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Developing Students' Creativity Through a Higher Education

Norman JACKSON [1]

Abstract

The challenge of 'developing students' creativity' is bound up with the *wicked problem* of preparing them, and enabling them to prepare themselves, for the unknown challenges they will encounter over a lifetime of working, learning and adapting to the changing circumstances of their lives. Developing a culture that values the professional creativity of higher education teachers to tackle this challenge is essential because ultimately the creative development of learners is largely determined by their teachers and their responses to the educational designs they provide. The article outlines three different ways in which encouraging and supporting the creative development of learners can be achieved, namely, pedagogies for creative development, drawing inspiration from the discipline, and recognising learners' own creative lives. If the moral purpose of higher education is to enable individuals to prepare themselves for the complexities and challenges of their future life, then surely enabling learners to develop their creative potential must be an important part of this purpose.

Key words

Creativity in higher education, creativity tools, creative pedagogies, creativity in the disciplines, lifewide learning and education, principles for a creative culture

The Creative Challenge

The issue of students' creative development in higher education is bound up with the *wicked* challenge of preparing them and enabling them to prepare themselves, for a lifetime of learning and adapting to the continuous stream of situations they create or encounter in their lives. 'Wicked', in the context being used here, is not about being evil; rather it describes an issue that is hard to understand and define, and highly resistant to resolution (Rittel & Webber, 1973).

People working and studying in higher education are confronted every day by essentially the same wicked challenge (Jackson, 2008). For teachers it is associated with a question like 'how do we prepare our students for an ever more complex world'.

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This does not just mean preparing them for their first job when they leave university, but also how to prepare them to face and adapt to the many challenges they will later encounter in their lives. From the students' perspective the same challenge is expressed in the question 'How do I prepare myself for the rest of my life': What sorts of things do I need to learn; what sorts of skills, qualities, dispositions and values do I need to develop; and what sorts of experiences do I need to have to develop these things? Personal and professional development needs much more than simply studying and learning an academic curriculum. The central argument in this paper is that one of the most significant ways to help learners prepare themselves for their future is by enabling them to understand and develop their creativity – both their imagination and capability for converting their thoughts into new things.

The second challenge facing people who work in higher education, particularly the leaders of higher education institutions, can be described by the question 'How do we change our university so that it is better able to meet the challenge of preparing learners for a very complex, uncertain and ever changing world'. How do we move from what is still a predominantly industrial provider-designed and directed model of higher education to a more ecological learner-designed and managed model of learning which is more appropriate for a modern world? Many faculty would say that there is no problem and therein lies the problem. The challenge is to persuade people who believe that there is no need to change to change something that has worked perfectly well for them. So how we cultivate creativity in university students has a lot to do with how we cultivate a culture of creativity in our universities.

The problem with creativity in higher education

The problem of creativity in higher education is that it is not chronic, in the sense that most teachers and decision makers believe that there is an issue to be resolved. The problem is more a sense of dissatisfaction with a higher education world that seems, at best, to take creativity for granted, rather than celebrates the contribution creativity makes to academic achievement, self-expression and personal wellbeing. The problem is not that creativity is absent but that it is omnipresent subsumed within analytic ways of thinking that dominate the academic intellectual territory (Jackson, 2008). The most important argument for higher education to take creativity in students' learning more seriously is that creativity lies at the heart of performing, learning and developing in any contexts and the highest levels of performance involve the most creative acts of all.

This paper is underlain by five propositions which have important consequences for higher education. The first proposition is that we all have unique creative capability and that being creative is integral to who we are, who we become and how we become who we want to become – how we fulfil our ambitions and destiny. The second is that if higher education is concerned with making a positive difference to students' lives by enabling them to achieve their full potential, then we have to be concerned with their

creative as well as their academic development. The third proposition is that teachers in higher education with their autonomy and ability to design and facilitate interesting and challenging learning experiences, are able to exert a strong influence on students' creative development. The fourth proposition is that teachers and learners can derive inspiration for creative development from the disciplines themselves. Being creative in a field requires the mastery of domain knowledge and skills and an important part of students' creative development while they are learning to become a historian, lawyer or scientist is to appreciate what creativity means in their discipline. The fifth proposition is that we have the potential to utilise our creativity in every aspect of our lives, not just the part of our lives concerned with academic study, so higher education could do more to encourage students' creative development by adopting a lifewide approach to their learning and development (Jackson, 2011a; Jackson, 2011b; Barnett, 2011).

Where Do We Begin?

One place to begin is to have conversations with teachers about their creativity. If you ask any group of higher education teachers in the UK what being creative means to them, the following ideas emerge:

- originality and individuality
- being imaginative, generating new ideas, thinking outside the boxes we normally inhabit, looking beyond the obvious, seeing the world in different ways
- making new things
- doing things no one has done before
- doing things that have been done before but differently
- experimenting and taking risks

At this level there is consensus as to what being creative means. In fact it is likely that if you ask this question of higher education teachers anywhere in the world you will get a broadly similar set of responses because these basic concepts of creativity transgress cultural domains. These conceptions provide a starting point for contextualising conversations about creativity in teaching and learning practices or in any other forms of professional or work practice. Equally important is the widely held belief amongst higher education teachers that creativity is not a rare gift and the preserve of a few. *Most* (but not all) higher education teachers agree that it is possible, with the right opportunity, for people to develop their creativity, a perception consistent with Amabile's extensive research (1996) into creativity in organisations which shows that, 'although some people have extreme levels of talent, everyone with normal human capacities is capable of producing creative work under the right conditions'(Amabile, 1996, p.1).

Furthermore many higher education teachers believe that their role is not to define creativity for their students and assess them against their own criteria. Rather,

it is to help students recognise and understand their own creativity and help them express it and make claims against the evidence they feel is appropriate. This is a powerful belief when it comes to designing and facilitating education for students' creative self-development.

Where you begin with learners is the same as where you begin with teachers. There needs to be conversation to enable the sharing of perceptions and understandings. Any discussion with students or teachers about creativity will reveal multiple perspectives on and questions about whether creativity is a characteristic of individuals and/or groups, or a process or an outcome or product of a process. As Amabile (1996, p.3) points out, it could be all of these things.

> Is creativity a quality of persons, processes, or products? Undoubtedly, it is all three. Persons can have, in greater or lesser degrees, the ability and inclination to produce novel and appropriate work and, as such, those persons may be considered more or less creative. Processes of thought and behaviour may be more or less likely to produce novel and appropriate work and, as such, those processes may be considered more or less creative. Products (new business plans, scientific theories, artworks, articulated ideas, dramatic performances and so on) may be more or less novel and appropriate and, as such, those products may be considered more or less creative. (Amabile, 1996, p.3)

Accepting this conception of creativity has important consequences for the design of educational experiences that enable learners to use and develop their creativity, and for assessment practices that seek to recognise and judge creativity.

Enabling learners to think analytically and creatively about their own and other people's creativity is the key task in raising awareness of creativity's importance. In helping learners gain deeper understandings of their own creativity it can be helpful to introduce some simple tools to aid thinking.

Tools to Aid Thinking About Personal Creativity

Simple model of personal creativity

Amabile (1983) proposed a simple model of creativity which has three essential components: domain relevant *expertise*, the ability to *think creatively* about domain relevant problems and opportunities, and the *will* to engage with a domain relevant problem or opportunity in a particular context and persist until the job is done (Figure 1). In this paper 'context' is added to this model because it is the driving force for our creativity. Context gives us the reasons for being creative and it allows students to see the relevance of creativity in their day to day lives.

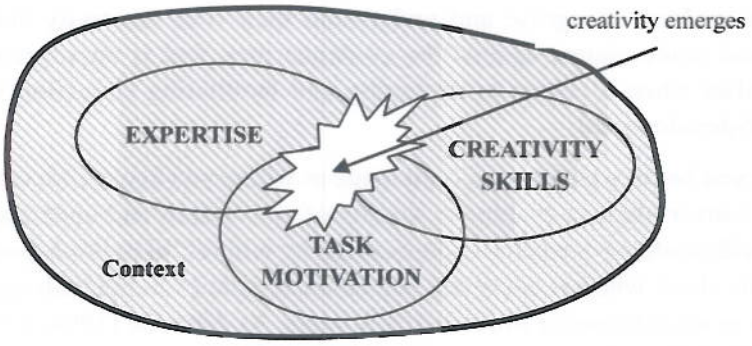

Figure 1. Adaptation of Amabile's Model of Creativity (1983)

But it is not necessary to be an expert in order to be creative. We all have the potential to be creative in the contexts that form our lives. We might therefore substitute the word 'capability' [2] for 'expertise' to make this model more relevant to students. Rogers (1961) provides a definition of creativity relevant to 'everyone' and captures the relationship between our creativity, the contexts and situations we inhabit, and our presence and actions in our world:

> [personal creativity is] a novel relational product growing out of the uniqueness of the individual on the one hand, and the materials, events, people, or circumstances of his life on the other. (Rogers, 1961, p.350)

Contexts

Without the will to do something in a certain sort of way nothing will happen. Contexts, like challenging and demanding situations, immediate or intransigent problems and newly recognised opportunities, engage or inhibit our will and trigger or block motivation. Context embraces the social environment within which we utilise our creativity. As Amabile's research has shown, it is our interactions with other people that have most influence on our willingness and ability to be creative.

> The social environment influences creativity by influencing the individual components. Although, clearly, the environment can have an impact on any of these components, the impact on task motivation appears to be the most immediate and direct. (Amabile, 1996, p.8)

Research by Amabile and Kramer (2012) indicates that the single most important factor in igniting individuals' creativity, joy, trust, and productivity in workplace situations is simply a sense of making progress on meaningful work. This will be true for higher education teachers and it is also likely to be true for learners immersed in their studies. Amabile and Kramer identified seven major catalysts for progress:

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[2] 'Everything that a person can think or do' (Eraut, 2009, p.6), 'what individual persons bring to situations that enables them to think, interact and perform' (Eraut, 1997).

- *Setting clear goals*: It is important that the goals be reachable in a realistic time frame. Achieving small wins is important to maintaining a sense of progress
- *Allowing autonomy*: People have to have autonomy in order to get there
- *Providing resources* that are sufficient and timely to accomplish whatever is being attempted
- *Having enough time – but not too much* – to complete a project: Extreme time pressure is bad for creative productivity, but low-to-moderate time pressure is good
- *Offering help* with the work
- *Learning from both problems and successes*: An environment in which you are not punished or ridiculed if you do not succeed
- *Allowing ideas to flow*

The research identified four *nourishers* necessary for a healthy inner work life: respect and recognition, encouragement, emotional support, and, finally, affiliation – any action that serves to develop mutual trust, appreciation, and even affection among co-workers. People are more likely to engage in creative activity when they encounter such environments.

The significance of this research for higher education lies in (a) the creation of work practices and cultures that encourage employees to be creative, and (b) the ways in which teaching and learning environments created by teachers foster the conditions that are conducive to students' creative development.

Situations – The focus for personal creativity

Situations are the specific incidents, events and activities that occur within a particular context. Our personal creativity is manifest in the way we deal with or create situations. This process is neatly summarised by Eraut (2007, 2009, 2011) in the contexts of dealing with situations in the workplace, but the basic process is relevant to any context. It follows the pattern of:

- *Assessing situations* (sometimes briefly, sometimes involving a long process of *investigation and enquiry*) and continuing to assess the situation as it changes
- *Deciding what, if any, action to take*, both immediately and over a longer period (either on one's own or as a leader or member of a team). In complex situations this stage also includes *designing and planning the action*
- *Pursuing an agreed course of action*, preparing for and performing professional actions – evaluating the effects of actions and the environment and adapting as and when necessary
- *Metacognitive monitoring of oneself*, people needing attention and the general progress of the case, problem, project or situation; and sometimes also learning through reflection on the experience

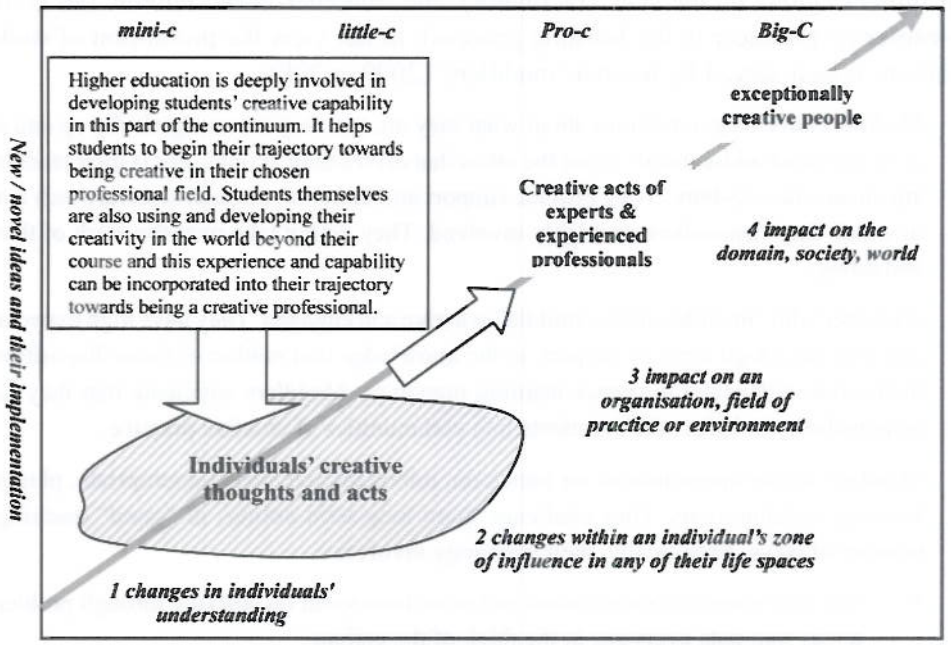
The process described by Eraut for dealing with situations in the workplace is the process of self-regulation (Schunk & Zimmerman, 1998; Zimmerman, 2000). Self-regulation can be represented as a continuous process, involving forethought (planning and decision making), performance, and self-reflection on performance, operating within a context specific environment structured by learners to provide resources to enable them to achieve what they want to achieve. If we accept this general theoretical model of the way we engage with the world then our creativity – the way we combine and integrate our imagining, generating, reconstructing and playing with ideas, and critically evaluating possibilities and the potential consequences of actions – must be embodied in this model.

Scale and influence of individual's creativity

Some people believe that they are just not creative, a belief that stems from comparing themselves with people they perceive as being highly creative. Individuals' creative development will be hindered unless they believe that they have potential to be creative in their ways and circumstances. One approach is to use the 'scale and significance' diagram (Kaufman & Beghetto, 2009) to explain the nature, scope and influence of individuals' creativity (Figure 2). Kaufman and Beghetto (2009) suggest that human creativity can be categorised into '*Big-C*' creativity that brings about significant change in a domain; '*Pro-c*' creativity associated with the creative acts of experts or people who have mastered a field, including but not only people involved in professional activity; '*little-c*' creativity, the everyday creative acts of individuals who are not particularly expert in a situation, and '*mini-c*', the novel and personally meaningful interpretation of experiences, actions and events made by individuals. Central to the definition of mini-c creativity is the dynamic, interpretative process of constructing personal knowledge and understanding within a particular socio-cultural context.

Both mini-c and little-c forms of creativity are relevant to higher education learning and curriculum designs. Teaching and learning strategies could usefully encourage and facilitate these. One might speculate that participation in these forms of creativity is pre-requisite for Pro-c and Big-C creativity in later life: if we want creative professionals, then we should be encouraging our students to be creative. It is however important to note that everyday creativity can extend from mini-c to little-c through Pro-c. It is only Big-C that remains *eminent* (Kaufman & Beghetto, 2009, p.6) beyond the reach of most of us. From an educational perspective it might be reasoned that, by encouraging and empowering students to use, develop and make claims for mini-c and little-c forms of creativity, we are better preparing them not only for using these forms of creativity in later life but for engaging in more expert-based forms of creativity that emerges through sustained engagement with a particular domain or field of activity.

Figure 2. Variations in the scale and significance of individuals' creative ideas and their implementation in products, processes, practices and performances



Source: Kaufman & Beghetto, 2009.

Armed with these tools to aid thinking about personal creativity we will now consider three different dimensions of the developing students' creativity puzzle: the pedagogic challenge, the disciplinary context and the wider context of students' everyday lives.

Students' Creative Development: The Pedagogic Challenge

Pedagogy matters

> Pedagogy matters. In whatever historical time, what actually happens in the classroom can make or break the disposition to learn that is so fundamental to a young person's future social, economic and civic participation. In this century, formal teaching is, paradoxically, both important and irrelevant. Teachers are important because of what they can contribute to the development of a highly educated twenty-first century citizen, someone with a breadth and depth of literacies (scientific, print, digital) and an expectation that learning will be life-long and life-wide. However, teachers become irrelevant when their pedagogy is limited to inculcating routines of thinking that were markers of the Industrial and/or the Information Age. (McWilliam, 2009, p281)

Critical to students' creative development is the teachers' pedagogic stance which McWilliam (2009) categorises into one of three types: 'sage on the stage' (knowledge transmitter), 'guide on the side' (facilitator), and 'meddler-in-the-middle' (an involved co-learner/co-producer in the learning process). In her view the promotion of students' creativity is best served by teacher 'meddlers' (2009, p.290):

> Meddlers have clear intentions about what they do, and they are energetically up and doing it. "Command-and-control" is not the ethos that drives their actions, nor is their teaching by any means laissez-faire. They provide support and direction through structure-rich activity in which they themselves are highly involved. They do not take over the work of thinking and doing....
>
> A teacher who "meddles-in-the-middle" is active and engaged. They have high expectations and provide a high level of support, in the knowledge that neither of these dispositions by themselves will make for better learning outcomes. Meddlers anticipate that they have a responsibility to induct their students into communities of creative practice...
>
> Meddlers create opportunities for hands-on, minds-on and, where appropriate, plugged-in learning collaborations. They challenge more long-term notions of "good" teaching in a number of ways. Specifically, their pedagogy involves:
>
> - less time spent on transmission and more time spent on working through problems in a way that puts everyone in the thick of the action;
> - less time spent on risk minimization and more time spent on experimentation, risk-taking and co-learning;
> - less emphasis on teaching as forensic classroom auditing and more time spent on designing, editing and assembling knowledge;
> - less time spent on testing memorization and more time spent on designing alternative forms of authentic assessment; and
> - less time spent on psychological counselling and more time spent on collaborative criticality and authentic evaluation.

While this analysis of the teacher as meddler has much to be commended, there is also a role for teachers as guides/facilitators particularly when it comes to helping learners understand and express their own creativity. The teacher's role here is one of encouraging and facilitating the process of reflection and articulation of what creativity means.

The pedagogic task for teachers who intend to develop students' creativity is threefold. Firstly, it is one of developing learners' understandings of their own creativity by facilitating personal enquiry, the sharing of perspectives and understandings in a collaborative, supportive discursive environment and the co-creation of understandings within the group of learners including the teacher. Secondly, it is about enriching their understandings with knowledge about creativity and its role in human endeavour. Thirdly, it is about providing new and challenging opportunities for the learner to continue to develop and utilise their creativity both individually and collaboratively.

Teaching for creativity

Fundamentally teachers have to believe that their students' creativity is worthy of development and that it can be developed. Teaching for students' creative development requires a pedagogic stance that is facilitative, enabling, responsive, open to possibilities, collaborative and mutually co-creative and which values process as well as outcomes. Teachers operate in strong cultural and procedural environments that have significant impact on what they can do as teachers to promote students' creativity. In spite of, or perhaps because of, these constraints, teachers who care about creativity are able to overcome these barriers to create, through their pedagogy, curricular spaces and opportunities for learning that encourage and reward students for their creative efforts as well as the outcomes from such efforts.

Designing a curriculum for creativity

To prepare students for learning in the real world outside the 'comfortable', low risk environments of higher education we need a form of education that also exposes learners to the risks and challenges of unfamiliar contexts and problems, of incomplete, ambiguous or conflicting information and messy rapidly evolving situations. We need to design or appropriate into our practice learning environments that offer challenges for which there are no single right answers but which do not penalise learners if they are not successful in finding a possible answer. Jackson (2010, 2011a) set out a series of propositions (Table 1) he believed would provide conditions more likely to engage learners creatively and develop their creative capability. These principles were operationalised at the University of Surrey through the idea of a lifewide curriculum (Jackson, Betts & Willis, 2011) (see Table 1).

Assessing for Creativity

While many teachers believe that it is possible to help students use their creative abilities to better effect, far fewer think it is possible to assess these capabilities reliably and even fewer are prepared to try and do it. Yet self-evaluation is critical to the very idea of creativity and peer-evaluation is crucial to acceptance of creative ideas and solutions in a field of practice.

The views of higher education teachers on whether creativity can be assessed fall into four camps (Jackson, 2008). The first group believes students' creativity is evaluated through explicit assessment criteria. The second group believes insufficient attention is given to recognising students' creativity and at best the evaluation and recognition is implicit. The third group believes it is not possible and/or desirable to assess creativity. While teachers in the fourth group value creativity but do not know how to assess it. This can be optimistically interpreted as that most teachers, with appropriate support, guidance and cultural encouragement, could and would assess creativity in students' higher education learning. One thing is clear: a majority of teachers also believe assessment is a major inhibitor of students' creativity.

Table 1. Ten propositions for an imaginative curriculum that would provide conditions which were more likely to engage learners creatively

1.	gives learners the freedom and empowers them to make choices so that they can find deeply satisfying and personally challenging situations that inspire, engage and develop them
2.	enables learners to appreciate the significance of being able to deal with situations and see situations as the focus for their personal and social development
3.	prepares learners for and gives them experiences of adventuring in uncertain and unfamiliar situations where the contexts and challenges are not known, accepting the risks involved
4.	supports learners when they participate in situations that require them to be resilient and enables them to appreciate their own transformation
5.	enables learners to experience, feel and appreciate themselves as knower, maker, player, narrator, enquirer, creator and integrator of all that they know and can do, and enables them to think and act in complex situations
6.	encourages learners to be creative, enterprising and resourceful in order to accomplish the things that they and others value
7.	enables learners to develop and practise the repertoire of communication and literacy skills they need to be effective in a modern, culturally diverse and pluralistic world
8.	enables learners to develop relationships that facilitate collaboration, learning and personal development
9.	encourages learners to behave ethically and with social responsibility
10.	encourages and enables learners to be wilful, self-directed, self-regulating, self-aware and reflexive so that they develop a keen sense of themselves as designers/authors and developers of their own lives appreciating their learning and developmental needs as they emerge

Source: Jackson, Betts & Willis, 2011

Outcome-based assessment that assumes all learning can be predicted and that the teacher is the only person who can define the expected outcomes is antithetic to learning that emerges in unpredictable ways – such as is produced through creative processes that pursue a sense of direction rather than a preordained pattern and specific criteria. This barrier can only be overcome if learners become partners in the assessment process. The metaphor of catching the light through a reflective process might be appropriate for catching creativity which requires people to be conscious of their own means of engaging with complex learning to produce novel products or other outcomes. Emerging from the imaginative curriculum enquiry and endorsed on numerous occasions by groups of teachers is a view that the primary role of the teacher is not to define creativity for

students and assess them against their criteria. Rather, it is to help students recognise and understand their own creativity and help them express it and make claims against the evidence they feel is appropriate.

What sort of practice would give meaning to this role? Borrowing from practice in the architects' studio, Cowan (2006) describes a collaborative teaching and learning scenario in which the development of understanding of creativity, the criteria through which it might be evaluated, and the process of claim and judgement making is grown by all participants through the learning processes. Working backwards, the results of creative thinking and action are embodied in a self-peer and teacher assessed portfolio – with heavy emphasis on self-assessment. The portfolio contains the following elements (Cowan, 2006, p.161): (1) a definition of what the learner means by creativity; (2) a clear statement of the achievement and/or development in creative ability to which the learner aspired and an indication of the standards and levels against which the learner has decided to judge that creativity; (3) an indication of the sources from which the learner has drawn information from which to assemble their judgement of their performance and development (information about the products and results of being creative); (4) the making of the judgement and the reasoning behind it; and (5) the judgement itself in qualitative terms, perhaps under various headings.

The learner presents the self-assessed portfolio for audit by the teacher who will scrutinise the rigour of the self-assessment rather than making their own judgements on creativity. The teacher's role is to decide whether they are persuaded to endorse the learner's claims and judgements of their own creativity against the criteria they themselves have elaborated. The primary purpose of this strategy is to enable and encourage learners to explore, experience and develop their own understanding of creativity and to construct new meanings in the context of the task, their programme and their disciplinary field of study. It is about helping learners appreciate their personal creativity in the context of their disciplinary field and provide them with experience of being judges of creativity in their disciplinary cultural field.

Cowan underpins this evaluative process with a collaborative learning process involving:

- Induction to the process and the problem/task within which creative enterprise will be evaluated.
- Initial group discussions about creativity in the disciplinary/professional field leading to initial definitions of the meanings of creativity.
- Facilitation of thinking about standards and targets, and drafting of initial standards by each student.
- Learner engagement in the task mindful of the learning objective of evaluating own creativity. Learners would maintain a reflective journal focused on the creative process but framed around unanswered questions that were pertinent

to the task in hand and for which the learner feels that even a partial answer would help them progress. Exemplars of completed journals would be offered to show what was expected.

- Participation of learners and teachers in group 'crits', as practiced in architecture and the creative arts. In these sessions, learners critically appraise a piece of their work in progress, after which peers and tutors will offer comment, with an emphasis on reasoned and constructive judgements of that work.
- As learners engage more deeply in their task their understandings about what creativity means will change. Learners are encouraged to make any changes they wish to their initial definitions of creativity and the criteria and standards they developed.
- Learners assemble their portfolio and self-evaluations as they are working on problems with their task. The final version of the portfolio contains the elements of self-assessment detailed above.

This is just one example of the sort of 'meddler-in-the-middle' teaching practice described earlier.

Students' Creative Development: The Disciplinary Context

Drawing inspiration from the discipline

Creativity is a social and cultural phenomenon and we need to understand how it is understood in the different cultural domains (disciplines) and the field (teachers and others who practise in the discipline).

> creativity results from the interaction of a system composed of three elements: a culture that contains symbolic rules, a person who brings novelty into the symbolic domain, and a field of experts who recognise and validate innovation. All three are necessary for a creative idea, product or discovery to take place. (Csikszentmihalyi, 1997, p.6)

One way in which universities could encourage students to develop their understandings of what being creative means is to help them appreciate what creativity means in disciplinary practices and in the achievements of disciplinary practitioners. What does it mean to be a creative engineer, doctor, historian, teacher or any other practitioner in a discipline? Surveys show that faculty share similar perceptions of what being creative means in their discipline and sites for creative thinking that relate to these characteristics appear to be available in most aspects of disciplinary practice. Growing understanding and making explicit what creativity means in the academy is the first step in engaging the academy with this challenge.

Being creative in the discipline

Jackson and Shaw (2006) surveyed the views of academic teachers on the core features they associated with being creative in eight different disciplinary fields and

discovered that certain features were widely recognised regardless of disciplinary, pedagogic or problem working context (see Table 2). These propositions have been tested on numerous occasions in many disciplinary and mixed audiences in the UK and they generally seem to be accepted with few reservations.

Table 2. Generic characteristics of creativity in eight disciplines

Being imaginative	generating new ideas, thinking out of the boxes we normally inhabit, looking beyond the obvious, seeing the world in different ways so that it can be explored and understood better
Being original	This embodies: • the quality of newness for example: inventing and producing new things or doing things no one has done before • being inventive with someone else's ideas – recreation, reconstruction, re-contextualization, redefinition, adapting things that have been done before, doing things that have been done before but differently • and, the idea of significance and value – there are different levels and notions of significance and utility and value are integral to the idea
Being curious with an enquiring disposition – willing to explore, experiment and take risks	i.e. the attitude and motivation to engage in exploration and the ability to search purposefully in appropriate ways in order to find and discover. It is necessary to work in an uncertain world and often requires people to move from the known to the unknown
Being resourceful	using your knowledge, capability, relationships, powers to persuade and influence, and physical resources to overcome whatever challenge or problems are encountered and to exploit opportunities as they arise
Being able to combine, connect, synthesise	complex and incomplete data/situations/ideas/contexts in order to see the world freshly/differently to understand it better
Being able to think critically and analytically	in order to distinguish useful ideas from those that are not so useful and make good decisions. Being able to take value from feedback and use it constructively to improve ideas
Being able to represent ideas and communicate them to others	the capacity to create and tell stories, pitch and sell ideas, to negotiate and persuade, empathise with others and show people possibilities, opportunities and solutions in ways that make sense to them and cause them to act differently

Source: Jackson & Shaw, 2006

Where does creativity reside in the discipline?

Surveys of academic teachers in different disciplines (Jackson & Shaw, 2006) reveal that sites for creative thinking and action appear to be available in most aspects of disciplinary practice. Sites for creativity can be connected through the idea of disciplinary enquiry and problem solving.

Being original – is understood as creating something new and useful to the discipline. For most academics this is embodied in the processes and products of research many of whom are active contributors. The idea is also connected to invention and innovation. For example in history this could mean: new approaches to solving historical problems; new techniques to gather and analyse data; new approaches to validate evidence; new interpretations of evidence; new forms of history and new forms of communicating historical information.

Making use of imagination – is focused on the use of mental models in disciplinary thinking. It is a source of inspiration, stimulates curiosity and sustains motivation. It generates ideas for creative solutions and facilitates interpretation in situations which cannot be understood by facts or observations alone. Disciplinary problems and concerns provide an essential context for the use of imagination.

Finding and thinking about complex problems – the engine of academic creativity – is intellectual curiosity, the desire to find out, understand, explain, prove or disprove something. Curiosity leads academics to find questions that are worth answering and problems that are worth solving.

Making sense of complexity, synthesising, connecting and seeing relationships – Because working with complex problems often involves working with multiple and incomplete data sets, the capacity to synthesise, make connections and see new patterns and relationships is important in sense-making (interpreting and creating new mental models) and working towards better understandings and possible solutions to difficult problems.

Communication – the communication of ideas, knowledge and deeper understandings are important dimensions of creativity in the discipline. The symbolic language and tools and vehicles for communicating are all part of the disciplinary heritage. Story-telling is an important dimension of communication. Disciplinary cultures are largely based on writing using the conceptual and symbolic language and images that have been developed to communicate complex information. Story-telling and story-writing are important sites for academics' creativity.

Resourcefulness – in the professional disciplines many roles involve solving difficult problems requiring ingenuity and resourcefulness. For example, a social worker or medic might need all their resourcefulness to access and acquire the resources to solve a client or patient's problem.

Amabile (1996) reveals how these characteristics of disciplinary creativity might be integrated into her model of creativity (Figure 1) through the example of a bio-engineer utilising his expertise, creative thinking and motivations to find and solve problems (contexts) that motivate him. In this scenario we are dealing with the Pro-c versions of creativity recognised by Kaufman and Beghetto (2009).

> A bio-engineer's expertise includes his innate talent for imagining and thinking about complex scientific problems as well as sensing out the important problems in that domain, his factual knowledge of biochemistry and the techniques of genetic engineering, his familiarity with past and current work in the area, and the technical laboratory skill he has acquired. This component can be viewed as the set of cognitive pathways that may be followed for solving a given problem or doing a given task. (Amabile, 1996, p.5)

> Our bio-engineer's arsenal of creativity skills might include his ability to break out of a preconceived perception or expectation when observing experimental results, his tolerance for ambiguity in the process of deciding on the appropriate interpretation for puzzling data, his ability to suspend judgment as he considers different approaches, and his ability to break out of strict algorithms for attacking a problem. (Amabile, 1996, p.5)

> Task motivation makes the difference between what our bio-engineer can do and what he will do. The former depends on his levels of domain-relevant skills and creativity-relevant skills. But it is his task motivation that determines the extent to which he will fully engage his domain-relevant skills and creativity-relevant skills in the service of creative performance. (Amabile, 1996, p.7)

For many, simply having the intellectual challenge of a problem they care about is all they need to motivate themselves and increase their potential for creativity.

Students' Creative Development: A Lifewide Approach

In my examination of the 'wicked problem' of creativity in higher education (Jackson, 2008), I suggested that we could do much to honour and encourage students' creative development by adopting a lifewide concept for students' learning and development creating a curriculum that values learning and development gained in all the spaces and places in a student's life while they are studying. A lifewide curriculum, it was argued, afforded the best opportunity for students' creative development since the intrinsic motivations that drive creativity and the contexts that provide the opportunity and challenge are more likely to be present in the spaces that individuals either choose to inhabit or are forced into by circumstances.

> A lifewide curriculum honours informal/accidental/by-product learning in learner determined situations as well as formal learning in teacher determined situations. It embraces learning in the physical/emotional social spaces that characterise the work/ practice environment and it honours formal and informal learning in all other environments

> that learners choose to be in because of their interests, passions, needs [and circumstances]. Because of this a lifewide curriculum is likely to provide a better framework for encouraging, supporting, recognising and valuing learners' creativity and self-expression, than a curriculum that is solely based on academic or academic and professional practice experiences (Jackson, 2008, p.24).

A lifewide curriculum also engages learners with what is relevant in and to their lives in ways that much of our education system does not. McWilliam and Taylor (2013) elaborate the reasons for 'why our kids need a powerful disposition to be self-managing learners when they finish their schooling'. For most of them, such a disposition will not be grown through being told what to do and how to think; rather it will be learned in all those parts of their lives where they decide what to do and how to do it.

In terms of the scale and influence of students' creativity (Kaufman & Beghetto, 2009) we are referring mainly to little-c and small-c forms of creativity although occasions and circumstances where students achieve Pro-c forms of creativity, particularly where collaboration is involved, have been come across. A lifewide curriculum could facilitate students' creative development in three ways in the forms that are necessary to be successful and innovative in the academic disciplinary or interdisciplinary domain, in any professional/work placement domain, and in the domains of activity that learners choose for themselves in their lives outside formal education. This domain is particularly rich in affordances and possibility spaces and it is this domain that is currently most difficult to honour and recognise students' learning and creative enterprise.

The significance of a lifewide concept of education for personal creativity is that it enables individual students to feel that even if they believe that there is little opportunity for them to be creative in their academic course, they can gain recognition for creativity that is being expressed in other parts of their lives. It also encourages students to see that creativity can be manifested in different ways in different parts of their lives.

An ecological perspective on creativity

We tend to think of creativity in the context of a specific thing – a sudden insight that helps solve a problem. But at an entirely different scale we might speculate that individuals' creativity is paramount to their creation of entire ecologies for learning and achieving. This is a particularly useful concept for students to grasp as it helps them make sense of the way in which they structure and orchestrate their learning lives. It is also important for teachers to realise that students have rich learning lives beyond their study programme.

An individual's learning ecology comprises their processes and set of contexts, relationships and interactions that provide them with opportunities and resources for learning, development and achievement (Barron, 2006; Barab & Roth, 2006; Jackson, 2013a; Jackson, 2013b). Organised educational settings create their own ecologies for learning into which learners have to fit themselves but outside these settings self-created

learning ecologies are an essential component of the way we learn and develop in work, family and other social settings. They are the means by which we connect and integrate our experiences from the past to the present and the means by which we create meaning from the whole of our life. Because they are an act of unfolding creation they are an important focus for our personal creativity.

Holistic model of learning, achievement and personal creativity

A lifewide concept of higher education values and recognises learners' attempts to develop and use all their senses and embraces their full range of physical, intellectual, spiritual and emotional experiences. Beard and Jackson (2011) argue that a lifewide concept of education should be supported by a comprehensive model of learning. They present a useful framework to help us understand how our whole being is involved in learning. In this representation of learning there are three components to a learner's world: his inner world, his outer world, and the sensory interface between these worlds. Learning is represented in six dimensions: *sensing, belonging, doing, feeling, thinking* and *being/becoming*. A creative act is likely to involve many if not all of these dimensions and by adopting such a comprehensive model of learning this can be recognised and valued. By comparison an academic context for creativity may be heavily biased towards the cognitive dimension of experience.

Case study – Surrey Lifewide Curriculum and Lifewide Learning Award

Jackson et al. (2011) describe a scheme at the University of Surrey which embraced the idea of a lifewide curriculum and the principles listed in Table 1 for encouraging and supporting students' creative development. The concrete expression of this idea translates into a curriculum map (Figure 3) containing three different domains, all of which have the potential to be integrated by learners into their personalised higher education experience and be recognised and valued by the institution.

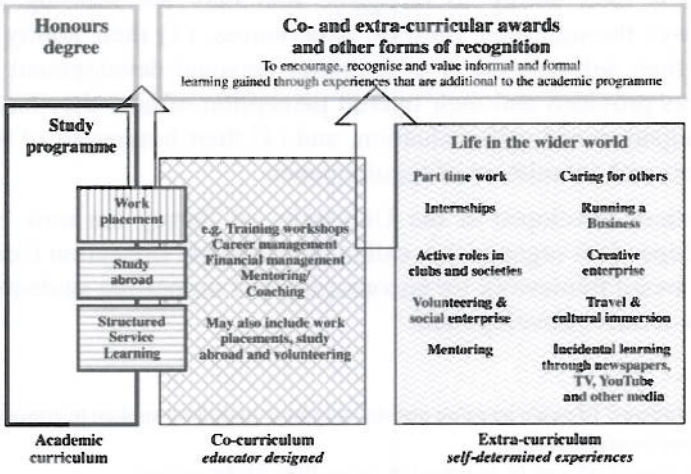


Figure 3. The Lifewide Curriculum Map of the University of Surrey

Support and recognition for students' lifewide learning and development, including their creative development, was provided through a Lifewide Learning Award. The award framework comprised an overarching award and a family of certificates underpinned by a lifewide learning capability and value statement. This statement embodied the knowledge, capabilities, dispositions and values that are considered necessary to deal with and create situations in any context. Within them explicit reference is made to: *Being creative and enterprising: you need to be creative, enterprising and resourceful to invent new solutions, adapt to changing circumstances in novel ways and create new opportunities for yourself.*

The Award did not gain academic credit and it was not attached to any level of the UK HE Qualification Framework. Participation was voluntary and it required learners to recognise the relevance and intrinsic value and benefit of engaging in this type of learning experience. The Award was made to a student who was able to demonstrate learning and personal development through their co-curricular and extra-curricular experiences, in line with the requirements for the award. A minimum involvement of 150 hours of experience-based and reflective learning was required. Students decide what experiences to include in their portfolio but they have to demonstrate new learning and personal development against the award's capability and values statement. [3]

To demonstrate their personal development students created (1) a Life Map to show the areas in their life where they were learning/developing, (2) a Personal Development Plan to show how they were attempting to develop the core capabilities for the award, (3) a 2,000 word reflective account drawing out the ways in which they developed paying attention to the award capability statement, and (4) a portfolio documenting or illustrating the experiences they drew on for their personal development.

Judgements as to whether a learner deserved the Award were based on (1) their commitment to their own personal development through self-directed and unplanned activities over a period of time while they were studying at the University, (2) their self-awareness – their ability to recognise that they are learning and developing in different ways through their lifewide experiences, (3) their ability to explain and communicate their self-awareness of learning, personal development using the tools and frameworks provided and their overall perception of how they have changed as a result of participation and self-evaluation, and (4) their honouring of the self-directed learning process and completion of requirements.

The practices developed at the University of Surrey are now being promoted through an independent organisation called the Lifewide Education Community which offers its own award framework for encouraging and supporting students' development, including their creative development. [4]

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[3] Examples of students' lifewide learning and development including spoken testimonies can be found at: lifewidelearning.wordpress.com.

[4] The guidance framework can be accessed at: www.lifewideaward.com.

Interestingly, there is evidence that UK higher education is gradually moving towards a lifewide curriculum as over 80 universities are now supporting lifewide learning (Jackson, 2014) primarily to support the development of employability skills but implicitly also supporting students' creative development. More about this development can be discovered through the Lifewide Learning and Education in Universities and Colleges e-book (Jackson & Willis, 2014).

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