

Background Paper for #creativeHE On-line Discussion October 2016 (updated 07/05/17)
'Exploring Creative Pedagogies for Creative Learning Ecologies'
Norman Jackson



Norman is Co-Founder of Creative Academic and lead facilitator for the #creativeHE conversation described below.

Introduction

Where does one begin an exploration of ideas? It's often the hardest part of the journey. We decided to begin our exploration through a conversation on the #creativeHE platform established by Creative Academic Co-Founder Chrissi Nerantzi and this is the background paper I used to introduce the core concepts that underlie our exploration and some of the questions we need to ask. Since then I wrote a second article exploring the idea of personal pedagogies so I have incorporated some of this thinking in a revised version of the October article.



#creativeHE

A conversational platform for exploring creativity in higher education
<https://plus.google.com/communities/110898703741307769041>

Exploring Creative Pedagogies & Learning Ecologies

An unfolding conversation from Sunday Oct 30th to Friday Nov 4th 2016

Facilitated by Norman Jackson with help from my friends Chrissi, Jenny, Simon, Sue, Sandra, Erica, Kate, Roger, Paul & John

In this #creativeHE conversation we want to consider the value of an ecological perspective on pedagogy. Specifically, we are interested in exploring how a teachers' **pedagogic practices** can lead to the creation of ecologies within which learners can use, develop and recognise their creativity

In a previous #creativeHE conversation in July 2016¹ we explored the idea that personal creativity can be viewed as an ecological phenomenon, *'the emergence in action of 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/her life'*^{2:350}

A number of participants provided narratives of their own creative experiences and used a model of a learning ecology³ as a reflective aid to demonstrate that personal creativity emerges from the ecologies we create to learn, develop and achieve something we value. This might be termed a **heutagogical**⁴ approach ie learners created their own ecologies for self-determined,

self-motivated and self-regulated learning to achieve something they wanted to achieve. We used the posts and articles created in this conversation to form issue 5 of our magazine CAM5⁵.

In the November #creativeHE conversation we wanted to focus on **pedagogical** approaches to creating ecologies within which students learn, develop and achieve. Specifically, we were interested in exploring how a teachers' **pedagogic practices** created ecologies within which learners could use and develop their creativity.

The purpose of this new #creativeHE inquiry is to explore and evaluate the proposition that a teacher's pedagogic practices can be viewed as the means by which they create ecologies for learning and achievement that also encourage and enable their students to use and develop their creativity.

Q What concepts of pedagogy are used in higher education?
Q Are teaching and pedagogy the same thing?
Q What do we understand by a creative pedagogy? Is it synonymous with innovation?
Q In the same way that we might distinguish between creative teaching and teaching for creativity, might we also distinguish between a creative pedagogy and pedagogy for creativity?

Participants were encouraged EITHER to create a narrative describing an experience when they had designed and implemented a teaching and learning strategy to encourage and enable students to use and develop their creativity, OR create a narrative when they had experienced such a situation as a learner.

Using these personal accounts as a resource participants were invited to use the model of a learning ecology proposed in Figure 1 and 2 to reflect on and make sense of their experience critiquing and/or developing the model in the process. Through this process we hoped to gain a better understanding of whether the ecological model is useful and relevant to understanding these types of pedagogic practices.

During the course of preparing this background paper Erica McWilliam very kindly sent me an article she had written⁶ in which she argues for a simple definition of creativity as *making a third 'thing' from two existing things or ideas*, rather than making something from nothing. I think that this is exactly what we were trying to through the conversation by taking the ideas of *pedagogy* and *learning ecology* and seeing if they could be combined and integrated to make something different - an *ecological concept of pedagogy*.

Concept of a Learning Ecology

In nature an ecosystem comprises the complex set of relationships and interactions among the resources, habitats, and residents of an area for the purpose of living. Each organism within an ecosystem has its own unique ecology within the ecosystem through which it lives its daily life, so the whole ecosystem is made up of many individual ecologies competing or collaborating for resources and contributing to the system as a whole so that the whole system is maintained and sustained.

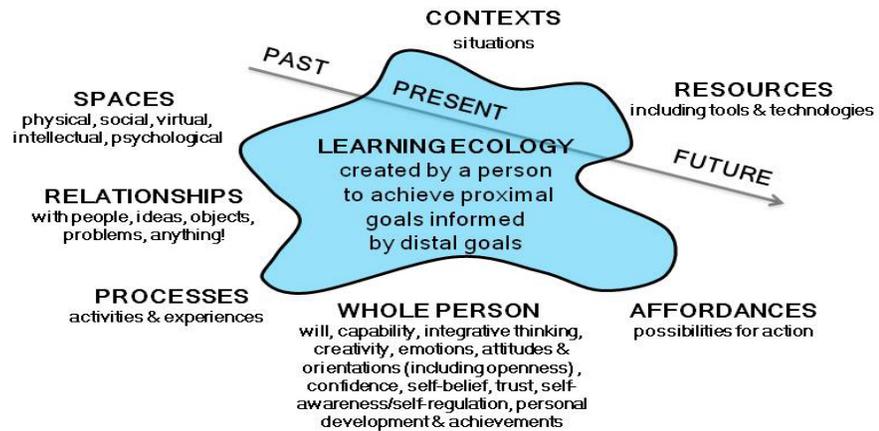
A similar conceptualisation can be applied to human ecological systems or ecosocial systems - the set of relationships and interactions among the people, resources, habitats, and other

residents of an area for the purpose of living³. While all ecosystems are complex adaptive systems that learn to live with, and when necessary adapt to, their environment, the making of meanings and sharing of understandings (learning) are a primary interest and purpose of human ecosocial systems together with their continuous development and improvement⁷.

Model of a Learning Ecology

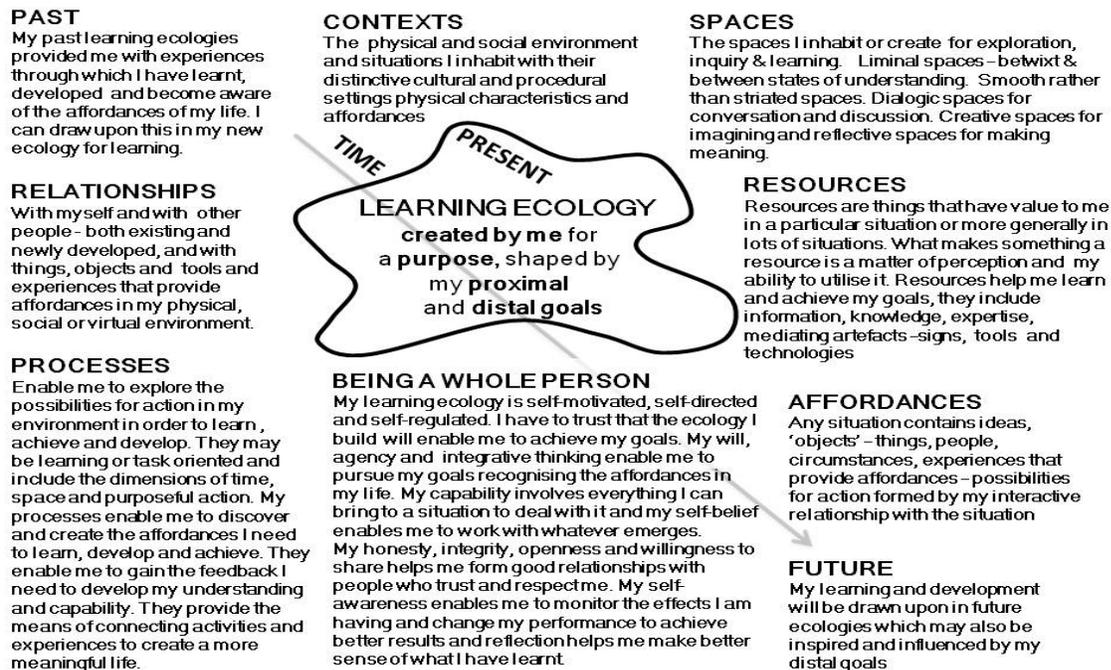
To help explore, apply and evaluate the idea of a learning ecology I developed a model to explain the elements it contains (Figure 1 & 2)

Figure 1 Components of a learning ecology³



Exploring Learning Ecologies <https://www.lulu.com/>

Figure 2 Explanation of the components of a learning ecology (Jackson 2016a)



A key question in this #creativeHE inquiry is to what extent these models of personal learning ecologies can be used to represent the pedagogic practices used by teachers to encourage, support and enable students' learning.

Every organism has an environment: the organism shapes its environment and the environment shapes the organism. So it helps to think of an indivisible totality of 'organism plus environment' - best seen as an ongoing process of growth and development⁸. From an environmental perspective it does not make sense to talk about the environment in which we are learning without reference to ourselves as the organism that is perceiving and interacting with the environment we inhabit in order to learn.

Applying the idea of ecology to learning, personal development and achievement, including our creative achievements, is an attempt to view a person their purposes, ambitions, goals, interests, needs and circumstances, and the social and physical relationships with the world they inhabit, as inseparable and interdependent. The idea of ecology encourages us to think more holistically and more dynamically about the way we inhabit and relate to the world. It encourages us to think in a more holistic way about our life: how we connect up the moments in our lives to form experiences and achievements that mean something to us.

Growing out of the exploration of this idea is a belief that our ecologies for learning embrace all the physical and virtual places and spaces we inhabit in our everyday lives and the learning and the meaning we gain from the contexts and situations that constitute our lives. They are the product of both imagination and reason and they are enacted using all our capability and ingenuity. They are therefore one of our most important sites for our creativity and they enable us to develop ourselves personally and professionally in all aspects of our lives. If this belief is well founded then surely, our ability to create our own ecologies for learning and development must be one of the most important capabilities we need for sustaining ourselves, achieving our purposes and maintaining our sense of wellbeing in a complex, ever changing and often challenging and disruptive world. Yet to date, there has been little consideration of these ideas in the higher education curriculum or pedagogic practices.

What is Pedagogy?

In this #creativeHE conversation we want to explore whether the model of a learning ecology proposed in Figure 1 and 2 can be applied to formal educational environments. Specifically, whether teachers create, through their *pedagogic thinking and practices*, ecologies within which students learn, develop and achieve.

Dictionary definitions explain that pedagogy is the discipline that deals with the theory and practice of education. The word comes from the ancient Greek *paidagogos*, a compound comprised of "paidos" (child) and "agogos" (leader) ie 'to lead a child'. But pedagogy has also come to mean the practice, as well as the study of practice, of a teacher and how that practice is employed in particular educational settings and circumstances. Mark Smith⁹ provides an interesting, informative and authoritative article on the history, meanings and uses of the term.

A common way of approaching pedagogy is as the art and science (and maybe even craft) of teaching.

the commonest view is that pedagogy is about teaching, and in the context of the academic curriculum it is about teaching a subject. In fact, this view of pedagogy is essentially a didactic view, 'the concerns of didactics are: what should be taught and learnt (the content aspect); how to teach and learn (the aspects of transmitting and learning): to what purpose or intention something should be taught and learnt (the goal/aims aspect)^{10:236}

viewing pedagogy in this way both fails to honour the historical experience, and to connect crucial areas of theory and practice. Here we suggest that a good way of exploring pedagogy is as the process of *accompanying learners; caring for and about them; and bringing learning into life*⁹.

This deeply caring and relational view of a teacher's pedagogy is recognized by Giles and McCarty^{11:67} 'pedagogy.... is always relational in nature, and as such is central to our everyday teaching strategies'. It's through these caring relationships and the teacher's encouragement and demonstration that 'we are making this journey together', that a climate or culture of trust and respect emerges. The importance of this dimension of pedagogy for encouraging students' sense of wellbeing and creativity should not be underestimated.

We can learn about the dimensions of pedagogy that facilitate the development of a culture within which students' creativity can flourish from Amabile and Kramer's study¹² of the socio-cultural work environment. They identified two types of event or condition which they termed catalysts and nourishers, that support what they term a person's '*inner work life*' - the constant stream of emotions, perceptions and motivations that people experience as they go through their work days^{12:29-39}. Throughout the day, people react to events that happen in their work environment and try to make sense of them. These emotional reactions and perceptions affect their motivation for the work and have a powerful influence on their performance. When people have a positive inner work life, they are more creative, productive, committed to their work, and more co-operative toward the people they work with. When they have poor inner work lives, the opposite is true - they are less creative, productive, committed and co-operative.

The catalyst factor includes events that directly enable a person to make progress in their work. Catalysts include such things as: having clear goals (self-determined goals are more motivating), having autonomy to determine how to work, having access to sufficient resources when you need them, having enough time to accomplish the tasks, being able to find help when you need it, knowing how to succeed, being encouraged to let your ideas to flow. The opposite of catalysts are inhibitors; these make progress difficult or impossible. They are the mirror image of the catalysts, and include giving unclear goals, micro-managing, and providing insufficient resources etc..

Amabile and Kramer^{12:131-33} identified four factors that *nourish* a work culture in which people feel supported and positively influenced their motivation, productivity and creativity namely:

- 1 *Respect* - managerial actions determine whether people feel respected or disrespected and recognition is the most important of these actions.
- 2 *Encouragement* - when managers or colleagues are enthusiastic about an individual's work and when managers express confidence in the capabilities of people doing the work it

increases their sense of self-efficacy. Simply by sharing a belief that someone can do something challenging and trusting them to get on with it without interference, greatly increases the self-belief of those involved in the challenge.

3 Emotional support - people feel more connected to others at work when their emotions are validated. This goes for events at work, like frustrations when things are not going smoothly and little progress is being made, and for significant events in someone's personal life. Recognition of emotion and empathy can do much to alleviate negative and amplify positive feelings with beneficial results for all concerned.

4 Affiliation - people want to feel connected to their colleagues so actions that develop bonds of mutual trust, appreciation and affection are essential in nourishing the spirit of participation.

These insights gained into the work place are likely to be true of educational environments where work effort is directed to learning and management of that enterprise is the teacher. A teacher's modelling and pedagogic actions shape the climate or culture in the ecologies they create for learning which encourage or inhibit students' creativity.

A broad concept of pedagogy

We have deliberately chosen the idea of a teacher's pedagogic practice for the subject of this inquiry (rather than teaching) because of the ecological affordance contained in the idea. The proposition we are adopting is that a teacher's pedagogy is fundamentally about their relationships with the learners they are accompanying and caring for, with their subject which they often care passionately about, with the resources they prepare to help students learn, with the activities for learning they design and animate through their teaching, with the assessment tools they create, with the technology they use and with the spaces they create and their students inhabit. Affordance for learning is in all these things and the teacher's role is to enable learners to recognize and act on these affordances. This broad ecological view of pedagogy, is similar to that adopted by Thomson et al^{13:10} in their investigation into the signature pedagogies of artists and other creative practitioners.

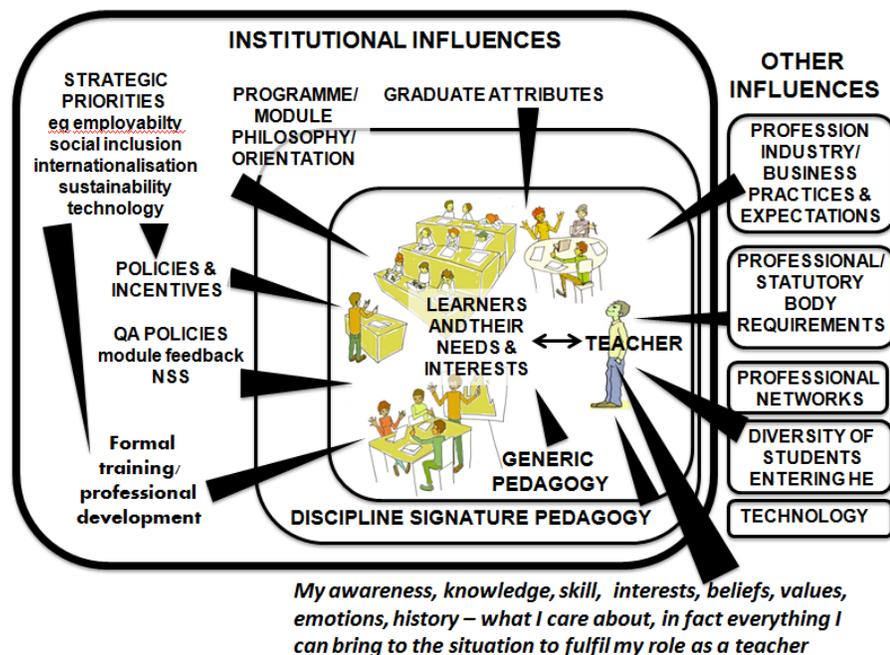
Pedagogy is more than teaching method, more than curriculum, more than assessment practice¹⁴. It is all these things, but it is also how they are made into patterns of actions, activities and interactions¹⁵ by a particular teacher, with a particular group of students [in a particular context]. The concept of pedagogy encompasses relationships, conversations, learning environments, rules, norms and culture within the wider social context^{16,17}, and may extend beyond school to community and public settings^{18,19}. It takes in the ways in which what teachers and students do is framed and delimited within a specific site, a policy regime and the historical context²⁰..

A teacher's personal pedagogy is not fixed. Rather we should think of it as a dynamic expression of their knowledge, skill and judgement and sensing of what is needed because they are deeply in tune with the learners' interests and needs, and the contexts, circumstances and situations in which they practice. A teacher's pedagogical thinking and practices are not fixed because they are influenced by the professional, institutional, social and technological world they inhabit. In fact the influences on pedagogical thinking are much wider and deeper than a teachers professional career: they emanate through a lifetime of engaging with learning in family, education, work and other social settings.

Key questions to explore in any inquiry into a personal pedagogy are: 'what have been the key influences on knowledge, beliefs and values in the formation and development of a teacher?' and 'what are the current influences?'

Figure 3 provides a conceptual framework for viewing important influences on individual's pedagogical practices in the contexts of their discipline, the educational needs of the programme and the learners on the programme, the strategic priorities of the institution, including the provision it makes for the development of higher education teachers, and some of the influences that are external to the institution.

Figure 3
Representation of the influences on a teacher's pedagogical thinking and practices in a university ecosystem the manifestation of which I am calling a personal pedagogy. This concept map was taken from Jackson (2017) Exploring Personal Pedagogies CAM7B March 2017



<http://www.creativeacademic.uk/magazine.html>

This conceptual aid tries to convey that there are many possible influences - past, present and future that are likely to impact on a teacher's pedagogical thinking and practice. At the centre of this concept map are the learners who are participating in a module and a programme, it is their needs and interests that provide the most important context for the teacher's personalised pedagogical thinking and practice. A module or programme might have a particular content, theoretical or practical orientation that shapes a teacher's approach. Their pedagogical knowledge is formed and influenced from many different sources, here are just a few of them.

- The teaching practices the individual has encountered as a learner in their disciplinary field and the *signature pedagogies*^{14,15,16} of their discipline which are core to the ways in which disciplinary practitioners think, solve problems, and develop and use knowledge.
- The generic pedagogical practices learnt from peers within or outside the institution or from professional development activities within their work environment - they include

such practices as a traditional lecture or seminar and the use of criteria to assess students' work

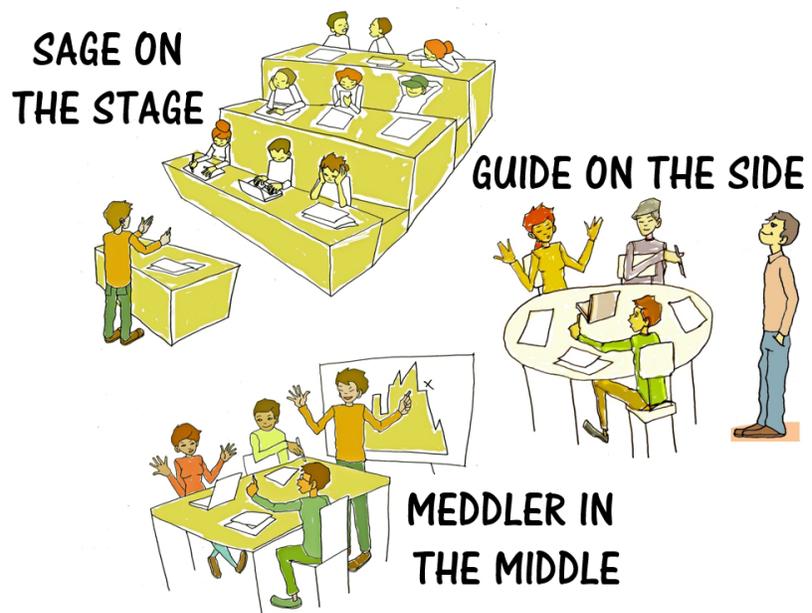
- A teacher's research interests, knowledge, practices and related resources and networks which can be drawn upon
- Institutional strategic policies that impact on teaching and learning - for example an institution might have a policy that encourages all graduates to possess certain qualities and attributes that might impact on pedagogical practices. Institutional quality assurance procedures may also require certain forms of practice such as curriculum designs that are based on learning outcomes.
- Issues the institution is engaging with. For example an institution might be committed to social inclusion and widening participation, or to internationalisation or sustainability all of which can affect the pedagogical approaches used by teachers.

A pedagogy that sets out to enable learners to use their creativity emerges from the personal pedagogy of a particular teacher. It's a personal and situated phenomenon not an abstract idea. It's the particular 'patterns of actions, activities and interactions by a particular teacher, with a particular group of students' in a particular set of institutional, curricular and relational circumstances.

I welcome your contributions to an online survey to try to understand how we develop knowledge, beliefs and values that influence our teaching practices. You can complete the questionnaire at <https://www.surveymonkey.co.uk/r/personalpedagogy>

When you have completed the survey you can see the results we have so far gathered at: <https://www.survevmonkev.net/results/SM-Q6R29H3G/>

Experienced and skilled teachers are likely to have developed a repertoire of pedagogic approaches, practices and orientations which they can select from depending on the particularities of the educational context. McWilliam²¹ captures a sense of this in her threefold characterization of pedagogic orientations - *sage on the stage*, *guide on the side* and *meddler in the middle* but there are likely to be many other metaphoric representations of complex pedagogic practice. Perhaps it's more appropriate to think that every teacher has a repertoire of pedagogic practices and orientations that they chose from according to the



circumstances, or the type of learning ecology, they want to create. In this way a complex ecology for learning and creative achievement might contain all three of McWilliam's pedagogic stances.

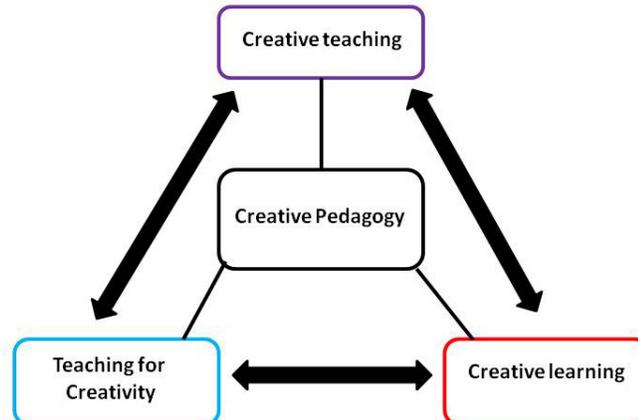
What impact does a particular pedagogic orientation (eg sage, guide, meddler) have on a teacher's ecologies for learning? Within the pedagogic narratives that are provided to this inquiry, what types of pedagogic orientation can be recognised? Are particular pedagogic orientations more effective than others at encouraging and enabling students to use and develop their creativity? What other metaphors might be used to describe the pedagogic orientations used to encourage and enable students to use their creativity?

Creative Pedagogy

Aleinikov²² defines creative pedagogy as the science and art of creative teaching. "In its essence, creative pedagogy teaches learners how to learn creatively and become creators of themselves and their future."²³

Lin²⁴ suggests that there are three dimensions to a creative pedagogy: creative teaching, teaching for creativity and creative learning (Figure 4).

Figure 4 Components of a creative pedagogy²⁴



According to Lin²⁴ *creative learning* is an essential part of creative pedagogy since its focus is on what the learner does (a learner's actions), while *creative teaching* focuses on what the teacher does (a teacher's actions). Lin refers to creative teaching as a creative, innovative and imaginative approach to teaching. When teaching creatively the teacher acts spontaneously as they respond to whatever emerges in the circumstances. The teacher may have planned the lesson one way, but a creative teacher has the courage to take the ideas that have arisen from the pupils and change the lesson to finish it in another way²⁵.

In their school-based study Jeffrey and Craft²⁶ made three discoveries relating to creative teaching and teaching for creativity. First, teachers both teach creatively and for creativity subject to the appropriate circumstances. Second, teaching for creativity may occur spontaneously in situations where it was not planned because the teacher is able to see new affordance as it emerges. Third, they accentuate that teaching for creativity is more likely to emerge from the context of creative teaching²⁶.

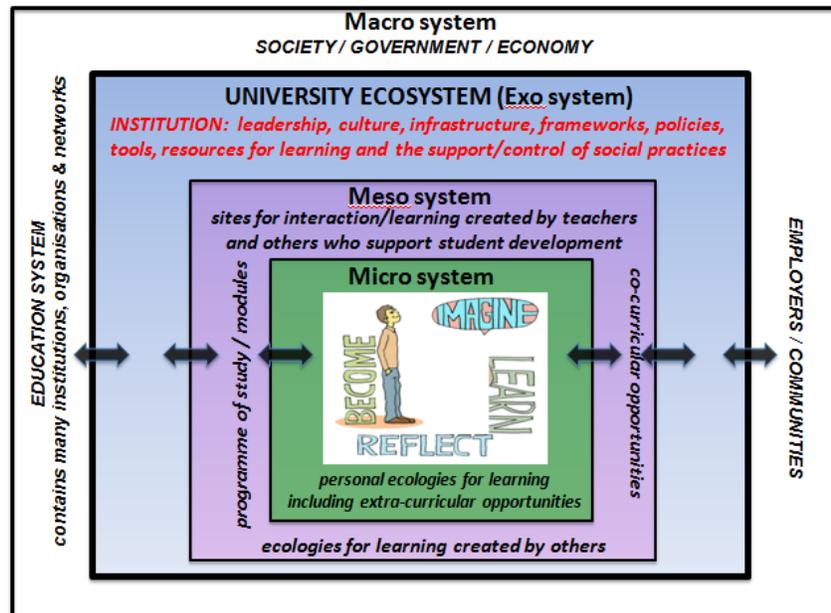
What other pedagogic knowledge sources cast light on the problem we are working with? We welcome the sharing of personal resources and links.

Ecologies for Learning Created by Teachers in a University Ecosystem

An ecological perspective on learning, requires us to also think about the ecosystem within which learning takes place. Figure 5 uses Bronfenbrenner's nested ecosystem model to represent the nature of a university ecosystem.

Figure 5 University ecosystem

A traditional university course taught face to face is designed, organised and implemented by one or more academic teachers who have both disciplinary and pedagogic expertise, within an institutional socio-cultural environment that is full of support and resources to aid learning. There is a structure (timetable/lecture schedule/credit structure)



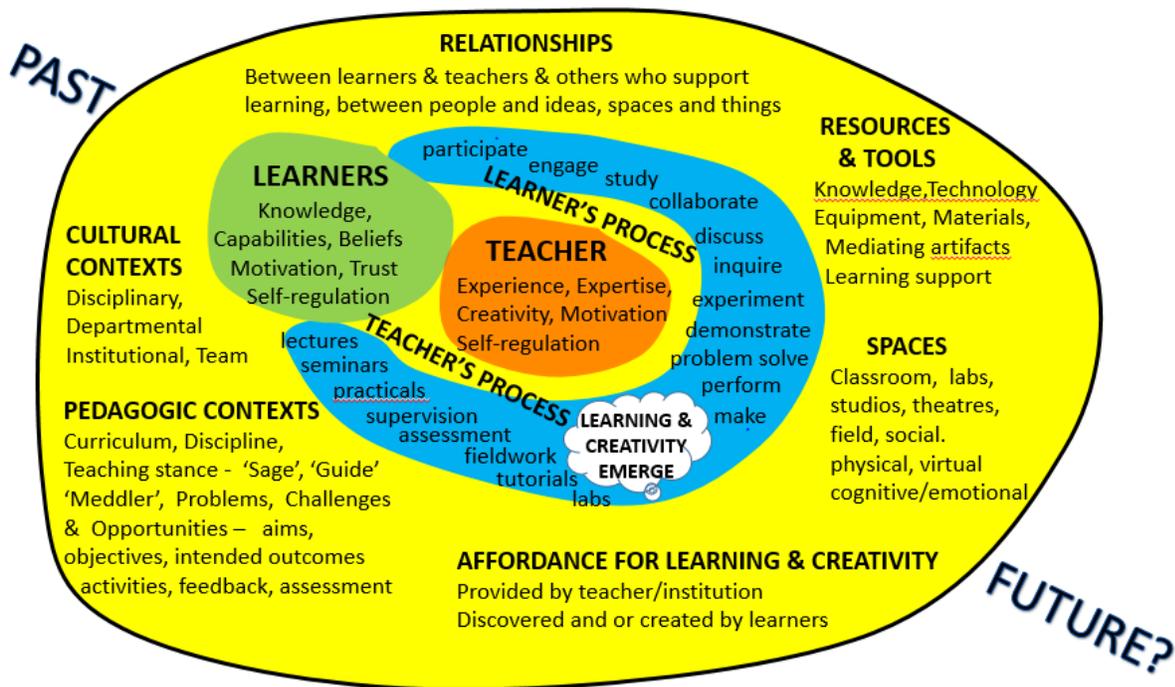
and procedural framework (rules and regulations) within which learning takes place. Programmes are organised into units or modules with explicit objectives, content, resources and processes that engage learners in activities through which they learn, and some of their learning is assessed using one or more methods determined by teachers. The institutional ecosystem for learning includes people - learners, teachers and other professionals who help learners, a physical environment including classroom spaces, social spaces, resources centre and virtual spaces where learners and teachers interact for the purpose of learning. Figure 6 identifies the components of typical course-based learning ecologies that are designed and taught by a teacher and are hosted by an institutional ecosystem which provides the physical, cultural and virtual environment.

Affordance for learning *within the context of an academic programme* is everywhere. It is contained in the course, programme or module content, in the activities that teachers organise and facilitate for learners, in the *physical and virtual spaces* that are provided which support particular activities (both academics and social) and in the *intellectual spaces* that the pedagogic activities promote.

Affordance for learning and development is also found in the *resources* including books, journals, computers, software and other tools and mediating artefacts that are used, and in the teaching and learning *processes* and practices that are used to engage learners and encourage them to form relationships for learning with these resources. Affordance for learning and personal development is also found in the additional support and advisory services the university provides, and in the *relationships* and interactions between teacher and students, and student peers, and

in learner's own responses to all of these things. Furthermore, some academic programmes also contain affordances for learning in contexts and environments that lie outside the institution for example through work placements and internships, community-based projects, fieldwork and study visits and more.

Figure 6 Typical ecology for learning developed through a teacher's pedagogic practice and associated with a taught course within an institutional ecosystem (refined from Jackson^{3:244}). The model of a learning ecology outlined in Figure 1 & 2 provides a framework for the elaboration of this pedagogically constructed learning ecology which links to the past experiences of the teacher, exists during an unfolding present and will inform future pedagogic adventures. In this ecological model of pedagogy everything has the potential to interact.



Is it useful to you as a teacher to see your pedagogic thinking and practices as the means to creating an ecology within which both you and your students are embedded and containing all the environmental, cultural, intellectual and psychological elements that influence learning and ultimately learners' and your affordances for creativity?

Beyond the academic programme the university ecosystem provides affordance for student learning and development (including creative development) in the myriad of activities that populate the co-curriculum, and in the volunteering and paid work opportunities around campus. The university campus is a microcosm of the world and students' can find and create for themselves affordance in all manner of things. Indeed, the more creative a student is the more likely they will find affordance in the world around them.

Some of the most important spaces for students' creativity lie outside the academic curriculum. While this is to be celebrated, the question is why can't the academic curriculum also be suffused with such affordance?

Ecological Perspective on Personal Creativity

There are many definitions of creativity and most seem to have the ideas of bringing something new and original into existence as their core conception without providing any sort of context. It's as if creativity and invention happen in isolation from the world of their creator. Because of this I have come increasingly to appreciate and respect the way Carl Rogers framed the idea of personal creativity as, *'the emergence in action of 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'* ^{27:350}

The bottom line is that creativity is an ecological phenomenon. It's about human beings having thoughts that are stimulated by their relationship and interactions with the world around them. A creative thought is the result of a person interacting cognitively, physically, emotionally, virtually with something in their world ideas, people, things, problems, situations and experiences, and a multitude of other things and this interaction triggering a novel thought. These thoughts are often the result of connecting/combining two or more things to create something that is different to the things that were connected. McWilliam and Taylor⁶ catch this beautifully in their idea that creativity is often the result of *making a third 'thing' from two existing things or ideas*, rather than making something from nothing. Perhaps we might capture the idea in $1+1=3!$

Rogers' view of personal creativity and how it emerges from the circumstances of our life, is an ecological concept. The ecological metaphor affords us the most freedom and flexibility to explore and appreciate the ways in which we and our purposes are connected to our experiences and the physical, social and psychological world we inhabit. I believe that our creativity lies in seeing affordance in an idea, thing or situation and then acting on this affordance by doing something useful and novel (at least to ourselves) with what is afforded²⁹. If we translate this way of thinking to the formal teaching and learning environment then the most important things a teacher does through their pedagogic practice is to create affordance for learning, enable learners to appreciate that affordance, and equip them with the means and motivation to make use of it. If the object of affordance has a creative dimension then their pedagogic task is to encourage and enable learners to make use of it.

A learning ecology contains not only the physical, virtual and social spaces that form the circumstances of our lives, but also the mental / psychological spaces that enable us to think about ideas and situations in a variety of ways. If we translate this way of thinking to the formal teaching and learning environment then the most important things a teacher does through their pedagogic practice is to create affordance for learning, enable

Much of the affordance or possibility for students' creative thinking and action lies in the spaces that teachers create through their own pedagogic practices and it will be interesting to see what sorts of spaces are revealed in the pedagogic narratives that are grown through this inquiry.

The mental / psychological spaces we create within our own ecologies for learning, development and achievement are rich and varied. They are one of the most important ways in which we create new affordance. Giles and McCarty¹¹ consider that the creation of 'deeply meaningful learning spaces' is an essential pedagogic task and they illustrate this idea through examples of spaces for contemplative thinking, appreciative inquiry, and the devising and acting of plays. So one of the most important acts of teachers is to create, animate and facilitate the conditions within which these important intellectual, imaginary, emotional and practical spaces can flourish and students can access and make use of them. Here are just a few of the many types of space a teacher may create, with appropriate encouragements and permissions, through their pedagogic practices³:

Spaces for conversation & discussion - our learning ecology spaces are dialogic spaces within which conversation and discussion can take place between an individual, themselves and the people involved in their learning ecology. Within our learning ecologies we create spaces for conversation with others and ourselves that are relevant for a particular purpose, goal or learning project. So much of the knowledge we need to solve everyday problems is gained through social interaction and the transmission of tacit through conversation and observation.

Space for exploring, inquiring & adventuring - for venturing into territory that is not well known or understood. In these spaces we have to deal with uncertainty, ambiguity and perplexity as we encounter things we have not encountered before. We often don't know what we need to know when we start a significant new learning project so we have to engage in what John Dewey (cited in Cook and Brown²⁹) called 'productive inquiry': finding out what we need to know in order to do the things we need to do. Productive inquiry can be applied to all situations : from scientific investigations to situations that crop up in our daily lives. It is a capability we need in all working contexts. 'Productive inquiry is not a haphazard, random search; it is informed or disciplined by the use of theories, rules of thumb, concepts and the like'^{29:62}.

Spaces for imagining & reflecting - one of our greatest assets as a human being is to be able to create mental spaces for us to think about our past experiences and interpret and draw meaning from the memories we reconstruct. Our ecologies for learning provide the mental space for us to look back on the past and imagine possibilities for the present grown from experiences of the past. We use the term reflection to describe this process: a term that conjures up faithful reproductions of situations remembered rather than creative manipulations of those memories. We have the wonderful ability to imagine, to ask 'what if' and generate entirely new possibilities from situations we have experienced. This enables us to create mental models that help us make good decisions and plans about what to do. Through our imagination space we can generate ideas, connect and combine them to all sorts of things, select and synthesise particular thoughts and create entirely new perspectives and possibilities. We can project from what we know into the future and imagine entirely new and novel futures. This envisioning process is fundamental to our creativity: it gives it a reason to exist.

A learning ecology thus both hosts and stimulates our imagination which feeds into the full range of cognitive processes whenever we are confronted with a problem or engage with an opportunity. Imagination that is connected to, and integrated with other cognitive processes, is the way we perceive the affordance in a situation²⁸. Because our imagination is unique to us sometimes we are the only ones who can see such affordance so it's not surprising that when we act on it we are able to make interesting and unique contributions to the world.

Ann Pendleton-Jullian and John Seely Brown³⁰ coin the term 'pragmatic imagination' to emphasise the important role played by imagination in enabling us to see affordance in a situation, idea or thing. 'The Pragmatic Imagination pro-actively imagines the actual in light of meaningful purposeful possibilities. It sees opportunity [affordance] in everything'. At the neurological level creative insights can arise in two processing modes—spontaneous and deliberate^{31;1015}. An energetic ecology for learning and achievement creates an environment within which both of these modes of gaining creative insights are possible.

Spaces for making and/or making something happen : Visualising, designing and making things ie bringing new things into existence is an act of creation. 'Maker spaces' are an essential ingredient of education and training in disciplines like engineering, art and design, architecture, and fashion and textiles but it is not a feature of most disciplinary educational processes unless you see the writing of an essay as a 'making' process. But it can be, and that is the point, a learning ecology can contain spaces for making physical or virtual objects or for making something happen (eg the making of an event). Thomas and Brown³² argue that *Homo Faber* or "(Hu)man as maker, recognises our ability to create through making.

Homo Faber is more than simply making; it is making within a social context that values participation. It is akin to what Michael Polanyi³³ has described as "indwelling," the process by which we begin to comprehend and understand something by connecting to it and, literally, living and dwelling in it. In that way, making also taps into the richness of becoming. We learn through making, building, and shaping not to produce something static, but to engage in the process of participation³²

Spaces for play : Arguably, all creativity involves some sort of play or playing around with ideas. CAM2³⁴ describes many different approaches to play being used in higher education.

Learning is often a messy business. "Messy" learning is part trial and error, part waiting and waiting for something to happen, part excitement in discovery, part trying things in a very controlled, very step by step fashion, part trying anything you can think of no matter how preposterous it might seem, part excruciating frustration and part the most fun you'll ever have. Time can seem to stand still - or seem to go by in a flash. It is not unusual at all for messy learning to be ...um ...messy! But the best part of messy learning is that besides staining your clothes, or the carpet, or the classroom sink in ways that are very difficult to get out ... it is also difficult to get out of your memory! (<http://www.learningismessy.com/quotes/>)

When teachers re-imagine the learning process as one in which students are entitled to experience the pleasure of the rigour of complex thinking through serious play, learning is enhanced by a richer educational scheme of curriculum and pedagogy.⁶

Play, at least in humans, is not necessarily all-or-none, but can exist in matters of degree. An activity can be characterized as play, or described as playful, to the degree that it contains the characteristics listed here: Play is activity that is (1) self-chosen and self-directed; (2) intrinsically motivated; (3) guided by mental rules; (4) imaginative; and (5) conducted in an active, alert, but relatively non-stressed frame of mind³⁵ (Gray 2013).

In his article on cultivating the entrepreneurial learner, John Seely Brown talks about the epistemology of playing (Homo Ludens - man the player - Huzinga³⁶).

The key aspect of play is not that subtle - it's kind of a permission to fail, fail and fail again until you get it right... Perhaps most importantly, think about an epiphany. How do you play with something until it just falls into place?... Brilliant teachers are brilliant in being able to create epiphanies for kids.. how do we use play as a way to amplify the chance for that to happen?³⁷

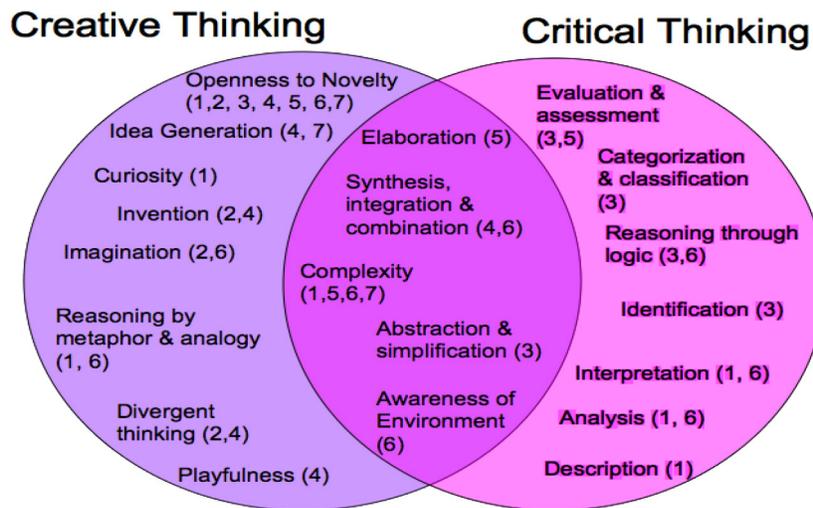
Or, in terms of our exploration, brilliant teachers are brilliant at creating ecologies for learning where the creative possibilities for epiphanies are increased.

Spaces for play may also include spaces to perform. For example, role play is a way of encourages learners to put themselves into someone else's shoes³⁸. To see a situation through the eyes of the person whose role they are adopting. Role play requires the learner to use their imagination and their empathy and embody the way they imagine another person would view and respond to a situation. It provides opportunities for learning in both the affective domain, where emotions and values are involved, as well as in the cognitive domain where experiences are analyzed. It encourages learners to see the world from another perspective, assess a situation and respond to it in the way they think a person who is not themselves would respond.

Spaces for synthesis and integrative thinking - all the spaces in our ecologies for learning provide affordance for seeing the world as we experience it and as we imagine it. Providing us with new sorts of information and knowledge with which to make better or different senses of what it means. Our ecologies for learning contain within them the possibility space for synthesising, integrating and reconstructing our understandings and feelings to make entirely new interpretations and meanings by combining and connecting ideas. Such ways of thinking about our mental spaces for creativity require us to integrate the imaginative, associative and synthetic ways of thinking, with the critical and analytical ways of thinking. Puccio et al³⁹ offer a simple visual aid to help us understand the idea of integrative thinking and how it is used in problem solving (Figure 7).

Integrative thinking combines creative generative ways of thinking, in so far as they will lead to connections that have not been thought of before, and critical ways of thinking so that from such connections new possibilities can be analysed and evaluated and then brought into existence.

Figure 7 Integration of creative and critical thinking in problem solving³⁹



Creating spaces within which students' creativity can flourish is an important task in a pedagogy for creativity. It will be interesting to see and map what types of spaces are created by teachers in the creative pedagogic narratives shared through the #creativeHE conversation.

But one thing is certain, mental processing alone might result in novel ideas but it is not enough to bring something new into physical existence. Mental processing must be accompanied by the package of dispositions, qualities and capabilities necessary for success when tackling difficult problems and challenges. Ron Barnett^{40:15} was right when he said “ ‘Will’ is the most important concept in education. Without a will nothing is possible.” Will forms around purposes which are usually deeply rooted in our distal goals - the sort of person we want to become, our ambitions and the contributions we want to make in life. It becomes operationalised in the particular things we try to do and accomplish. Being creative is a matter of personal choice and sometimes necessity in particular circumstances together with our ability to work with whatever emerges through our engagement with these circumstances.

Perceptions of Creativity and Being Creative

The meanings we give to creativity and being creative frame our thinking and actions and the way we experience being creative. 'Being creative' has both narrow and broader meanings⁴¹. The *narrow* meaning immediately leads one to think of activities directly associated with artistic self-expression - like singing, acting, dancing, painting and making films. The *broader* sense encompasses those activities associated with what Richard Florida calls the 'creative class'. This includes the arts but also involves activities such as architecture, design, advertising, video game development etc. The *broadest* meaning embraces the idea that we can all be creative in any aspect of our lives and that being creative includes any idea or act that is unique to our own capabilities and vision. This includes actions which can range from developing your own food recipes, setting up a charity to address a local problem, establishing a website to support a network of people who share an interest, writing your own music and singing our own songs,

building our own house, writing a blog post or developing a new practice or procedure at work. The list of possibilities is infinite but fundamentally creativity is about bringing ideas, objects or products, processes, performances and practices into existence. This may be accomplished by an individual - personal creativity, or a group of people working together - co-creativity. A creative outcome is often a combination of individual and collective creativity.

Macdonald^{42:123-4} distinguishes two different kinds of creativity namely, production-related and discovery-related. Production-related creativity doesn't only mean novel inventions and product designs, he means the creation of something of value that never existed before, in *any creative medium*: canvas and paint, clay, bronze, electronics, architectural materials, machined metal, welded metal, paper/computer and words, biochemistry, and an infinite number of other media for creative self-expression. The product or creation need not be novel in all respects, but something about it must be novel, and it must have value – aesthetic value, utilitarian value, inspirational value, or value of some other kind.

Discovery-related creativity on the other hand has more to do with seeing something in a different/novel way. One of its manifestations is the scientific breakthrough where insight leads to yet another layer being peeled off the onion of perplexity and truth. Another manifestation of discovery-related creativity is spiritual seeing, where the individual changes to a new and more enlightened perspective on something. But the task of expressing these insights-of-discovery to others involves returning to production-oriented creativity in order to share the insights that have been gained. This insight means that any sharing of creative self-expression must involve a 'product' or 'performance' in the case of oral communication or physical demonstration.

Everything we do is conditioned by the way we perceive the world. So a key question is how does a teacher's perceptions and beliefs about creativity influence their pedagogies for encouraging and supporting students' creative development? It would be interesting to explore in the narratives of teachers' pedagogic practice how perceptions of creativity influence the form of learning ecology they create.

Student perceptions of what encourages and enables their creativity

How do students experience a pedagogy that aims to encourage and enable them to use and develop their creativity?

It is all too easy to get carried away with abstract ideas about how teaching practices work and ignore how students experience the ecologies they encounter while immersed in their higher education experience. In this inquiry we want to involve students and recent graduates in the conversation to try to gain their perspectives on questions like:

- How important do they think it is for students to be able to use and develop their creativity while they are studying in higher education?
- What aspects of their higher education experience encouraged and enabled them to use their creativity?
- Are some teachers better than others at encouraging and enabling them to use their creativity?

- What do these teachers do or say that encouraged and enabled them to be creative?
- How was their creativity recognized and valued?
- How might their teachers have provided more opportunity for them to use and develop their creativity?

And then there is the small matter of assessing for creativity

Assessing learning is an important element of a teacher's pedagogic practice and often it is this aspect of practice that poses the greatest challenge. 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 the acceptance of creative ideas and solutions in a work context or field of practice. In an educational environment the recognition of a creativity is essential if learners are to believe that it is valued.

The views of higher education teachers on whether creativity can be assessed fall into four camps⁴³. Some teachers believe that students' creativity is evaluated through explicit assessment criteria. A second group believe that insufficient attention is given to recognising students' creativity and that at best the evaluation and recognition is implicit. The third group believe that it is not possible and/or desirable to assess creativity. While teachers in the fourth group value creativity but don't know how to assess it. Looking at this optimistically I interpret this to mean 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 that assessment is a major inhibitor of students' creativity.

Outcomes based assessment that assumes that all learning can be predicted and that the teacher is the only person who can define what the outcomes should be, 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 match to 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 challenges and learning to produce novel solutions, products, performances or other outcomes. Emerging from numerous inquiries 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 and make claims for it against evidence they feel is appropriate.

So what sort of pedagogic practice would give meaning to this role? Borrowing from practice in the architects' studio, Cowan⁴⁴ describes a collaborative teaching and learning *ecology* in which development of personal understandings of creativity, *in a particular educational context*, the criteria through which it might be evaluated, and the process of making claims and judgements, is grown by all participants (teacher and students together) through the learning processes. Working backwards, the results of creative thinking and action are embodied in a self-, peer- and teacher

assessed portfolios, with heavy emphasis on self-assessment and formative-assessment as the work and learning associated with it unfold.

How does assessment feature in pedagogic practices that aim to encourage and enable students to use their creativity? How do the results of assessment feed into developing pedagogic thinking?

Final remarks

This background paper attempts to provide a range of perspectives on teachers' pedagogic practices and on learning ecologies and show how the two ideas might be connected and integrated. To those encountering the idea for the first time it might appear novel idea but if it has no value and is not seen as being useful and relevant to practice then the idea will not be incorporated into thinking and practice. So the #creativeHE discursive process and the longer project being facilitated by Creative Academic is to test the usefulness of these ideas and were appropriate develop them further.

I shared a draft of my article with my friend and mentor John Cowan and true to form I duly received his provocative and critical comments which made me think again about how I was introducing the idea. But he concluded with an important question.

Is creativity best served when the pedagogy such as it is, is vested in the creative learners themselves, rather than in their teachers?

In other words, when teachers more or less get out of the way! This brings us neatly back to where we started by reframing the proposition, 'how do teachers' pedagogic practices enable learners to create their own ecologies for self-determined, self-motivated and self-regulated learning to achieve what they value: what might be termed a heutagogical⁴ approach to learning?

Acknowledgements

Thanks to John Cowan for his provocative comments that helped me improve what I had written and Erica McWilliam for sending me some of her as yet unpublished writings which gave me a new thought about creativity. Also thanks to my mum who suffered me writing this while I was on holiday with her in Australia. At 91 her energy and optimism puts me to shame. Also a big thank you to Narrawallee beach for the wonderful walks and thoughts you gave me.



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