

The paradox of creative uncertainty in learning and teaching

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In an ever-changing and globalised world there is a need for higher education to adapt and evolve its models of learning and teaching. The old industrial model has lost traction, and new patterns of creative engagement are required. These new models potentially increase relevancy and better equip students for the future. Although creativity is recognised as an attribute that can contribute much to the development of these pedagogies, and creativity is valued by universities as a graduate capability, some educators understandably struggle to translate this vision into practice. This paper reports on selected survey findings from a mixed methods research project which aimed to shed light on how creativity can be designed for in higher education learning and teaching settings. A social constructivist epistemology underpinned the research and data was gathered using survey and case study methods. Descriptive statistical methods and informed grounded theory were employed for the analysis reported here. The findings confirm that creativity is valued for its contribution to the development of students' academic work, employment opportunities and life in general; however, tensions arise between individual educator's creative pedagogical goals and the provision of institutional support for implementation of those objectives. Designing for creativity becomes, paradoxically, a matter of navigating and limiting complexity and uncertainty, while simultaneously designing for those same states or qualities.

Keywords: Creativity, uncertainty, graduate capabilities

“A paradox, a paradox a most ingenious paradox.”

– Gilbert and Sullivan, *Pirates of Penzance*

If you are a Gilbert and Sullivan fan then the line above from the comic opera, *Pirates of Penzance*, may already have you dancing about and singing the joys of paradoxes. Paradoxes are entertaining puzzles which, in philosophical terms, proceed from believable premises to a conclusion that appears to be “false” or “unacceptable” (Cook, 2013, p.10). In literature paradoxes are a useful device for juxtaposing seemingly contradictory ideas and words, and they can be a means of focusing attention and promoting insight into problems and concepts. Through their use, “unexpected meaning and truth” may be revealed (Behler, 2012, p.996). A study of creativity in the educational context, such as the project discussed here, throws up many of these useful paradoxes, which are simultaneously delightful and puzzling, frustrating and complex. For example students and teachers require both the *freedom* to play and *constraints* on play to be creative; they require *challenge*, but also a level of *comfort*, as excessive challenge overwhelms and limits creativity. The paradox of concern here is one

regarding the process of fostering creativity: while embedding creativity in curricula is a process of designing for and creating complexity and uncertainty, but educators must at the same time negotiate and limit complexity and uncertainty. In examining this conundrum, I present evidence from an online survey where educators were asked about their perceptions regarding the place and value of creativity for students, and how they saw the institutional and departmental view on this same question. The findings reveal a misalignment between personal values around creativity, and institutional support for creative development.

Background

While the importance of creative approaches to learning and teaching have been long been recognised by educators (Dewey, 1910; Freire, 2005; Wisdom, 2006), the value of creative pedagogies in higher education generally has not always been acknowledged (Kleiman, 2008; McWilliam & Dawson, 2007). This is now shifting, however, as globalisation and innovations in science, technology and the creative industries transform economics and the expression of politics, culture and society (Araya & Peters, 2010; Florida, 2002). Individuals and organisations must better prepare for and adapt to a rapidly changing world where formerly tried and true approaches are no longer successful in highly mobile, networked societies. Creative capacity becomes both a driver for change and a means of managing change (Florida, 2002). Governments, business and educational bodies increasingly place creativity and innovation high on the agenda (European University Association, 2007; Niu, 2006; Australian Government, 2013). There is recognition that creative capacity can and should be developed in all citizens as an economic, societal and personal good. The role for higher education in this scenario is to prepare students as creative individuals, adaptive citizens and employees, able to respond and thrive in the knowledge society, and contribute uniquely to the creative economy (Hearn & Bridgstock, 2010). At the same time, educators need to encourage students to value and critique creativity “with wisdom” (Craft, 2006; Rooney, 2010) and consider the importance of creativity for *being* in the world.

Learning to be creative is not merely a matter of acquiring a set of generic skills; it is, as Barnett (2012) argues, an ontological issue, and relates to the development of “human qualities and dispositions” (p.65). It is best developed over time, and while short, skill-based training sessions have their place, they are limited, and successful programs focus on domain-based, challenging real-world problems (Scott, Leritz, & Mumford, 2004). Pedagogical design for creativity therefore becomes a matter of developing more rewarding, less routine, open-ended projects for students, embedded in the disciplinary context, where students learn to take risks and manage uncertainty, proactively find and solve problems, and critique and communicate creative decisions. These are all learning activities, which help students, prepare for what Barnett (2012) calls an “uncertain future”. However in exploring new pedagogical models and less straightforward curricula, academics must negotiate institutional and disciplinary barriers, possible opposition from students, and manage their own discomfort and uncertainty.

Perhaps because of its complexity and “fuzziness” (Fryer, 2012, p. 21), and connections with the emotions and the senses, creativity is not well articulated in the higher education discourse (Kleiman, 2008; Swirski, Wood & Solomonides, 2008), nor universally acknowledged as an intrinsic part of the learning process (e.g. see Freire, 2005). It may also be perceived as difficult to quantify (Fryer, 2012) when compared with analytic modes of academic engagement that are more likely to be privileged over the creative (Jackson, 2006; Jones, 2009). Further, creativity, like other graduate capabilities is acknowledged to be problematic to embed in curricula, there may be a gap between what is valued and what is taught (Jones,

2009), and it is often bound up in disciplinary cultures and preferences (Fryer, 2006; Jones, 2009). While it is problematic, this does not mean it is absent, although it may be hidden.

Two definitions that help frame this discussion relate to graduate capabilities and creativity. Firstly, graduate capabilities (or attributes) are those capabilities that a student is expected to have achieved on graduation from a recognised institution. They typically relate to good citizenship, employability and life long learning (Barrie, Hughes, & Smith, 2009). Secondly, I use Sternberg, Kaufman and Pretz's (2002) definition of creativity as a foundation for debate: "The ability to produce work that is novel (i.e. original, unexpected), high in quality, and appropriate (i.e. useful, meets task constraints)" (p.1). I qualify this, however, by saying that one definition is insufficient when engaging in cross-disciplinary research, as different contexts and disciplines demand different emphases and expressions. Notably, the notion of "appropriateness" of creative output, its assigned value, is clearly negotiable and constructed; like creativity itself, it is subject to personal, disciplinary, cultural and historical influences (Runco & Albert, 2010). I also distinguish creativity from innovation, seeing the former as an individual capacity, and latter as the "systemic output of organisations" (Bridgstock, Dawson & Hearn, 2011, p.105).

Methodology

The findings reported here address the aim of the overarching research project, which was to discover how educators foster and design for creative learning and teaching in higher education. The research was framed within a mixed methods approach (Creswell, 2009) and a social constructivist epistemology, where multiple realities are assumed, and knowledge is seen as "subjective, constructed and based on the shared signs and symbols" (Grbich, 2009, p.8), shaped by historical, social and cultural influences.

The data gathering methods for the selected research discussed here included an online survey of 170 tertiary educators who teach, support, manage, lead and/or research in Australian higher education. Previous related studies have been conducted in the UK (Fryer, 2006) and Australia (McWilliam & Dawson, 2007) but target populations differed, and the scope of questions varied. Recruitment of participants for the 2012 research was via email invitation through two Australasian professional associations, including HERDSA, and snowball sampling methods. Survey question types included five-point Likert scale and open-ended questions. Descriptive statistical methods were used to interpret the quantitative data, and in keeping with the approach used to analyse the case study data (reported elsewhere), the qualitative data from the survey was analysed using constructivist, *informed grounded theory* methods (Thornberg, 2012). Thornberg's variation of grounded theory allowed for review of the literature to commence early in the research process and, following Charmaz (2011), coding and analysis of the data into categories emerged from the data itself, not from imposed taxonomies or pre-defined frameworks.

Findings and discussion

One hundred and seventy participants responded to the survey (52.9% female; 37.1% male; 82.4% 35 years or older). This represented an experienced sample of educators. The majority (82.9%) identified as working in Australian higher education (New Zealand = 3.5%, other = .6%, unspecified = 12.4%, n=170). Participants were drawn from a mix of disciplines with the greatest representation (31.2%) from the arts, humanities and creative industries (see Table 1). This representation was expected given the focus of the inquiry and the traditional interest in creativity from within these disciplines (see e.g. Fleming, 2008; Robinson, 2011). The

demographic also mirrored the disciplinary focus of the accompanying case studies (creative industries and social science).

Table 1: Discipline groups

Aggregated groups	%	Original discipline groups	%
Arts	38.2	Arts, humanities & creative industries	31.2
		Law & business	7.1
Education	28.8	Educational & academic development, & learning support	17.1
		Education faculty	11.8
Science	20.0	Science, mathematics, engineering & IT	11.2
		Health, medicine	8.8
Unspecified	12.9	Unspecified	12.9
Total	100.0	Total	100.0

Note: The smaller discipline groups were aggregated into three main discipline groups (N=170). Where disciplinary background was relevant to question analysis, “unspecified” cases were omitted.

Constructions of creativity

In order to determine how participants valued creativity it was important to first establish their conceptions of creativity. The definitions or descriptions of creativity analysed (n=156) using grounded theory methods indicated that creativity was conceived as a polythetic construct. Participants’ definitions included common elements combined in various permutations, reflecting disciplinary preferences and vocabularies. Ten main elements emerged from the data: the five most commonly cited were, in order of frequency, *process*, *ways of thinking*, *originality*, *creative product*, and *problem solving*. While active process was the most commonly cited element, notions of originality, key to many contemporary definitions of creativity (including Sternberg et al.’s, 2002), were not cited in all definitions, nor did they always include notions of value. Examples of the diversity included the following: “Creativity means ‘making’, that is, it is an active notion, something engaging the wholeness of a person” (#169); and “Working from inspiration to develop workable and elegant solutions“ (#9, teaching & learning). These two definitions take in elements of process and product, value, ways of thinking, problem solving and allude to imaginative, aesthetic, emotional and spiritual dimensions.

Creativity from the teaching perspective

Participants were invited to rate the importance of creativity in three areas: as part of a student’s academic skill set, as the basis for student employment, and as a capability pertinent to a student’s life in general. On a five-point Likert scale (n =170, 100% response rate), 89.4% agreed or agreed completely that it was important for students to develop creativity as an academic skill, and as a general life skill (89.4%). Comparison of the high means for the two questions (Q2a and Q2c, see Table 2) confirmed this strong response (m= 4.54, SD= .78; and m= 4.48, SD= .84 respectively). There was less consensus, however, on the importance of creativity for employment, as a lower majority (67.6%) agreed or agreed completely that it was important, (27.1% undecided; 5.3% rated it as unimportant) (m= 3.98, SD= .99) (see Table 2).

Table 2: The importance of developing students' creativity

Item*	n	Mean	SD
Q2a. I think it's important that students develop their creativity as part of their academic skill set.	170	4.54	.78
Q2b. I think it's important that students develop their creativity in order to find employment.	170	3.98	.99
Q2c. I think it's important that students develop their creativity as a general life skill.	170	4.48	.84

Note: Likert scale, 1= don't agree at all, to 5= agree completely.

Despite the strong trends evident in the quantitative data, and given the range of variation in constructing concepts of creativity, it is not surprising that participants' comments about the place of creativity in the academic context were diverse. Comments about value were tied to conceptions of creativity, and the need for clarification using discipline specific vocabularies. For example, the opportunity to reflect on the value of creativity caused one medical educator to reframe the question by stating that he/she would be more comfortable talking about "flexibility in thinking" and the "ability to transfer between situations", rather than creativity (#35). Similarly, a drama educator strongly decried the commodification of creativity – saying: "Creativity is not a specific 'competency' that can just be 'included' in a skill set" (#61). Clearly finding common ground to discuss creativity is an important first step in constructing notions regarding the value of creativity and promoting cross-disciplinary discourse.

Comments about perceived importance were classified into categories using grounded theory methods. The six categories that emerged regarding creativity as an *academic skill* were: creativity as (1) an essential capability, regardless of context; (2) required for learning in an unknown future; (3) a general good, supporting many areas of learning; (4) a valued capability, but with constraints and qualifications; (5) ideal for the academic context, but not essential; and (6) problematic regarding its parameters and the conceptual language used to express the capability (see Table 3). These variations, where creativity ranged from an essential capability to an ideal, underline the need for sensitivity towards disciplinary preferences, and awareness that not all academics construct *learning* as a creative activity. Some also distinguish between creative skills and academic skills (#13), whereas I argue that academic skills *require* creative skills.

In relation to *employment* (see Table 3), there was a view that creativity might give students a competitive advantage in the workplace, especially when combined with other desirable skills such as effective communication and time management skills, and the ability to work in teams. Several commented that while creativity was essential it might not be appreciated in the workplace, depending on the industry, the employer and expected norms. One nursing educator commented as follows: "Creativity, or the not-expected, can be surprising or even distressing for people in vulnerable situations" (#89). This emphasizes the contextualised nature of creativity, its disciplinary construction and interpretation, and the value for students and staff of developing a criticality around creativity, which includes a sense of wisdom and "appropriateness", to use Sternberg et al.'s (2002) terminology. But when is creativity appropriate? To be creative means to work outside norms and usual constraints, so can creativity ever be "appropriate"? It is the slipperiness of creativity and its hidden dimensions that tends to confound educators when designing for creativity, as creativity has the potential to be (paradoxically) both transformative and disruptive (as Kleiman (2008) confirms).

Table 3: The perceived value of students' creativity

Value to student	Category	Example
As part of an academic skill set	1. Essential capability, regardless of context	<i>Category 1:</i> "I think creativity is useful in whatever field of practice you're working in. In an academic context, being creative is an essential part of contributing to new knowledge." (creative writing, #58)
	2. Required for learning in an unknown future	
	3. General good, supporting many areas of learning	<i>Category 4:</i> "Sadly, so many of our programs and the way we teach them (and the constraints under which we teach and under which students learn) tend to constrain creativity." (educational development, #156)
	4. Valued, but with constraints	
	5. Ideal, but not essential	
	6. Problem with parameters and conceptual language	
For employment	7. Capability providing competitive advantage in the workplace	<i>Category 7:</i> "Creativity in this sense may be the tacit factor in a competitive context." (teaching & learning, #9)
	8. Essential, but not necessarily valued in the workplace	<i>Category 10:</i> "As beginning professionals, the student needs to first understand what is normative and expected by the general public. Creativity, or the not-expected, can be surprising or even distressing for people in vulnerable situations." (nursing, #89)
	9. Capability which helps in combination with other skills	
	10. Knowing the place of creativity – may or may not be appreciated	
As a life skill	11. High value – not just for employment	<i>Category 11:</i> "Finding employment is not the be all and end all of a career. We train for life, not for the job." (engineering, #49)
	12. Value for enhancing emotional well-being and engagement in life	<i>Category 13:</i> "Life should be adventurous. Encouraging creativity in others enables or affords them the same kinds of opportunities." (creative writing, #25)
	13. A means of empowerment and providing opportunities	

In commenting on creativity as a *life skill* (see Table 3) arguments surfaced about the intrinsic value of creativity: "We train for life, not for the job", as one engineer responded (#49). Whether or not students concur with this view is an important question, and one taken up in the case studies (reported elsewhere). The debate goes to the heart of arguments about the purpose and value of higher education. Indeed some participants commented on the value of creativity as part of *being* in the world, as an essential *human* capability, and as an enabler for developing the whole person. If engagement in creative activities contributes to empowerment and agency, as some participants argued, then creativity has a crucial role in developing students as contributing citizens, capable of enacting change and dealing with an uncertain world. As such, it is a capability of enormous importance that cannot be ignored or hidden in the curriculum, even though it may be difficult to conceptualise and manage.

Support for creative development

Having gained a sense of where participants valued creativity, or for what purpose, participants were asked whether they could rely on support from their department, centre or the university to foster creativity. They were also asked if they thought their students valued creativity (see questions Table 4).

Table 4: The value of the creativity as perceived by department, the university and students

Item	n	Mean	SD
Q3a. I think that the development of creativity is valued by my department or centre.	166	3.64	1.15
Q3b. I think that the development of creativity is valued by my university.	166	3.37	1.08
Q3c. I think that the development of creativity is valued by the students I work with.	163	3.66	1.04

Note: Likert scale, 1= don't agree at all, to 5= agree completely.

On a five-point Likert scale perceptions that creativity was valued by a participant's *department or centre* and their *students* were rated similarly: 59.6% and 62.0% respectively (agree/strongly agree) (18.7% and 14.8% disagreed/disagreed completely, 21.7% and 23.3% undecided/neutral, $m=3.64$, $SD = 1.15$, $n=166$; $m=3.66$, $SD=1.04$, $n=163$). Whether or not one's *university* valued creativity, however, brought an even more mixed result, as only 46.4% agreed or strongly agreed with the statement ($m=3.37$, $SD=1.08$, $n=166$). Around a third (34.9%) were equivocal about the university's support on the matter (and 18.7% disagreed/disagreed completely; see Table 4). This demonstrates the gap between what is valued and what is taught, as predicted by Jones (2009) with regard to graduate capabilities. While higher education practitioners want to be creative, and clearly value creativity, they may lack support from their university to pursue this goal, or perceive significant barriers that block achievement. If their department or students are also ambiguous in their support then there are significant obstacles to overcome.

The comments accompanying the questions in Table 4 shed some light on what the barriers might be. Of three categories that emerged from the coding and analysis (see Table 5), the majority of comments fell into category (2) problematic and mixed responses. These comments reported difficulties dealing with mixed institutional messages and student lack of awareness of the different forms that creativity might take. This comment from a visual arts educator sums up the complexity and political nature of the problem:

Creativity has a history of being seen in universities as too vaporous and exotic to be taken seriously. Many in higher education dismiss creativity as defying definition. And as such, defying any attempt to foster creativity systematically through learning and teaching practices. Assessing creativity is apparently even more unimaginable for many lecturers. It is still widely held that creativity is only relevant to a small percentage of graduates as future professional workers. (#114)

Participants commented on the perceived lack of alignment between their own goals and organisational goals, university and departmental priorities and expectations, and reward systems. The contemporary corporate environment of universities was considered by some to be counter-productive to creative outcomes: "Strategic planning, return on investment, etc. are all enemies of academic creativity" (#35, medical education), where performativity is valued over "developing something that challenges the organisation's goals" (#73). Being creative,

when it challenges the status quo, or organisational norms, may not always be acceptable to universities, even though vision statements and statements of graduate capabilities suggest otherwise.

Other contributing factors cited by participants which affected the ability of practitioners to implement a creative vision included: the impact of disciplinary culture; competition within the curriculum from a range of other compelling agendas (e.g. academic literacies); student cohort size and characteristics; the privileging of analytic methods over creative forms by staff and students; and in some disciplines, a disconnect between students' and academics' expectations of standards as a result of differences between high school and university curricula (e.g. in creative writing). Participants also explained that assessment of creative process was often time-consuming and may be negatively impacted by university assessment policies. Digital technologies were both enablers and barriers to creativity. A number of practitioners believed that students are more strategic than ever, minimising effort for maximum return; consequently students are inclined to be risk averse, avoiding assessment choices which involve time-consuming creative activities, sustained application, and complex problem solving or problem finding. This view was confirmed by a creative writing educator. It is sobering to realise that a discipline which explicitly fosters creativity (creative writing) faces this challenge of student engagement, and that subject areas where creativity is not foregrounded may find even greater difficulties. Despite these concerns there were practitioners who confirmed that creativity was core for their discipline and therefore supported (see Table 5).

Table 5: Creativity framed as a core value, as problematic or as subject to issues of definition

Category	Example	Discipline
1. Creativity as a core value	"It's at the core of each student's educational experience here."	teaching & learning, #104
2. Problematic, mixed responses	"Even though listed as a graduate attribute, staff design limited opportunities for demonstration of this."	teaching and learning, #9
	"Conformity and compliance seem to be valued more highly."	dance, #72
	"Expectations are from uni that students will just simply 'be creative'".	architecture & interior design, #52
3. Contested language and conceptions	"I think students value creativity support, but often don't recognise the various forms it can take."	computer science, #67
	"Creativity is not a term that is used in our area of work when describing our teaching. It is perhaps used when describing high end research but it is not part of our major discourse in health."	health science, #86
	"Some of the students I work with see themselves as 'practical' rather than 'creative' although of course the two are not mutually exclusive."	production, #87

Conclusion

As the poet John Keats observed, the ability to manage "being in uncertainties" (Keats, as cited in White, 2010, p. 62) is a mark of the creative spirit. For higher education practitioners, learning to manage the uncertainty and the complexity of being a creative educator, while

simultaneously designing these dimensions into the curriculum entails courage and hard work. Those practitioners who struggle with institutional and/or departmental barriers, and even student resistance, face further problems and discomfort, and are unlikely to dance with joy about the paradoxes discovered in this research. Yet the rewards for engaging in creative learning and teaching are high. By following a creative approach to life and learning, students and teachers alike can develop greater capacity to face the challenges and discomforts ahead. Grappling with the creative process and enjoying the rewards this brings fosters the ability to address ill-defined problems, better manage risk and failure, communicate in multiple media and formats, and find and solve problems. Teachers have an important role in modelling the development of these capabilities as they themselves struggle to design and implement creative pedagogies.

This study provides evidence that higher education practitioners undoubtedly value creativity for its contribution to academic endeavours, and preparation for employment and life. Educators' motivation to be creative will be impacted by disciplinary cultures and individual conceptions of creativity, and there will be cases where individuals value creativity more highly than their own departments, the university or even their students. In addition, when educators engage in the discourse around creativity, there is a strong preference for disciplinary specific vocabularies rather than generic constructs. Finally, a proportion of practitioners *do* have difficulty expressing, designing for and assessing creativity, and institutional barriers play a strong role in limiting developments in this domain.

However, as a way forward, much can be learnt from the approach and strategies of exemplary creative practitioners, such as those who contributed to the case studies that formed part of this research. One strategy of particular relevance is that of reframing barriers to creative development as useful parameters. Paradoxical as it sounds, creativity does not emerge where there is unlimited freedom: constraints help focus time and energy, and encourage adoption of alternatives that may ultimately prove to be imaginative and viable creative solutions.

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