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Developing creativity across cultures

Abstract:

This article concerns the development and evaluation of a strategy employed in an Australian university to transition Thai university graduates, products of predominantly rote learning pedagogy, to the critical-creative dynamic of the Master of Creative Enterprise undertaken in Australia. The strategy is premised on the principles and practices of Sir Ken Robinson's thesis of strategic creativity and on Mihaly Csikszentmihalyi's contention that it is better to enhance creativity by changing the environment than by changing the individual. The rationale for the strategy is premised on the significance of creativity in navigating an increasingly complex world and on the dual role of creative and critical thinking required for the academic study of creative enterprise. The nature of creative enterprise is defined and a six-step strategy is posited involving creative space, action learning, critical-creative assessments, contextualized application, real-time participation, and transdisciplinarity. Each step is related to Robinson's thesis.

Biographical note:

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Keywords:

creativity – international student education – creative enterprise – Australia

Introduction

This article concerns a strategy to develop creativity across the cultural mix of students studying the Master of Creative Enterprise (MCE). 5,053 higher education visas were issued to Thai students to study in Australia between June 2010 and June 2012 (DIAC 2012) and in the MCE, Thai students form a significant cohesive cultural group to research. MCE students are required to demonstrate both critical and creative expertise in their studies. Critical thinking, as a skill, can be taught by way of premise, evidence and conclusion – the logical essence of objective academic argument (Critical Thinking Community 2011). However, creative thinking and creativity are subjective qualities of human enterprise. Nonetheless, Csikszentmihalyi (1997) and Robinson (2009) assert a strategic approach to creative development. On the premise of both Robinson's and Csikszentmihalyi's theses, a strategy to develop creativity across the cultural mix of students studying the MCE was developed.

Rationale

The rationale for the strategy is premised on the significance of creativity in navigating an increasingly complex world and on the dual role of creative and critical thinking required for the academic study of creative enterprise.

The significance of Creativity

The IBM 2010 Global CEO Study reports that CEOs believe creativity is essential for navigating an increasingly complex world – more so than rigour, management discipline, integrity and even vision (IBM 2010). In the economic setting, creativity is characterised by:

> the ability to perceive the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions. Generating fresh solutions to problems, and the ability to create new products, processes or services for a changing market, are part of the intellectual capital that give a company its competitive edge. Creativity is a crucial part of the innovation equation (Naiman 2010: URL).

While creativity is referred to as the process of bringing something new into being (May 1994) and sometimes as discovery and invention (Csikszentmihalyi 1997), Graham perceives it as the first step in a nexus involving creativity-innovation-entrepreneurship, a tripartite process essential for generating economic advantage:

> enterprise can be said to involve turning a creative idea into a marketable innovation by way of entrepreneurial production and distribution in order to generate wealth to remunerate those involved. In this way, the enterprise aims at economic sustainability. Enterprise, then, involves a network by which creativity, innovation, and entrepreneurship collaboratively engender economic value (2005: 59).

Indeed, Florida (2002) perceives human creativity as the ultimate economic resource by which new ideas and better ways of doing things ultimately raise productivity and living standards.

Thus, a creative knowledge economy has come to dominate global enterprise and has changed the socio-economic landscape with a new education order in which applied knowledge creates national economic advantage. The United Nations (2004) has long advocated creativity in education perceiving creativity as a source of new opportunity for developing countries to generate economic growth.

Nowotny et al (2001) refer to this emergent global economic order as Mode-2 society which connotes a shift in the way society expects and accepts knowledge production. Essentially, Mode-2 society involves a new economic rationalism in which science (academia) is opened to and by people other than scientists who collaborate on socially generated problems in the public arena or 'agora' (Nowotny et al 2001). In the agora, science is no longer regulated by homogenous academics but by the heterogeneity of social robustness involving disparate and conflictual participants who Nowotny et al (2001: 50) refer to as 'the context speaking back' to science. The barriers between institutions have been transgressed in pursuit of innovation such that:

> It is increasingly difficult to distinguish between the domains of the state and of the market, between culture and mass media, between public and private arenas (Nowotny et al 2001: 21).

This is part of the complexity to which the CEOs in the IBM Study refers.

In this new global economic order, Florida (2002) documents empirical evidence for the rise of a Creative Class. Although contentious in some quarters, Florida asserts that the Creative Class earns 50 per cent (or more) of national wages in first-world economies which indicates both the economic value of creativity and why first-world and developing nations have policies to develop creative industries. Robinson is uncomfortable with the concept of creative industries:

> I've never been very comfortable with the expression creative industries. It came about around 15 years ago and it had a purpose at the time--it was to draw attention to these other sorts of businesses whose stock and trade were ideas. The trouble with the idea of the creative industries is that it, of course, suggests that there are non-creative industries as a consequence. Well, I'm trying to think of what they would be. If you're running and engineering or finance company, all companies depend on ideas and ingenuity (Fera 2011: URL).

However, in the context of the MCE, the creative industries refer to the application of the creative arts in enterprise pursuit:

> Industries which are inspired by cultural and artistic creativity and have the potential to create new economic value through the generation and exploitation of intellectual property (Yang 2005: 3).

Thus the creative industries comprise the following segments: music and performing arts; film, television and radio; advertising and marketing; software development and interactive content; writing, publishing and print media; and architecture, design and visual arts (Centre for International Economics 2009). Although there are many different ways to categorize creative enterprise, the following UK segments are generally accepted: Advertising; Architecture; Arts and antique markets; Crafts;

Design including communication design; Fashion; Film, video and photography; Software, computer games and electronic publishing; Music, visual and performing arts; Publishing; Television; and, Radio (DCMS 2006)

The economic impact and employment potential of creative enterprise is recognized by governments across the Asia-Pacific with key policies and documented outcomes (see Table 1).

Australia *The Economic Contribution of Australia's Copyright Industries* (Allen Consulting Group 2001, 2006) *Enterprise Connect and CIIC Creative Industries Economic Analysis* (2009) *Australia Council for the Arts: Arts and Creative Industries* (2011)	China (Hong Kong) *Baseline Study on Hong Kong's Creative Industries Centre for Cultural Policy Research* (University of Hong Kong 2003) *A Study on Creativity Index Centre for Cultural Policy Research* (University of Hong Kong, 2005) *Study on the Relationship between the Pearl River Delta and Hong Kong's Creative Industries* (Centre for Cultural Policy Research University of Hong Kong 2006) *Hong Kong Creative Industries Facts* (2011)
China (Shanghai) *Guide on the Key Points in the Development of Creative Industry in Shanghai* (Shanghai Economic Commission and Shanghai Statistics Bureau 2005) *A Study of the Concept on the Development of Creative Industry in Shanghai* (2005) *2006 Shanghai Creative Industries Development Report* (Shanghai Industry Centre 2006)	Indonesia *The Contribution of Copyright and Related Rights Industries to the Indonesian Economy* (Institute for Economic and Social Research, Faculty of Economic, University of Indonesia, 2003) *Indonesia's Creative Industries* (2011)
Japan *Copyright White Paper* (Japan Copyright Institute 2001, 2005)	New Zealand *Creative Industries in New Zealand* (New Zealand Institute of Economic Research 2002) *Auckland Council Creative Industries* (2009)
Singapore *Creative Industries Development Strategy* (ERC Services Subcommittee, Government of Singapore 2002) *Economic Contributions of Singapore's Creative Industries* (Toh Mun Heng, Adrian Choo, Terence Ho 2003) *National Studies On Assessing the Economic Contribution of the Copyright-Based Industries*, (WIPO, Singapore IP Academy 2006) *Arts and Cultural Master-Plan for 2008-2015*	Thailand *10th National Economic and Social Development Plan (2007-2011)* aims to make Thailand the creative centre of ASEAN industry, with the value of creative industry products to rise from 12 per cent to 20 per cent of gross domestic product by 2012. *Creative Thailand Commitments* (2009) allocated 20 billion baht for Creative Thailand

Table 1. Creative Enterprise key policies and documented outcomes across the Asia-Pacific

Based on IBISWorld estimates, the gross product of the creative industries in Australia was around AUD$31.1 billion in 2007-08, or 2.8 per cent, of GDP (Centre for International Economics 2009: 7). However, the World Intellectual Property Organization (WIPO 2003) suggests that the economic contribution of the creative industries in Australia is approximately 10.2 per cent of GDP and 8 per cent of employment[1]. WIPO data indicates that the contribution of creative industries to the GDP and employment of selected nations are approximately 11 per cent and 8.5 per cent respectively in the USA, 6.1 per cent and 6.1 per cent in Singapore, and 4.7 per cent and 11 per cent in the Philippines. It is thus that developing nations have implemented policies to increase the economic contribution of creative enterprise to GDP. For example, the Thai government initiated the10th National Economic and Social Development Plan (2007-2011) with the aim to make Thailand the creative centre of ASEAN industry and to increase the economic contribution of the creative industries from 12 per cent to 20 per cent of GDP by 2012. The economic significance of creativity and creative enterprise is thus apparent and justifies a strategy to develop creativity across the cultural mix of students studying the MCE.

Critical thinking, creativity, transdisciplinarity and contextualization

The shift in western education from theoretical to applied knowledge production requires creative thinking, transdisciplinarity and contextualization in addition to critical thinking. Today, western universities facilitate the production of applied knowledge alongside pure research in order to generate national and global economic advantage. Western university education has long been structured to meet economic advantage. It was neatly attuned to the mechanistic needs of the manufacturing economy by employing disciplinary silos aligned with Adam Smith's division of labour and is now attuned to the global economy by enhancing scientific rigour with creativity. This combination produces innovations which can generate patents and intellectual property worth millions of dollars for industry, universities and nations. This aligns with Schumpeterian economics in which the outcomes of material production are no longer mediated by progressive government policies as existed in the manufacturing economy. Rather, economic advantage is created by entrepreneurial competition (Schumpeter 1939) which generates gales of creative and social destruction as well as unprecedented freedom.

In this milieu, creativity is facilitated by thinking beyond existing boundaries, awakening curiosity, and breaking away from rational, formalized ideas and conventional processes: that is, by generating new spaces. Creativity is not a 'free-for-all' process. In order to generate economic advantage by way of innovative ideas and solutions to real-world problems, it is necessarily underpinned by critical inquiry involving analysis and logical deduction.

While disciplines remain essential for the organization of academic pursuit, the solution to real-world problems require transdisciplinarity because real-world problems are not contained to a single discipline. Nicolescu's definition of transdisciplinarity, despite its intended reference to quantum thinking, is appropriate:

> Transdisciplinarity concerns that which is at once between the disciplines, across the different disciplines, and beyond all discipline. Its goal is the understanding of the present world, of which one of the imperatives is the unity of knowledge (Nicolescu 2002: 54).

Although multiple schools of transdisciplinarity have arisen in the recent past (Klein 2010), the contextualization of knowledge advocated by Gibbons et al (1994) provides the transdisciplinary application of knowledge to real-world problem solving.

Further, Graham states:

> Knowledge has to be contextualized as well as conceptualized in the creative knowledge economy. When we contextualize knowledge, we encourage cross-fertilization beyond the single discipline. Context provides a forum for combining the knowledge of isolated disciplines into a meaningful whole by way of application (2005: 60).

Contextualization requires the application of knowledge to a specific situation or locale which, because of its uniqueness, generates original outcomes. This application may aim to create possible uses for the outcomes of basic research or to determine new ways of achieving something specific (Australian Bureau of Statistics 2011).

To be meaningful, then, creative enterprise education requires critical thinking, creative thinking, transdisciplinarity and contextualization. These form essential dimensions of a strategy to develop creativity across the cultural mix of students studying the MCE.

The Problem: overcoming the impediment of rote-learning

Though Robinson is highly critical of the manner schools stigmatize creativity, western education systems at least pay lip-service (and sometimes a lot more) to its development, albeit at times ineffective. However, many South-East Asia educational systems rely almost exclusively on rote-learning from kindergarten to post-graduate degrees and eschew creativity in both academia and enterprise. Although this is changing in some measure (Brien 2007), rote learning is still preferred pedagogy in China, Hong Kong, Taiwan, Malaysia and Thailand (Sangnapaboworn 2003; Charlesworth 2008, Tan 2010). Many Asian education systems award high scores and rankings for university entrance based on rote learning rather than on critical analysis and creative problem solving. Teacher-centred pedagogy still dominates entire Asian education systems (Sangnapaboworn 2003).

Developing nations possess rich cultures to drive the growth of creative enterprise and, as detailed in Section 1.1 above, many have developed policies and programs aimed at this development. Relevant to Thai students studying the MCE is the Thai government aim to increase the productivity of the creative industries from 12 per cent to 20 per cent of gross domestic product by 2012 with a commitment of 20 billion baht (approximately AUD$6.6 billion) on the premise that Thai educational institutions will develop critical and creative thinking in students[2]. However, despite

government exhortation, rote learning dominates and diminishes the effectiveness of government initiatives. As in many parts of Asia, many Thai teachers and parents eschew creativity and adhere rigidly to the cultural tradition of teacher-centred rote learning pedagogy (Pengnate 2010) in which students imitate rather than solve problems (Rumpagaporn & Darmawan 2007). As rote learning neither develops critical thinking (Richards 2004) nor encourages creativity, many students educated by learning are unable to create (Lithner 2008).

This presents a dilemma for many Thai students studying the MCE in Australia as their undergraduate qualifications are predominantly theoretical rather than applied and conformist rather than individualised. For example, whereas individuality is reinforced in Australian daily life (Hofstede 2003b), Thai society is communal and individuals avoid being different (Hofstede 2003a). Hence, in the quest to develop creative enterprise in Thailand, many students from Thai graduates enrol in Australian post-graduate studies where student-centric critical-creative thinking dominates[i]. Devoid of creative skills, many experience dislocation and frustration. In order to facilitate the transition of such students to the critical-creative dimension of the MCE, a strategy to develop creativity in students from cultures other than Australian culture was devised. As creative enterprise is an economic pursuit, the strategy was partly inspired by Robinson's 1998 strategy for linking creativity with economic development in Northern Ireland.

A strategy to develop creativity across cultures

It became apparent after representation from overseas students enrolled in the MCE that in order to succeed in their post-graduate studies they required assistance to transition to critical-creative pedagogy and application which dominate this degree. To facilitate student success, the MCE implemented a strategy based on the Csikszentmihalyi (1997) contention that it is better to enhance creativity by changing the environment than by changing the individual. The strategy also acknowledges Robinson's (2010) four dimensions of creative education: individuality, cultural heritage, economic application and social interaction. From these theses, a six-step strategy was devised involving creative space embodying individuality, cultural heritage and social interaction: action learning embodying cultural heritage, economic application and social interaction; critical-creative assessments embodying individuality, cultural heritage, economic application and social interaction; contextualized application embodying individuality, cultural heritage and economic application; real-time embodying individuality, economic application and social interaction; and transdisciplinarity embodying cultural heritage, economic application and social interaction.

Creative space

Fried and Hansson (2010) question the structure and nature of work as it is traditionally organized in workplaces by defying the constrictions of the accepted reality. Applying this logic, lecturers might ask: why do classrooms worldwide look

and feel like classrooms rather than like the offices and creative spaces in which graduates of the MCE will ultimately work?

To break the mindset of teacher-centric (student-passive) education associated with rote learning, the MCE classrooms were structured as creative spaces. There are no desks or tablet chairs but hubs of five and six students around a single table. Five to six hubs are accommodated in the typical creative space. The expectation from the outset is that these hubs will be the focus of student-centred activity. Students are allocated to different hubs per three-hour session to mix cultures and to approximate different working environments. There are fourteen three-hour sessions per MCE subject. Students employ tablets or laptops, electronic devices and paper-based designs at the hubs. By changing the space of students from passive desks to creative hubs, the MCE aims to change the mindset of students from teacher-centric to student-centric pedagogy. The restructure of creative space is consistent with Csikszentmihalyi's (1997) contention that it is better to enhance creativity by changing the environment than by changing the individual.

Action learning

Each three-hour session approximates a real-time workplace situation. The lecturer/tutor is transformed into a 'learning manager' (Lynch and Smith 2006) and is provided with sets of resource materials which are centrally set by the program committee and include regularly updated PowerPoint slides and videos as well as real-time down-loads. This information is punctuated at regular intervals with analytical and creative tasks based on the resource materials. Students work in their hubs to provide individual and group responses replicating the way problem-solving tasks are tackled cooperatively in the workplace. Students may use electronic and paper resources to obtain relevant data. This replicates the way business enterprise seeks and applies information. This strategy conforms to a commonly accepted strategy for creativity: be active (Torva 2011). The student-based activities disrupt the one-way flow of information on which rote learning relies and, from the outset if the MCE, students learn 'to do' as well as 'to know'. Hub problem solving also generates creativity through group brainstorming (Torva 2011). MCE students are awarded marks for group participation that count toward their final grade.

In this way, the rigidity of teacher-controlled lectures and tutorials is broken and a more fluid approach to student-centred learning is achieved. The lecturer/tutor is transformed into the learning manager of critical and creative thinking (Lynch and Smith 2006). Teamwork and peer pressure remove students from the comfort of passivity to the dynamic of action learning (Barkley 2009). This personalises education as advocated by Robinson and Aronica (2009) by way of individualised responses to learning tasks that can embody both cultural heritage and economic application. In this regard, a statement by Robinson is relevant:

> The role of a creative leader is not to have all the ideas; it's to create a culture where everyone can have ideas and feel that they're valued. So it's much more about creating climates (cited by Fera 2011: URL).

Thus, the implementation of action learning changes the dynamic of the creative space by encouraging individuals to be active participants in the learning process rather than passive recipients of rote learning.

Critical-creative assessments

In addition to hub problem-solving activities, students submit three individual assessments per subject. The first is a seven-minute, media-assisted oral presentation on a set topic. Students present to their peers and to the learning manager. The presentation is to the professional standard required for a corporate presentation. The second formal assessment involves a 2,000 word analytical paper which tests critical-creative analysis. The student sources and analyses a case study on a given topic. The final assessment requires the development of a 3,000 word professional portfolio on a given topic. Students are required to produce original concepts and designs presented as a quality colour-printed portfolio to industry standard. Students also submit an electronic copy and may use multi-media to enhance the portfolio.

The three assessments promote and assess the six key components of the critical-creativity agenda: gather information, be active, see things for another's (in this case, the client's) point-of-view, compare and contrast ideas and data, be visual, and generate ideas (Torva 2011). While critical thinking and theoretical principles necessarily underpin all three assessments per subject, students are encouraged to think divergently employing diverse cultural perspectives. This is premised on the following dictum:

> Creativity is the process of having original ideas that have value. It is a process; it's not random. Part of what I get people to think about is, we all occasionally have a good idea, but if you're running a business or a school or university, you don't want to have the occasional good idea, you want to have them all the time, routinely, and have a system and way of doing it (Robinson cited by Fera 2011: URL).

The critical-creative assessments develop the routine of creative thinking as a systemized process.

Contextualised application

In the book *The Knowing-Doing Gap*, Pfeffer and Sutton (2000) ask why it is that so many employees know so much but are unable to apply their knowledge. As the English philosopher Herbert Spencer (1820-1903) is alleged to have said, 'The great aim of education is not knowledge but action'. In the emergent global economy, this has given rise to what is known as 'Mode-2 knowledge production', a term coined by Gibbons *et al* (1994) to connote knowledge that:

- is produced in the context of application rather than predominantly in educational institutions;
- is transdisciplinary being produced beyond single disciplinarity;

- involves locale and participant heterogeneity as distinct from Mode-1 homogeneity;
- involves quality control goes beyond academic peer review to involve diverse intellectual, social, economic and political influences; and
- is collaborative and socially accountable.

Mode-2 knowledge production is based on empirical evidence demonstrating that five per cent of the population of practicing academic researchers in c.1994 were making the majority of scientific advances. It was this application of contextualized knowledge involving the cooperation of industry, university and government which gave rise to Mode-2 society (Nowotny et al 2001).

The MCE situates knowledge production in the context of Mode-2 society by employing applied and simulated industry contexts. Applying knowledge to context necessarily elicits a creative response as the uniqueness of each context requires critical and creative thinking rather than textbook responses[3]. Applications in the MCE include: advertising; arts markets; brand images; cultural tourism; conferences and events; mass media; and creative arts.

The critical-creative assessments and the collaborative hub exercises are applied to these and other creative enterprise contexts. Robinson states:

> Creativity is the process of having original ideas that have value. It is a process; it's not random. Part of what I get people to think about is, we all occasionally have a good idea, but if you're running a business or a school or university, you don't want to have the occasional good idea, you want to have them all the time, routinely, and have a system and way of doing it (cited by Fera 2011: URL).

The contextualised application of knowledge in the MCE aims to develop in students a routine for generating creative ideas applied to real-world situations.

Real-time participation

The value set of the 21st century is real-time. As described by McKenna:

> Real time is characterised by the shortest possible lapse between ideal and action; between initiation and result. In the context of business, a real time experience is created from self-service and self-satisfaction by customers. It is instant response (1997: 6).

Teacher-centric education is rooted in the value set of the late 19th century in which education is premised on time serving. However, the spontaneity of the Internet and social media create a universal space for information sharing, collaboration and commerce. The ability to find and morph information to particular ends is the way industry operates in the context of application. Highly motivated teams of individuals are empowered by search engines.

The following data indicate the democratization information for social and economic advantage. In October 2011, 2,095,006,005 people were Internet connected (Internet World Statistics 2011), 350 million were active users of Facebook (Facebook 2011),

and there were an estimated 5.28 billion mobile phone users (BBC News 2011). There are 5.28 billion mobile telephones, which is three times as many phones as personal computers (ibid). Smartphone sales are expected to surpass PC and laptop sales in 2012 and by 2013 smart phone sales will approach 650 million (Kang 2010). Facebook is predicted to reach 1 billion users by 2012 (Economic Times 2011). The fastest growth is in Brazil, Indonesia, Philippines, Mexico and Argentina (ibid). Hard disk drives are on the decline with flash drives making computers smaller and thinner than currently, consuming less power and running much faster (Turnbull 2011). Every 60 seconds, 103 Blackberries, 935 iPhones 4 and 85 iPads are sold worldwide (Blix 2011). YouTube has become the largest television station in the whole world with 35 hours of video footage uploaded to the site every minute and more video is uploaded every 60 days than the three major US television networks produced in 60 years. More than 2 billion videos are viewed every day while YouTube Mobile has 100 million views per day (Scott 2011).

Telecommunication devices and social media provide the basis for wealth creation, national competitiveness, the reinvention of the corporation, the renewal of the business of government (viz. the Spring Revolutions), and the sustaining of social development including democratic communication (see, for example, Collin et al 2010). These innovations impact higher education but universities are slow to incorporate them into pedagogy. Three factors qualify how the rules of the game have changed: People now have instant access to a wealth of information on-line; Information is either free or low-cost on-line; and, Search engines source, access and interpret information instantly.

Too often the education sector assumes that on-line information is inferior to, and an unnecessary incursion into, academic pursuit. The unwillingness to acknowledge and incorporate technology into student assessment and thereby change the dynamic of university education is only just being realised:

> Today's tech-savvy millennials view the world much differently from previous generations. Digitally enabled youth spend their time seeking relevant content. They use social networks, online recommendations, and search engines to explore their world of choices and customize their surroundings to form an information-based identity. For teachers, knowing how to encourage these behaviours in smart ways creates a huge challenge (McHaney 2011: 207).

Some academics are shifting appropriately. Dutton and Jeffreys for example, comprehensively document the opportunities, merits and imperative of technological change in higher education (2010). They note that social media, smart phones, tablet computers and wireless communications are changing student expectations:

> Education will be expected to deliver specialized, quality lectures that not only synthesize and integrate cutting-edge material but also interface effectively to the real world and its social connectedness (2010: 9).

McHaney proposes five strategies to synthesize and integrate emergent technology in university education (2011: 199-200). Firstly, social interaction tools are employed to leverage collaboration in order to get more students, especially undergraduate students, involved in scientific research and studies. Secondly, this teaches new

media literacy by incorporating new media in classes and promotes its use as students will be using these in both their careers and their personal lives. Thirdly, students are encouraged to remix relevant educational material and find ways to improve its presentation and relevance to classroom learning objectives. Students must employ referenced evidence in this pursuit, thus teaching ethical practice. Fourthly, sticky learning experiences are created by allowing students to return to the classroom as participants, teachers and learners throughout their lives. And fifthly, play is put to work by appreciating that new technologies will emerge from the games, social chat, and other interactions that our students are using in play now.

The MCE adopts these strategies. First, in order to engage techno-savvy students, the degree is experimenting with iPads in class to research in real-time without sacrificing good pedagogy. Because the creative industries work in real-time, the MCE aims to develop a speed of creative response consistent with the technology of the real world. Second, this teaches contemporary media literacy by incorporating media in the portfolio assignments in every subject consistent with the expectations and standard of industry practice. Third, students are encouraged to remix and present multimedia material in oral presentations backed by critical inquiry consistent with MCE learning objectives. Fourth, graduates are invited to return to the classroom as guest presenters. And fifth, analysis and interactions of new technologies including games and social chat are employed to enhance the application of theory to practice. It is a truism that the MCE learning managers teach students and learn from them at the same time.

The MCE does not eschew textbooks but creative enterprise moves faster than text-books are able to be published as the data tabled above demonstrates. Hence, while creative enterprise theory is documented in academic texts and journals, developments and case studies occur in the real-time of the Internet and social media. This will be facilitated when, following a January 2012 announcement, Apple produces interactive textbooks for the iPad: 'students will be able to turn images into slideshows, click on links in the text that will take them to glossaries, and create notes by highlighting text with their fingers' (Connelly 2012: URL). Similarly, Australian tablet designer Evolve III has developed the Windows 7 'Maestro Black' tablet specifically for educational purposes and will be supplying the tablet directly to Australian schools and educational institutions (Vascellaro & Tibken 2012).

Thus, it is essential that students have access to Wi-Fi connected net-books and iPads in and out of the workshop sessions in order that they acquire accurate, up-to-date information for their creative problem-solving. Access to electronic journal data bases plus the increasing amount of e-texts being distributed at low cost ensure that the provision of real-time education is increasingly the reality in the MCE rather than the exception. As Robinson notes:

> It's about being creative to a purpose. The purpose ... is to improve ... impact and performance. Therefore any creative strategy is about either improving products and services or coming up with new possibilities or opportunities. ... [W]hat you're trying to do is create an atmosphere where people are developing the ideas that will become the leading edge (cited by Fera 2011: URL).

Transdisciplinarity

As stated by Klein and Macdonald, transdisciplinarity is employed as a methodology for:

> creating different futures by way of improving choices, heightening reflexivity and inclusivity, generating new languages, designing new structures, and devising new pluralistic and more complex knowledge structures (2000: 217).

This involves a cooperative effort towards the integration of knowledge from across disciplines with the aim of innovating solutions to real-world problems, the solution being beyond any single contributory discipline and unable be reduced to the component disciplinary contributions (see Gibbons *et al* 1994, Nowotny *et al* 2001).

Creative enterprise involving advertising, marketing, brand image, cultural tourism, media, conferences and events, and the creative arts is not an academic discipline in itself. Rather, the applications of the critical-creative assessments embrace Nicolescu's (2002) concept of drawing on knowledge *between the disciplines* and *across the different disciplines.* In this sense, MCE students undertake transdisciplinary research which develops and exploits creativity by developing right-brain entrepreneurial capabilities as well as left-brain analytical skills (Penaluna and Penaluna 2009). Creative enterprise is, in these terms, not a discipline but the integration of cultural heritage, economic application, academic theory and social interaction. The transdisciplinary nature of creative enterprise requires a real-world approach to creativity, drawing from multiple disciplines and cultural sources. As Robinson contends:

> The idea of separate subjects that have nothing in common offends the principle of dynamism. School systems should base their curriculum not on the idea of separate subjects, but on the much more fertile idea of disciplines ... which makes possible a fluid and dynamic curriculum that is interdisciplinary [sic] (cited by Shepherd 2009: URL).

Evaluation

The evaluation of creativity involves both subjectivity and objectivity. Individual emotions and preferences can influence the evaluation of a creative outcome. This is not problematic in Nicolecu's (2002) conception of transdisciplinarity in which there exists a zone of non-resistance between subject and object. A subjective evaluation of the creative design and presentation of student assignments (see Figures 1 and 2) demonstrates a significant improvement following the introduction of the six-step strategy. However, evaluating student results over the progress of the MCE provides a more objective methodology.

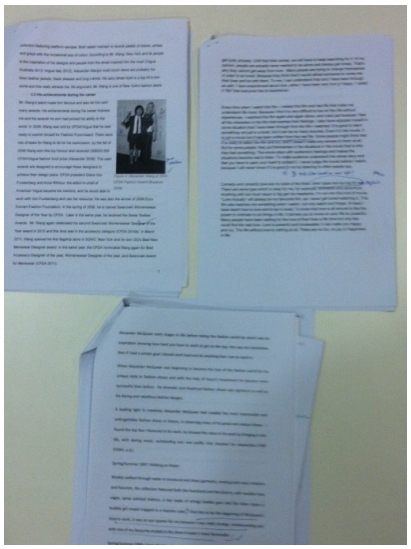

Fig.1. Examples of an MCE Assignments pre the introduction of the six-step strategy

Fig. 2. Examples of MCE Assignments post the introduction of the six-step strategy

First, the results of a random sample of 23 students who enrolled in and graduated with the MCE in 2009 or earlier (prior to the introduction of the six-step strategy in 2010) were tracked over three semesters and tabulated in sequence of study: that is, according to Semesters 1, 2 and 3. This group forms Sample 1. Second, the results of a sample of 23 Thai students who graduated with the degree in 2011 (post the introduction of the six-step strategy in 2010) were likewise tabulated in sequence of study: that is, according to Semesters 1, 2 and 3. This group forms Sample 2. A numerical score was allocated to the results of both Sample groups as shown in the table below:

Result	Raw Mark	Allocated Score
Pass	50% to 65%	1
Credit	66% to 74%	2
Distinction	75% to 84%	3
High Distinction	85% to 100%	4

Table 2. The allocation of scores to student results

The allocated scores for each student result were totalled per semester in both groups as shown in Table 3.

	SAMPLE 1 Pre Six Steps			SAMPLE 2 Post Six Steps			
Graduate	***Sem 1***	***Sem 2***	***Sem 3***	***Sem 1***	***Sem 2***	***Sem 3***	***Graduate***
1	3	3	4.5	7	8	9	1
2	3	4	3	4	5	9	2
3	6	6	7.5	7	9	9	3
4	5	4	3	7	5	7.5	4
5	5	6	6	6	8	9	5
6	4	7	3	3	4	3	6
7	5	6	4.5	3	3	3	7
8	7	3	4.5	10	7	12	8
9	5	5	3	9	4	9	9
10	3	5	3	4	4	4.5	10
11	5	4	6	8	8	9	11
12	8	4	4.5	4	4	6	12
13	3	6	3	4	4	3	13
14	3	3	4.5	4	7	10.5	14
15	7	10	6	9	4	6	15
16	3	3	3	5	4	7.5	16
17	6	5	6	6	10	9	17
18	5	4	3	6	6	7.5	18
19	4	3	3	5	10	6	19
20	3	4	4.5	5	7	7.5	20
21	6	6	4.5	5	5	4.5	21
22	3	4	3	3	9	10.5	22
23	7	7	6	8	7	9	23
TOTALS	109	112	99	132	142	171	**TOTALS**

Table 3. The allocated score for each student result totalled per semester.

While individual scores in both samples vary, the totals for each semester of study are revealing. Sample 1, (before the introduction of the six step strategy), despite a moderate gain in Semester 2, has a lower total score in the third semester indicating that collectively students graduated at much the same standard of critical-creative ability as when they entered the degree. In contrast, Sample 2, post the introduction of the six step strategy, indicates that students generally increased their scores progressively over the three semesters with a 29.5 per cent higher collective score in semester 3 than in semester 1, suggesting that a significant number of students had increased their critical-creative ability over the course of the degree. Whereas only 7 of the 23 students in Sample 1 graduated with an increased score in Semester 3 compared to Semester 1, 16 of the 23 students in Sample 2 graduated with an increased score in Semester 3 compared to Semester 1, a 128.5 per cent increase.

Thus, the results of Samples 1 and 2 indicate that the six-step strategy to develop critical and creative thinking in Thai students studying the MCE has been effective.

Conclusion

The Australian Curriculum Assessment and Reporting Authority states:

> Changes in society have led to the need for what is often described as anywhere, anytime, ubiquitous learning and problem solving. Given that students will face unknown challenges and technologies in the future, they need the skills to think creatively, innovate, solve problems and engage with new disciplines (ACARA 2011: URL).

Unknown challenges and future technologies will inevitably necessitate the on-going development of creative enterprise education. To date, the six-step strategy involving creative space, active learning, critical-creative assessments, contextualized application, real-time and transdisciplinarity appears to have enabled the development of critical-creative inquiry to a sample of Thai students enrolled in the MCE and it is concluded that it forms an effective strategy for developing creativity across cultures. As Robinson purports: 'Creativity is not some exotic, optional extra. It's a strategic issue' (cited by Fera 2011: URL).

Endnotes

1. This variance may be due to different definitions of what constitutes the creative industries and creative enterprise.
2. 'The 10th National Economic and Social Development Plan' (2007-2011) and 'Creative Thailand Commitments' (August 2009).
3. This is an excellent way to evade possibilities for plagiarism in these assignments.

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