not self-esteem) may be at odds. For Dweck, an individual’s performance goals are focused on “winning positive judgment of your competence and avoiding negative ones”, while an individual’s learning goals are characterised by a desire to develop “new skills, master new tasks or understand new things” (p.15). While these two goals are “normal and universal”, they can be - and are - often in conflict. Dweck (1999) notes that, when there is an overemphasis on performance goals, people are less likely to move out of their zones of competence, and more likely to blame their own lack of ability if things go wrong. They are more likely to worry much more about their lack of ability and thus to focus much less on strategy. When the pressure is on, if they can’t look smart, nothing matters more

than avoiding looking dumb, and this can consume a great deal of time and energy, while at the same time creating a downward spiral of self-recrimination, vulnerability and victim-hood (Dweck, 1999: pp.16-19).

In Dweck's research on the performance and learning activities of young people, performance goals and learning goals were found to be present in most of these individuals in about a 50/50 ratio (p.16). They could, however, be manipulated by an influential external 'other' (eg, a parent or teacher). When this occurred, it was clear that those students for whom learning goals were paramount continued to seek new strategies and to tolerate error without self-blame, while those who were performance-driven were more likely to give up on the task set, berating themselves for their inability to complete it.

Because creative workers need to be able to persevere in the face of complexity and unresolvability, the matter of maintaining motivation is a very important one. Author Frank Madero's (2008) description of the attitudes that make the difference to being employed or not, are closely aligned with the differences Dweck identifies between those overly focused on themselves and what they can or can't perform (a negative) and those who have a healthy learning goal disposition (a positive):

In many workplaces there are workers who can ride the good and the bad, but also those who will spend a lot of energy on the negatives. The types don't progress too far with their jobs. A worker with a positive attitude would say: "I know what we have to achieve and although I haven't got the answer just yet, we'll achieve it somehow". A worker with a lousy attitude might respond to the same situation with: "That's too hard, it's impossible and I don't want to try." (p.3)

Young people who are overly focused on performance may well project a combination of arrogance and vulnerability that is certainly off-putting in a workplace situation. In needing to be right all the time, they can be dismissive of colleagues who are prepared to try a new way of doing things:

A positive attitude...means not having to be right all the time. Anyone who continually needs to be right runs the serious risk of damaging their relationships, both professional and personal. [Good employees are]...accepting of others' beliefs even when they are completely at odds with your own. (Madero, 2008: p.3)

Helping young people to focus more on strategy and less on their self-esteem is one way to ensure that young people are emotionally resilient, positive and employable. If the tendency is for children to hunker down and shoot for easy success, the effective teacher, parent or caregiver will help them stay with a task supporting and praising their stick-ability and their preparedness to be tough self-critics rather than praising their 'products'.

Given, as Dweck points out, that the tasks that are best for learning are those which risk confusion and error (p.16), then pedagogical work directed at improved learning outcomes would focus on creating obstacles that need to be overcome. Error would be welcome and explanation minimised (see also Zull 2004). However, where error results in painful condemnation from external others who are marking, grading and measuring each move, then it is more likely that a student will avoid uncertainty at all costs, not embrace it for what it might conceivably offer to fresh understanding and to the strategic search for meaning. Put bluntly, ramping up performance measures around teaching and learning is not likely to grow a creative workforce – indeed, it may have a contrary effect.

A risk-minimising ‘student protection’ environment, though laudable, is likewise hardly conducive to the sort of learning environment that is likely to optimise creative capacity. There is no doubting the frustrations of many reformers who have looked to ‘open up’ formal educational institutions schools to make risk-taking learning experiences possible. In an article in *Campus Review*, ‘A new vision of learning environments’ (Johnston 2004: 12), the frustration of one would-be reformer, Melbourne University doctoral student Andrew Bunting, is palpable:

At the moment we have stand-alone school buildings and whilst they’re nestled out there in the community they’re all behind cyclone fences. People aren’t welcome because of things like stranger danger. (p.12)

Bunting is convinced, however, that “contact and control can all be handled with today’s communication technology and the increasing sophistication of on-line course delivery makes distance learning even more possible” (p.12). While the panopticon possibilities of new ICTs are indisputable, it is less clear what precisely what this would mean in terms of taking full responsibility for enacting the expanded duty of care that is now *de rigueur* for all teachers of young people. The push to risk-taking in learning and the pull to child protection are very much contradictory imperatives that shape the way that schools are organised and made accountable. Both imperatives are crucial to the mission of the progressive school and the work of its teachers and both have to be negotiated in the daily work of teaching and administration. The easiest, and in some ways the most ‘professional’ option is to hunker down to constrain ‘risky’ learning opportunities, and this may well result in more attention being paid to building firewalls than to freeing up learning choice.

While the post-compulsory sector is not as bedevilled by protection legislation as its pre-compulsory sisters, it nevertheless is not free to ignore those risks that come under the heading of ‘health and safety’. The dictates of organisational risk management set up protocols that matter in terms of the welfare of students and staff and staff alike, and these are more likely to discourage than to encourage flights of fancy on the Internet or elsewhere.

Creative capacity building should not be misrecognised as the reiteration of an oft-repeated call to a more student-centred approach. Rather, it signals a fundamental shift towards a more complex and experimental pedagogical setting. As McWilliam (2005) argues elsewhere, the challenge for teachers is to spend less time being sage-on-the-stage and/or guide-on-the-side, and begin to embrace the identity of “meddler-in-the-middle”. As ‘Meddlers’, teachers invite students to become “prod-users” (Hearn, 2005) of disciplinary and interdisciplinary knowledge, not passive couch-potato consumers of teacher knowledge.

Pedagogical processes that build “prod-user” capacity are not predicated on the logic of a supply or value chain in which fixed knowledge is passed down from the top to the bottom. Instead, teachers and students act as co-creators of information products, drawing on a network of people and ideas that is fluid and organic. The pedagogical work demands *mutual involvement of teacher and student in assembling and dis-assembling* cultural products designed to inform, entertain, subvert, problem-solve and inquire. If creativity is more likely to be an outcome of adaptation, as Leadbeater (1999) argues, then creative workers will have the capacity *to edit* reality – to organise it and re-organise it by mixing form and content, to juxtapose through display, to compare texts to understand their difference (Lessig 2005).

This is not as difficult as it sounds. We all now have more affordances in our lives for designing, editing and content creation. Every time we use a drop down menu and select a preferred font, we make a design decision. Tools such as PowerPoint, Word, digital cameras, photoshop and so make it possible for us to select, cut and paste what we want and how we want it. This means that more of us are confidently bringing Do-It-Yourself dispositions to aesthetic tasks rather than leaving it all to 'experts'. In doing so we share the pleasures (and some of the frustrations) of the creative designer and these are the same pleasures and skills that many of our students will already have and enjoy using, perhaps more than teachers do.

There are, clearly, profound implications for assessment of the quality of 'learning products', if co-creation through trial and error is to be acknowledged and rewarded in formal educational settings. This would require a massive shift away from re-hashing disciplinary knowledge through essays or tick-box tests. 'Authentic' evaluation would mean setting up regimes of assessment that engage with processes of cultural production ie, the student's ability to cut and paste words, images, sounds, artefacts and ideas in new and meaningful ways – to store, apply and then discard them when no longer useful. It would, in Seely Brown's (2006) terms, mean evaluating the student's capacity to "grasp...a new kind of language, which includes understanding how graphics, color, lines, music and words combine to convey meaning" (p.3). It would also demand more nuanced judgments of the quality of 'learning outcomes' than currently exists in mainstream, word-centric assessment practices. To reiterate, it is the capacity to engage in value-adding assembling and dis-assembling processes - not the ability to memorise and regurgitate content knowledge - that needs to be prioritised in any authentic regime of assessment for creative capacity building. This capacity is likely to be optimally displayed, if Csikszentmihalyi (1999) is right, in groups and cohorts of students co-creating co-editing and co-evaluating in conjunction with each other and with staff, rather than an individual student response to an

assessment task based on giving the correct answers to questions. Thus the dominant use of assessment to measure learning outcomes as attributes belonging to individuals alone is also being challenged.

Conclusion

Creative capacity building still languishes in the too-hard-basket for many in mainstream education. It will not happen simply by being hoped for despite our systems of formal education, nor can it be left to ‘arty’ types or IT gurus to develop ‘at the margins’. There is no doubting the exciting teaching and learning that is now emerging in some quarters of education. It is not a matter of finding examples of such capacity building and parading them on awards nights, but of understanding the new principles through which relevant pedagogies can be made scalable and sustainable at an institutional, and indeed, systemic level. Another option is, of course, as Ivan Illich suggested in the 1970s, to de-school society. Given the custodial role that schools continue to play in freeing up parents for work, this remains a most unlikely option.

No educator would disagree with the proposition that schools are for more than custody – they are, ideally at least, for learning. As Zygmunt Bauman (2004) has pointed out, any learning that is done must now occur in an increasingly unpredictable and irregular social world in which supply and demand is neither linear nor stable, and labour is shaped by complex patterns of anticipations, time and space. As a result, educators have both the opportunity and the challenge of shifting their attention from content delivery to *capacity building*, from supplying curriculum to *co-creating* curriculum, from supplying education to *navigating learning networks*. In so doing, they will help young people to shift their attention from their own individual performance to their capacity to learn through their own networks - to connect, access information and forge relationships in and through dynamic and productive teams. Appeals to restore time-honoured foundations and to develop more comprehensive testing are as unlikely to develop creative capital as the new generation is to prefer “command and control” over “exploration and bricolage” (Hartman et al, p.64). Profound cultural

shifts will be needed to convince the next generation of learners that they can and ought to value formal education. They may well have more exciting learning options.

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