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## Encouraging Student Creativity in Higher Education

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## **Encouraging Student Creativity in Higher Education**

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## Encouraging Student Creativity in Higher Education

### INTRODUCTION

People seem to concentrate best when the demands on them are greater than usual and they are able to give more than usual. If there is too little demand on them, people are bored. If there is too much for them to handle, they get anxious. Flow occurs in that delicate zone between boredom and anxiety.

(Csikszentmihalyi, 1986, cited in Goleman, 1996, pp. 91–92).

This chapter focuses on how teachers encourage the development of creative states of flow in their students and in themselves. The chapter aims to stimulate educators in higher education to think freshly about creativity and to widen their range of strategies for encouraging student creativity.

In our knowledge society, it is more and more important to encourage students to develop their abilities to reason and think creatively. The notion of the knowledge society is widely discussed in the literature, with many ideas about knowledge and education emerging in recent years. For example, exploring theoretical underpinnings of the concept, Hammershøj (2006) strongly contends that the knowledge society is an economic concept based on the idea that the primary focus of production has shifted from industry to knowledge. This production is of specifically *creative* knowledge, as indicated by a contemporary discursive emphasis on both “creativity and innovation”. From the literature, the following question arises: when the capacity to be creative is in demand, what is it then important for artists, thinkers and students in higher education to learn? Laurillard (2002) has argued that universities have responded to the knowledge society’s need for more graduates, mainly taking the form of improved access policy and strategies to programmes of study. Although the

notion of a knowledge society is contentious, its currency in the 21<sup>st</sup> century highlights the need for the development and facilitation of student creativity.

The first part of the chapter prompts readers to think about creativity – their students’ and their own – in new ways. Indeed, encouraging educators to think about creativity is critical for developing students’ creativity. The second part of the chapter addresses the question of how to develop student creativity by discussing practical strategies for encouraging it through designing curricula for creativity, facilitating learning for creativity and devising assessment strategies that promote creativity. The implications of this for the professional development of teachers in higher education are discussed. The chapter also includes in an appendix a list of references and resources aimed at prompting readers to play further with their understanding and practice of encouraging student creativity.

## **EXPLORING THE NATURE OF CREATIVITY**

Here we offer some ideas about student creativity, drawing on:

- philosophical and theoretical understandings of creativity
- starting points for creativity
- the four interweaving elements of creativity
- perspectives on the outcomes of creativity.

### **Philosophical and Theoretical Understandings**

Brockling (2006, p. 516) presents an illuminating four-dimensional philosophical view of creativity. It illuminates the argument on creativity in this chapter as it is

propagating the need for creativity, freedom and self-determination to harmonise, aspects that teachers can support in their own students. It is:

firstly, something that everyone has – an anthropological capacity; second, something one ought to have – a binding norm; third, something one can never have enough of – a telos without closure; fourth, something that can be intensified through methodological instruction and exercise – a learnable competence.

### **Starting Points**

For us, the creative process begins when the gap between “who we are and what we do” (Kane, 2004) is narrowed. This is a Rousseauism: I am myself to the extent that I am creative. Therefore, the first role of the educator in developing creativity is to encourage students to explore who they are by identifying their particular passions, interests and gifts:

So if one wishes to inject creativity in the education system, the first step might be to help students find out what they truly love, and help them to immerse themselves in the domain – be it poetry or physics, engineering or dance. If young people become involved in what they enjoy, the foundations for creativity will be in place (Csikszentmihalyi, 2006, pp. xix-xx).

Once students have identified their domains of interest, they can be encouraged to go on to enquire into more specific topics, projects, specialisations and employment niches that engage them.

### **The Four Elements of Creativity**

The operational definition of creativity for this chapter is provided by Robinson (2001, p. 211), who characterises creativity as having four main elements:

- the medium
- expertise in or mastery of the medium
- the need to play and take risks

- the need for critical judgement.

Each of these elements gives rise to important considerations for learning and teaching.

For example, it is important to consider media for creativity in order to answer the following types of questions about learning and teaching strategy:

- What are the right media for individual students in relation to their interests, talents and preferences?
- As an educator, how can I best develop creativity in students by allowing or encouraging them to find the right medium or combination of media?
- What are my critical reflections on the media I currently use in my teaching?

We should be aiming not only to help students explore media for creativity, but also to achieve expertise in or mastery of certain media. Therefore, we might consider the following questions:

- What opportunities do we provide as educators for our students to reach high skills levels in the use of a variety of media?
- Do we teach academic writing, creative writing, visual literacy, drawing or whatever skills are relevant to our students to develop their creativity?
- How do we foster both the development of learning skills and imagination?

As we answer these questions, we might remember that creativity “is not only a matter of control: it’s about speculating, exploring new horizons, and using imagination” (Robinson, 2001, p. 133).

Kane (2004) asserts that play has replaced work as the dominant mode of the 21<sup>st</sup> century for generating meaning. In higher education, we can encourage students to play with the ideas and interrelationship between concepts by asking ourselves the following questions:

- Do we give students freedom enough to play?
- Are we, as educators, enthusiastic and playful about our subjects?
- How do we encourage students to combine creative thinking with critical thinking, brainstorming with judgements and exploration with discipline in ways that will enhance their creativity?
- How do we stimulate students to articulate the questions they want to explore rather than simply transmitting knowledge to them?

By dialoguing with these questions we can find concrete ways to encourage students to engage in the creativity of playfully combining things that they have not previously combined together.

### **The Outcomes of Creativity**

Creativity is also characterised by the nature of its outcomes. Thus Robinson (2002, p. 118) defines creativity as “imaginative processes with outcomes that are original and of value”. It is important that in our work of developing creativity we both widen and revitalise our notion of originality. Originality is not only about producing something new but also about combining old elements in new ways or applying old ideas to new contexts in order to work on a problem, advance a particular field and to add to the storehouse of knowledge and the repertoires of professional and artistic practices. Murray and Moore (2006, p. 31) note that creative people are “more likely to think in boundary less ways about a topic, and are happy to ‘borrow’ important

notions from fields of enquiry other than their own”. The outcomes of creativity are personal and/or economic, but can also be spiritual, social, environmental and political.

## **THE IMPORTANCE OF DEVELOPING STUDENT CREATIVITY**

Jackson, Oliver, Shaw & Wisdom (2006) argue that it is important to develop student creativity in higher education for personal, economic and social reasons.

On a personal level, improved creative capacity is likely to generate gains in satisfaction, wellbeing, happiness and self-identity, as well as enhanced potential for professional development. These gains occur as individuals explore their own potential and imagine new possibilities for themselves and others. Personal creativity understood in terms of the play ethic is a way of thinking that tries to close a huge gap in modern living, the gap between who we are and what we do (Kane, 2004).

Increased global competition, and the growth of the information society and new technologies, has resulted in the emergence of new forms of work and the demand for new kind of workers – that is, knowledge workers. These workers draw on creative knowledge to produce new products and services to support economic growth.

Brockling (2006, p. 513) argues that:

The importance of being creative is nowadays connected to the mobilisation of the entrepreneurial self. Entrepreneurial action demands permanent innovation and consequently ceaseless creative exertion. Everybody not only has to be simply creative, but more creative than the others.

The social reasons for developing students’ creativity are paramount. The contemporary world is ever-changing and “supercomplex”, rather than complex:



A *complex* world is one in which we are assailed by more facts, data evidence, tasks and arguments than we can easily handle *within* the frameworks in which we have our being. By contrast a *supercomplex* world is one in which the very frameworks by which we orient ourselves to the world are themselves contested (Barnett, 2000, p. 257).

New, different and creative thinking will allow students to respond to both the possibilities and problems presented by this supercomplex world. For example, we need creative thinking to tackle global problems including world poverty and global environmental issues, to “enrich the future instead of impoverishing it” (Csikszentmihalyi, 2006, p. xiix). In turn, we need pedagogies that can support and nurture this kind of thinking:

The challenge to humanity is to adopt new ways of *thinking*, new ways of *acting*, new ways of *organizing* itself in society, in short, new ways of *living* (Wilson 1997, p.11)

## **FACILITATING STUDENT CREATIVITY**

If creativity is so important, how do we facilitate it? There have been extensive and comprehensive reviews of the large literatures bases within creativity, teaching and learning by Stein (1988) and Fryer (2003), among others. There has, however, been a lack of critical engagement with the question of introducing creativity to the higher educational system. Indeed, Gardner (1982) notes that earlier studies of learning and development had mostly neglected creativity. Recently, this gap has been addressed by Jackson, Oliver, Shaw & Wisdom (2006), who focus on the role of creativity in higher education.

Csikszentmihalyi (2006) believes that if young people become involved with what they enjoy, the foundations for creativity will be in place. It follows therefore that teachers must model the joy of learning themselves, and be able to spark it in their

students. Similarly, pedagogy should be focused on arousing student imagination and engagement. Since the late 1990s, several studies have identified common themes in what students and teachers say about how best to facilitate student creativity in higher education. For example, Cropley (2001) suggests that surveys have shown that in theory at least, teachers overwhelmingly support creativity as something that should be fostered in the classroom. Moreover, teachers who successfully facilitate creativity are likely to be those who encourage independent learning, take student questions seriously, promote self-evaluation, reward courage as much as correctness, and who have a cooperative, socially integrative teaching style.

Research by Oliver *et al* (2006) on students' experiences of creativity in a broad spread of subject disciplines points to specific teaching techniques that students consider to be creative. These include role-playing, debates and posters for class presentations. Some quite conventional forms of teaching are also nominated as creative, specifically dialogic teaching with discussions that concentrate on students' current understanding or beliefs. One-to-one tutorials are highlighted as especially helpful to students, as are providing encouragement, giving examples or offering feedback. Teachers should note that it is *how* these techniques are used, rather than the mere inclusion of them within our repertoire of techniques, that is the key to success.

A study by Fryer (2006) identifies several teaching techniques for facilitating creativity: heuristic strategies i.e. problem-based learning (Barrett 2005); game-based learning that utilises challenging problems; real-life scenarios; practical exercises; and groupwork. As in Oliver *et al* (2006), Fryer's work shows that positive teacher

attitudes and supportive factors such as the relationship between tutor and students are also significant in facilitating a creative learning environment.

Teaching specific creative thinking tools in a way that is embedded into the discipline is important to provide the foundations for students to work creatively (Baille 2003).

There are several thinking tools such as the six thinking hats technique that can be used to stimulate creativity among students (de Bono, 1999; Baille, 2003). These techniques have been proven to stimulate creativity in both education and work contexts.

Several initiatives are taking place in learning and teaching to foster student creativity. For example, Diehm's (2004) research focuses on the use of electronic portfolio projects to highlight the creative nature of student learning. Through the use of 'efolis', students are encouraged to learn new skills and concurrently are being challenged to implement them. Indeed, in recent years, technology has been regarded as having a potentially critical role to play in supporting and transforming creative communities at all levels and stages in the higher educational process. It is argued in this chapter that the challenge for educators is to research fully these opportunities, as well as to learn how to sustain the creative process successfully within higher education. The technology, whatever its nature, should support the pedagogical purpose underpinning creative learning by sharing goals, purposes, knowledge, multiple perspectives and experiences.

Figure 1 below depicts suggested approaches for fostering student creativity.

Although none of the pathways must be followed in a linear manner, we do suggest a

possible route towards the integration of creative learning strategies into teaching practice.

**Figure 1: A Suggested Approach to Facilitating Student Creativity**



Pathway 1 encompasses several pedagogical strategies that can be integrated relatively quickly with students. All are creative, participatory teaching techniques that are important tools in the teaching repertoire. These approaches involve high group member involvement while they facilitate meaningful and fun learning, through strategies such as role-playing, debates, poster presentations, one-to-one tutorials and the use of creative thinking techniques and tools. They all have their own complex structures and variations, but are all also conducive to tapping into the creative potential of students. For example, role-plays are structured and have a defined set of participants with specific times, places, equipment and rules. Debates are powerful models of teaching because they help students master concepts and learn to be effective in pursuing goals. And finally, with presentations, the student must not only understand what is being presented, but also to whom it is being presented, and apply appropriate presentation strategies. As long as no one is forced to participate, competition can be positive and encourage player discovery, examination and learning. Each of these strategies help foster creative potential as they are in contrast to the passive reception of knowledge of teacher-centred classrooms; this style of teaching promotes active, student-centred learning. From the author's experience of implementation with postgraduate students, they are essentially instructional strategies that are conducive for creative thinking.

Pathway 2 emphasises the significance of feedback and support from someone who understands the creative process. More specifically, formative feedback (including self-review and peer review) can be used to prompt creative performance, develop creative talent, improve learning relationships, deal with creative "blocks" or "dry

spells” and help students learn specific skills such as presentation, negotiation, coaching and influencing others. It can also:

- encourage students to reflect on their creative processes and working relationships
- help students tap into powerful “creative flow” states
- develop students’ unique creative thinking and learning styles
- help students explore strategies for more effective communication and collaboration.

Pathway 3 concerns whole curriculum change. Torrance (1974), a leading researcher on creativity in the curriculum, believes that the focus of education should be not so much on what students learn as on what they can do with their learning. He is particularly concerned with addressing all aspects of cognitive development, especially students’ capacity to think and to be happier. According to Torrance, creativity involves forming ideas or hypotheses, testing them and communicating the results; adventurous thinking (stepping into the unknown); and invention, discovery, curiosity, experimentation and exploration. He believes that creativity is relevant right across the curriculum. He focuses on teacher education and development, the classroom context, teacher–student relationships and students’ learning needs at various levels. Any programme that addresses creative education needs to cover every aspect of being creative, including motivational and emotional factors, the development of knowledge and skills, the capacity to imagine (especially via the arts) and the capacity to solve fuzzy problems using heuristics and insight learning (in mathematics and other areas such as drama). It should be noted that in this pathway, the term “problem-solving” is used to mean “resolving anything puzzling or unclear”. This is a key function of all thinking and active learning, equally applicable to

creativity in the arts, sciences and humanities. The negative connotations often associated with the term “problem” do not apply here.

### **ASSESSMENTS THAT STIMULATE CREATIVITY**

Assessment is among the most important influences on learning, as highlighted by Biggs (1999). Dissatisfaction with assessment practices in higher education continues to the present day, and in recent years, there have been increasing calls for alternative assessment approaches that include performance-based, portfolio and authentic assessment (Anderson, 1998). Beghetto (2005) suggests that assessment practices can influence students’ creativity. Studies have demonstrated that imagination and visualising had a positive effect on student performance on exams, and such studies have illustrated that creativity is intertwined with reasoning (Claxton, 1999). Building on the work of Csikszentmihalyi (1997), Beattie (2000) concludes that creativity can and should be assessed although it is recognised that attempts to produce methods for the assessment of creativity have not been straightforward. The tensions that arise from the assessment of creative activities exist for different reasons. Does it involve creating measures of creativity for statutory exams or is the assessment of creativity for providing feedback to individuals on their achievements and ways forward for progression? Indeed, does it extend to having a process to recognise and celebrate meaningful and original personal expression?

Students feel that essay-based course-work is more effective than exams in supporting creativity through collaboration, with peer assessment offering the potential to improve students’ work. The general consensus from the literature is that assessment should be varied in order to support the development of different aptitudes

and encourage thinking in different ways. A diversity of assessment types can be an important stimulus to creative work, including more formative assessment and a balance of written and practical work. Particular examples are report-writing, article critique, group work and negotiated projects between students.

There are, however, well-recognised difficulties with integrating creativity in assessment practices. Cowan (2006) argues that of all the cognitive abilities, synthesis or creativity is the most difficult to assess. There is significant variation in the evidence teachers seek for creativity: examples include originality, innovative thinking, entrepreneurship, problem-solving ability, initiative, inventiveness, the ability to generate ideas, and motivation. The core problem is that the creative process, for any learner, is unpredictable and difficult to capture. But moving from assessing the creative process to assessing a creative product does not necessarily offer an easier solution. Arguably, this is partly because the best person to judge the conception and development of an innovatory product is the creative student him or herself.

Nevertheless, two methods of assessing creativity have emerged from the literature. Cowan (2006) believes self-assessment can be a way forward. The role of the teacher is to create the conditions that facilitate creative learning and “help the students develop their capacity to recognise, represent and evaluate their own creativity” (Cowan, 2006, p. 162). Alternatively, Balchin (2006) suggests consensual assessment, which involves several appropriate assessors who are familiar with the domain in which the product is created to agree that it is creative. One of the main benefits of this latter form of assessment is that it engages teachers in purposeful professional



dialogue about creativity. These serious conversations have the potential for teachers to develop new and deeper understandings about the nature of creativity. This leads us to our final issue for discussion – how does all this impact on the professional development of educators?

## **INCORPORATING CREATIVITY INTO THE PROFESSIONAL DEVELOPMENT OF TEACHERS**

Howard-Jones (2008) argues that the UK government presently considers creativity to be a key "employability" skill in terms of the creative industries and beyond, including within the sectors of science and technology. There has been a recent flourishing of interest in the nurturing of creativity among young people (Roberts, 2006, Downing *et al.*, 2007) and yet the provision of support for teachers and trainee teachers to achieve this remains a major challenge for education. It is important to consider how best to support teachers to teach creatively so that they can in turn transfer the benefits of creative learning strategies to their students.

One of the many questions to emerge from the field of creativity is why should higher education teachers be interested in creativity? We argue that it is because we live in a complicated and messy world in which work for most of our graduates is a continuous stream of "problems" with no simple or unique solutions. Our ability to work creatively as educators will in turn help our students survive and thrive in this world and help them to lead more satisfying and meaningful lives.

It is vital that teachers have a good understanding of creativity and creative education. Many teachers are already doing impressive work that could be capitalised on, in

collaboration with other providers, to put creative education firmly on the teacher professional development agenda. Indeed, some such training could be provided online.

Much of the professional literature appears to lean towards creative thinking being a challenging endeavour. An integral part of teaching methodologies designed to foster creative reflection is the type of classroom environment which the teacher helps to create. What is needed are teachers who engage their students in meaningful activities - ones which incorporate students' unique interests, abilities, backgrounds and community needs.

Underpinning the development of creative thinking is the need for cultural change in higher education so that the value of creativity is more accepted (Wisdom, 2006). We argue that teachers need professional development opportunities to develop the knowledge and skills to nurture creativity in their students. Teachers need to understand and appreciate their own creativity and to recognise it as a fundamental part of their professional development. Each student has some innate creative potential, which can be enhanced by teachers who are aware of and knowledgeable about proven and effective ways to teach creative behaviour.

Support for professional academic development in recent years within the Republic of Ireland has mirrored the situation in other countries. Some important steps have been taken: for example, the All Ireland Society for Higher Education (AISHE), the professional association for higher education, was established in 2001. Even more recently, the establishment of the Educational Developers in Ireland Network (EDIN)

moves us towards greater professionalisation of education developers in Irish higher education. Within both forums, it is essential to cultivate attitudes and practices that encourage creativity.

Accredited teacher preparation programmes are on the increase in the higher education sector and are supported by the dual use of the teaching portfolio (Donnelly, 2006) as a vehicle for reflection on practice and as a means of formative self-assessment. The portfolio has the ability to embrace risk and reflection and create the conditions that promote teachers' creativity. The reflective process of portfolio development can be as important as the final product. Ideas and beliefs about what constitutes good teaching practice change through personal experience of both teaching and learning. Through these experiences we learn to identify the most effective and creative teaching methodologies, what works for us as teachers and what helps us as learners. Furthermore, with the increased use of e-portfolio learning technologies such as PebblePad and Mahara, teachers who create their own digital teaching portfolios can become aware of the potential of the technology to enable the creative thinking process.

## **CONCLUSIONS**

In this chapter, we have reflected on the relationship between the literature and the evolution and fostering of creativity within teacher professional development in higher education. The chapter has attempted to suggest how the educational developer can apply the literature to the activity of teaching academics the importance of creativity in the higher education curriculum, and of passing this onto their students. There is little doubt that many questions still exist for teachers wishing to develop

both themselves and their students creatively and through the newly formed professional societies and teacher education programmes. One thing, however, is clear: it is vital that academics nurture and celebrate their own creativity if they are to model creative processes for their students and if they are genuinely to convey their enthusiasm for creative endeavours to their students.

The following poem succinctly captures the fluency aspect of creative flow and has contributed to our understanding of it. It suggests the natural unfolding of personal potential as individuals perform at their particular optimal levels:

“Fluent”  
I would love to live  
Like a river flows  
Carried by the surprise  
Of its own unfolding.

(O’Donoghue, 2000, p. 30)

The idea of fluency and flow is the key concept that underpins our understanding of creativity. We wish to create the conditions that will allow it to flourish, both for ourselves and for our students. The concept is best elaborated by Csikszentmihalyi (1986, 1996, 1997, 2006) and we therefore leave the last word to him. Flow is:

being completely involved in an activity for its own sake. The ego falls away. Time flies. Every action, movement, and thought follows inevitably from the previous one, like playing jazz. Your whole being is involved, and you’re using your skills to the utmost.

(Csikszentmihalyi, 1996, p. 1).

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## APPENDIX

Several useful resources are listed in the following section. We also include some commentary on how these resources can inform us as teachers and educational developers in the quest for increasing the potential for student creativity in higher education.

### General Resources for Developing Initiatives to Encourage Student Creativity

**Buzan, T. (2005) *The Mindmap Book*. London: BBC Worldwide.**

This book introduces readers to “mindmapping”. This is a very effective method that combines verbal and visual tools to help users generate ideas or to take notes on other people’s work. The aim is to make powerful connections between ideas.

**Cameron, J. (2002) *Walking in this World*. New York: Penguin Putnam.**

This book provides a range of practical strategies and short exercises to get the creative juices flowing. These exercises can be effectively integrated into teaching.

**Craft, A., Jeffery, B. & Leibling, M. (eds) (2001) *Creativity in Education*. London: Continuum Publishing.**

This is a seminal text in the field of creativity.

**DeBono, E. (1999) *Six Thinking Hats*. London: Penguin Books.**

This practical, easy-to-follow book suggests a proven method that helps us to do one type of thinking at a time, instead of juggling too many types at the same time. This book provides a framework for brainstorming an issue, imagining the future and working towards creative solutions that work. It is a simple and appealing creative thinking method to teach students.

**Jackson, N. & Shaw, M. (2005) *Subject Perspectives on Creativity: A Preliminary Synthesis* [online]. York: The Higher Education Academy.**

Available from:

[http://www.heacademy.ac.uk/resources/detail/id570\\_subject\\_perspectives\\_on\\_creativity](http://www.heacademy.ac.uk/resources/detail/id570_subject_perspectives_on_creativity) [Accessed 26 June 2008].

The theme of creativity in higher education and how we might encourage change towards a culture that is more valuing of students’ creative development is at the heart of this article. Issues explored are the problem of creativity in higher education and cultural change, along with reasons for why we should be concerned to support students’ creative development.

**Maisel, E. (2000) *The Creativity Book*. New York: Penguin Putman.**

This book provides a year’s worth of inspirational triggers and guidance. The individual exercises, discussions and projects in the book could be integrated into learning sessions.

**McGoldrick, C. (2002) *Creativity and Curriculum Design: What Academics Think* [online]. York: The Higher Education Academy.**

Available from:

[http://www.heacademy.ac.uk/resources/detail/id60\\_creativity\\_and\\_curriculum\\_design](http://www.heacademy.ac.uk/resources/detail/id60_creativity_and_curriculum_design) [Accessed 26 June 2008].

This research article highlights the teacher's perspective on integrating creativity within the higher education curriculum.

**Puccio, J.G. (1994) "An overview of creativity assessment", in *The Assessment of Creativity*, ed. S.G. Isaksen. Buffalo NY: Center for Studies in Creativity. pp. xx–xx.**

Several assessment strategies are explored in relation to enhancing student creativity in the learning process.

**Sternberg, R.J. (2002) *The Creativity Conundrum*. London: Psychology Press.**

One of the leading researchers and writers on the development of creativity, Sternberg explores ongoing debates about the field, and includes several important contributions from practitioners across the globe.

**Torrance, E.P. (1993) "Understanding and recognising creativity", in *The Emergence of a Discipline*, eds S.G. Isakeson, M.C. Murdoch, R.L. Firestien & D.J. Treffinger. Norwood NJ: Ablex Publishing Corporation. pp. xx–xx.**

This article takes a theoretical look at how best to stimulate professional discussion on creativity and how it relates to academic programmes in higher education.

#### **General Online Resources on Creativity**

**Baille, C. (ed.) (2003) *The Travelling Case: Creativity in Art, Science and Engineering. How to Foster Creative Thinking in Higher Education*. York: The Higher Education Academy.**

Available from:

[http://www.heacademy.ac.uk/resources/detail/ourwork/tla/The\\_Travelling\\_CASE](http://www.heacademy.ac.uk/resources/detail/ourwork/tla/The_Travelling_CASE)

[Accessed 26 June 2008].

This is a treasure trove of colourful and stimulating creative thinking tools that will act as effective springboards for encouraging your students' creativity.

#### **Buzan World**

<http://www.buzanworld.com>

This website offers information on mindmapping books, software and training course.

#### **Creativity and Innovation, Science and Technology**

<http://www.mycoted.com>

This website includes a great variety of creative thinking techniques that can be applied to many disciplines.

#### **Infinite Innovations Ltd**

<http://www.brainstorming.co.uk/tutorials/creativethinkingcontents.html>

At this website, users can learn how to use specific creative and lateral thinking techniques.

#### **Subject-specific Online Resources on Creativity**

##### **Forum on Creativity in Engineering Education**

<http://www.ijee.dit.ie/forum/forum1home.html>

This forum explores creativity within engineering education and practice, with particular attention to how it may be fostered and assessed in learning programs. The forum aims to develop a framework for implementing and evaluating such programs.



**Clarke, M.A. (n.d.) *Creativity in Modern Foreign Languages Teaching and Learning*. York: The Higher Education Academy.**

Available from: [http://www.heacademy.ac.uk/learningandteaching/mfl\\_paper.doc](http://www.heacademy.ac.uk/learningandteaching/mfl_paper.doc)  
[Accessed 26 June 2008].

This research paper discusses key issues involved in the creative teaching of foreign languages.

A number of recent **journal articles** are recommended as each contribute further knowledge in the field of facilitating student creativity. This special issue in [Innovations in Education and Teaching International](#), Volume 45, Issue 3 August 2008 entitled CREATIVITY OR CONFORMITY IN HIGHER EDUCATION? is available from:

<http://www.informaworld.com/smpp/title~content=g794950400~db=all>

and includes important areas which have been considered throughout this chapter such as developing creative thinking and writing, conceptions of creativity, implementing creative activities, and assessment as a creative process.

Allam, C. (2008) Creative activity and its impact on student learning – issues of implementation. pp. 281 – 288.

Caridad Garcia-Cepero, M. (2008) The Enrichment Triad Model: nurturing creative-productivity among college students. pp. 295 – 302.

Clegg, P. (2008) Creativity and critical thinking in the globalised university. pp. 219 - 226.

Craft, A., Chappell, K. and Twining, P. (2008) Learners reconceptualising education: widening participation through creative engagement? pp. 235 - 245

Cunliffe, L. (2008) Using assessment to nurture knowledge-rich creativity. pp. 309 – 317.

Dillon, P. (2008) A pedagogy of connection and boundary crossings: methodological and epistemological transactions in working across and between disciplines. pp. 255 – 262.

Hargreaves, J. (2008) Risk: the ethics of a creative curriculum. pp. 227 – 234.

Jankowska, M. and Atlay, M. (2008) Use of creative space in enhancing students' engagement. pp. 271 – 279.

Kleiman, P. (2008) Towards transformation: conceptions of creativity in higher education. pp. 209 – 217.

McWilliam, E., Hearn, G. and Haseman, B. (2008) Transdisciplinarity for creative futures: what barriers and opportunities? pp. 247 - 253

McWilliam, E. (2008) Unlearning how to teach. pp. 263-269.

McVey, D. (2008) Why all writing is creative writing. pp. 289-294.

## **Terry Barrett**

### **Author Biography**

Terry Barrett is a Lecturer in Educational Development at the Centre for Teaching and Learning, University College Dublin. She has fourteen years experience of working as an education developer in a range of disciplines. She is joint coordinator of the Enquiry and Problem-based learning Project (Strategic Innovation Fund, Ireland) led by University College Dublin. Her doctorate thesis focused on what we can learn about problem-based learning from listening to how PBL students talked about PBL in tutorials. She has presented keynote PBL papers at conferences in Ireland, England and Finland. She has published in the areas of academic development, problem-based learning and peer observation of teaching. She is particularly interested in enhancing staff and student creativity through problem-based learning, collaborative academic writing, innovations in curriculum design and the use of visuals and poetry in facilitating learning. She writes poetry.

## **Roisin Donnelly**

### **Author Biography**

Roisin has over 18 years of experience in higher education both as a lecturer and researcher. She has taught in universities in Northern Ireland and was a lecturer and visiting research fellow in the University of New South Wales, Sydney. More recently, she has guest tutored on a range of international online courses, including Oxford Brookes, the University of Queensland and the University of Tampere in Finland. She has a wide range of publications to date reflecting her teaching and research interests, including eLearning Pedagogy, Design, and Collaboration, Blended Learning Models, Peer Observation, Mentoring with Academic Staff, and Teaching Portfolio Development and Support. Her first edited book on Applied eLearning and eTeaching is available in 2009 through IGI Global Publishers. She is currently Programme Co-ordinator for DIT'S MSc Applied eLearning, and tutors/supervises on the postgraduate programmes in Learning and Teaching for academic staff. She has recently completed her research in higher education through the Doctorate of Education Degree from QUB where her thesis specialism was transformative pedagogies within blending eLearning and Problem-based Learning.