

# **Exploring Learning Ecologies**

## Norman J Jackson



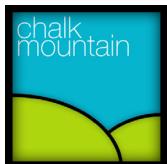
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**For all the people who have accompanied  
and helped me on my journey**

*'an explorer can never know what he is exploring  
until it has been explored' (Gregory Bateson 1972)*

*'we are prisoners of the past. To create a modern institution of education,  
we have to ... look at education with a fresh perspective, a new mindset ...  
grounded in today's realities, yesterday's lessons, and tomorrow's  
possibilities. The new education must start with the most recent  
discoveries about human beings: why they learn, how they learn, and  
where they learn. It must take into consideration the resources we have  
today, all the learning opportunities that can be harnessed in a globally  
connected society' Yong Zhao (2016 xvi)*

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you to Professor John Cowan, who has over many years acted as both a 'guide at my side' and on occasion a 'meddler in the middle' with his provocative but always caring and constructive feedback that always carries me forward. I count myself fortunate indeed to have such a caring and thoughtful mentor.

I have been fortunate to have participated in an amazing transformation of higher education over the last 25 years and I've been privileged to work in a number of different organisations that have helped shape and support this transformation. Thanks to HEFCE's Centre's for Excellence in Teaching and Learning (CETL) initiative between 2005-11, and the opportunity provided by the University of Surrey to lead its CETL, I was able to work in a university environment with students to understand how they learned and developed across all the domains of their life. This started me on a journey to explore the idea of lifewide learning: a journey involving many different learning ecologies, that eventually led me here. The CETL evaluation report (HEFCE 2011) noted that 'the legacy of the [CETL] programme rests largely in individual staff' who were involved in the programme. This book, and the lifewide learning and education network that has grown around these ideas, are examples of how that legacy is being realised and demonstrates that it might take a while for the effects of an intervention to be revealed.

Last but not least I would like to thank my family. I am blessed with a large family and my wife and children never cease to amaze me as they tackle the challenges and discover opportunities in their lives. Throughout this adventure they have provided me with endless sources of inspiration and the stories they shared enabled me to understand better the idea of a learning ecology. There is no doubt that this idea has been grown in the circumstances of my life and my family are the biggest part of my life.

Thank you to all of you.

# Foreword

The idea of ecology is a rich concept. At once, it alerts us to certain features of the world: it intimates not just interconnectedness but also a complex system of interactions. It alerts us, too, to a fragility in a system: the connections between the elements that constitute an ecology might become impaired in some way. An ecology may be ‘disrupted’ (as we see here) and it might even fall apart. And the idea of ecology alerts us, also, to an interconnected setting having worthwhile properties, that it requires continual maintenance, and that human beings collectively have a responsibility in that direction. In this admirable book by Norman Jackson, we can see all of these elements in learning ecologies. We assuredly gain a sense of a complex of factors at work (in a learning ecology), a sense too of there being elements of serendipity in the way in which matters play out but also of there being spaces in which learning ecologies can be buttressed with wise actions and policies. Learning ecologies may falter but they can also be strengthened.

Among this book’s many virtues, for me, three in particular stand out. *Firstly*, Norman Jackson provides us with a schema that depicts the ‘components of an individual’s learning ecology’ (introduced in figure 2.5, p71). Nine components are identified - the past, present and emerging relationships, processes, contexts, a person, space, resources, affordances and the future. That these nine components interact with each other produces an unpredictable setting but one which is full of possibilities. *Secondly*, a learning ecology is particular to a person. We can speak quite naturally, therefore, of an individual’s learning ecology. *Thirdly*, we gain a sense here that, while a person’s learning ecology presents itself to some extent, so individuals can ‘create their own ecologies for learning, development and achievement’. A learning ecology, in other words, is nothing less than a space in which individuals can open paths for their own renewal, and their unfolding. In the process, especially through reflection on the journey they are taking, individuals can forge a narrative of themselves. And it is perhaps in the personal

stories that individuals tell of themselves in these pages that many readers will find the greatest value in this volume.

Key concepts in this book, it will be already evident, as well as ecology itself, are those of narrative, journey, learning and trajectory. So far as the idea of journey is concerned, in this book, we are treated not just to one journey but to multiple journeys. We have a journey in and around the very idea of learning ecologies, we have the personal journeys of individuals and we have the autobiographical journey of the author, Norman Jackson. And these journeys weave in and out of each other, so enriching the overall effect. But there is another term which is supremely significant: it is 'I'. For, as stated, a great virtue of this book is the space that it offers to a number of individuals - who Norman Jackson has encountered at some point in his own biography - to reflect on their own learning journey and to disentangle their own learning ecology. Just what were the elements (of the nine components) of the learning ecology that were significant? How did they cope with imminent disruption? How and which new opportunities opened and how did they take advantage of those opportunities?

It follows that in the aptly chosen title for this book - that of '*Exploring Learning Ecologies*' - each of the three terms is doing work. '*Ecologies*' is the central concept in this book, 'learning' is the particular location of the ecological perspective, and 'exploring' indicates the open-ended approach taken here. On the idea of ecologies, I would just reflect that much has been made and is still being made in the literature of the 'structure-agency' relationship, with different positions being taken over the nature of that relationship and the relative influence exerted respectively by social structures and by persons (or groups) as have 'agentic' powers for themselves. The idea of ecology, especially as deployed here by Norman Jackson, seems to me to offer a far superior way of understanding human beings in their environments. Rather than two forces being pitted against each other (structure and agency), here - in the idea of ecology - we can gain a sense of human beings as being embedded in a complex environment and as being able to play a part in affecting that environment.

The second term in the title, that of *learning*, is also treated to a particularly open-ended conception. For here, learning becomes a matter of a whole-life narrative, both through life and at any point in time. 'Lifewide learning' comes crucially into view here, reminding us that individuals possess learning moments and learning opportunities aplenty: contemporaneously, many individuals find themselves learning in organisations, in formal learning settings and informally. Sometimes, it is not easy to distinguish these learning moments. Informal learning can take places in educational institutions and quite structured learning can be experienced in apparently informal settings. (In an interview which I conducted, I remember hearing from a music student - dissatisfied with his formal programme of study - how he had set up a group in which music students could compose for, and receive critical comment from, each other.) The recognition of such 'lifewide learning' opens awkward questions for formal institutions of 'learning': just what kind of learning are *they* offering, to what extent might a student's extra-curricula learning (which may well be highly regulated and structured) be recognized, and to what extent do the different spaces of learning contribute to a harmony in an individual's own learning ecology?

In other words, there are large implications of this book for formal educational institutions. The idea of learning ecologies, as worked out here by Norman Jackson, turns out to be a radical concept. If taken seriously, it would call for a fundamental reappraisal of the curriculum so that it promotes an ecology for learning; and just that, I take it, is part of the thesis of this important book, not least in the proposal here for a 'co-curriculum'. Here, there would be recognition not just sporadically of a student's serendipitous learning moments and achievements but rather a recognition that a student has a total learning life, a learning ecology, in which the educational institution plays but a part.

The third and last term in the title, that of *exploration*, is evident both in the crafting of the book and in the personal narratives it contains. On one level, Norman Jackson is himself exploring the validity and value of the nine-fold schema of what it is to be a learning ecology; on the other hand, the individuals whose stories we encounter reveal themselves as

engaged in a personal process of self-exploration. Ultimately, an ecology is lived. It is lived-in and lived-through, in all manner of meanings. And it gains special traction - if such a term may be used here - when an individual is able and is enabled to reflect upon themselves and reveal themselves, if only to themselves. That Norman Jackson has the authenticity and composure to share himself with us in these pages, as he reveals and reflects upon his own learning ecology, is a yet further strand in the making of this book. It is a book from which we can all learn.

*Ronald Barnett  
UCL Institute of Education*

# CHAPTER 1

## Journey With An Idea

### Starting Point

Ten years ago, in December 2005 I reached what I would eventually see as an inflection point in my life. I gave up a role I had enjoyed at the Higher Education Academy and became Director of the Surrey Centre for Excellence in Professional Training and Education (SCEPTrE) at the University of Surrey. In my new role I embarked on an entirely new career pathway that opened up many new affordances and adventures for professional learning and my own development.

The problem that I and my team invented for ourselves was something like, 'how can we add value to the educational opportunities that the university already provided?' We began a journey to explore the idea of 'a more complete education.' Our first step was to speculate that a more complete education would embrace the whole of a student's life while they were studying at university rather than only their academic experience. We used the expressions like *lifewide learning and development* to represent the learning and personal growth that would be associated with such an enterprise and the term *lifewide education* to describe the encouragement, support and recognition that an institution might underpin a learner's lifewide learning enterprise. We considered that a *lifewide curriculum* would provide a comprehensive framework for viewing the affordances for learning across a learner's life. Between 2008-11, helped by students and colleagues from inside and outside the university, we engaged in many research studies, development projects, workshops, conferences and educational interventions to try to understand and give practical meaning to these ideas and what we learnt was documented in 'Learning for a Complex World: a lifewide concept of learning, education and personal development (Jackson 2011).

I didn't know it at the time that this was the start of a journey that continues today: a journey through which I carry and develop my ideas, beliefs and important aspects of my own identity as a learner and human being. Gregory Bateson (1972 xxiv) got it right when he said 'an explorer can never know what he is exploring until it has been explored'. This book, builds on these earlier explorations of lifewide learning and sets out to explore the idea of learning ecologies and my ambition is to enlist you as a fellow traveler.

## Universal Challenge

How we prepare learners and enable them to develop themselves for a lifetime of learning and adapting to the continuous stream of situations they create or encounter in their lives, is to my mind the universal challenge facing higher education all over the world. Fundamentally it's a developmental challenge that we tried to capture in a picture (Figure 1.1) drawn on the wall of the SCEPTrE Centre.



**Figure 1.1** Symbolic representation of the nature, scale and scope of learning for a complex world

For higher education teachers, the developmental challenge is associated with a question like, ' how do we prepare our students for an ever more complex world?'... This does not just mean preparing them for their first job when they leave university. It also means how do we prepare them so that they can deal with the many challenges,

uncertainties, disruptions and emergent opportunities they will encounter over a lifetime of working, learning and living. The central proposition of this book is that teachers can do much to help learners prepare for these uncertainties if we adopt a more holistic, lifewide and ecological approach to learning and personal development.

From the students' perspective the same challenge is embodied in questions like, 'How do I develop myself so I'm better prepared 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 in order to develop these things? Personal and professional development needs to be so much more than simply studying and learning an academic curriculum. My proposition is that by encouraging students to see their learning, development and achievement in a more holistic, lifewide and ecological way, they will be better prepared to engage with the uncertain world outside higher education wherever life takes them or throws at them.

The challenge for institutional leaders is embodied in 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, social, learner-designed and managed model of learning that is more appropriate for the complex world our students will inhabit when they leave university?

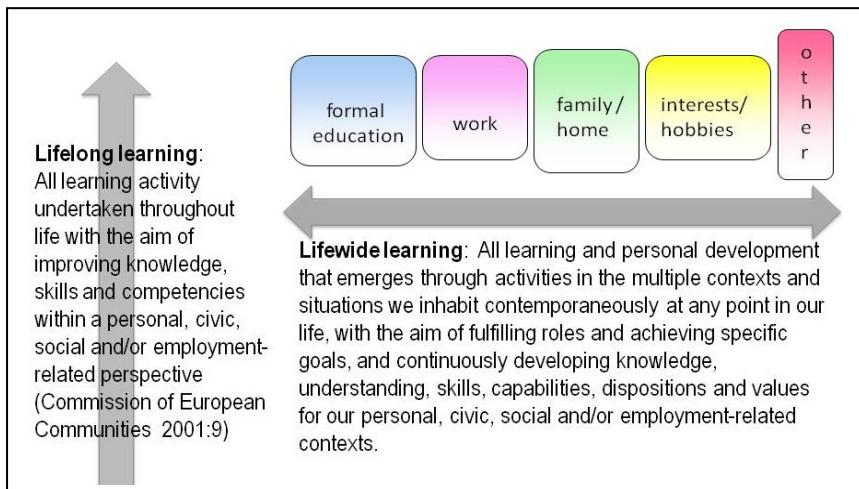
In an inspiring keynote I came across while writing this chapter, Ann Pendleton-Julian (2015) talks about living and adapting to a 'white water world'. A world that we can only understand if we get into the water and learn how to read its unpredictable flow and navigate the hazards as we meet them. But you can't get into the water unless you have the skill and confidence to do this - so the issue becomes how do we develop enough agency and confidence to get into and cope with the white water world we inhabit. She describes living in the complex world is often about muddling through but that we can design our systems to enable us to muddle through as a strategy of choice. This idea resonates with me and I think

our ecologies for learning and developing ourselves are the way in which we 'design our lives', in a conscious but flexible way, in order to muddle through towards the possible solutions for the problems, challenges and opportunities in our lives. So the challenge of how we develop ourselves for a complex, 'white water world' is the educational challenge this book is trying to address, and my argument is that higher education needs to enable learners to become more aware of their own ecologies for learning and more adept at creating them.

## Lifewide Learning

My exploration of the idea of learning ecologies has grown from exploring the potential that lifewide learning and education hold for students' holistic development (Jackson 2011a).

**Figure 1.2** The lifelong and lifewide dimensions of learning



Most people are familiar with the idea of lifelong learning - the learning we gain as we progress through our lives from childhood and school, to college and university and through our career and beyond.

Viewed at the scale of an individual's life course, for most people, formal education occupies only a relatively small part of their lifelong learning activity. The vast majority of their lifespan pre- and post school, college and university, is conducted in the domain of informal experiential learning and personal development (Banks et al 2007:9): something that higher education has tended to ignore. It is ironic that one of the most important things higher education can do to prepare learners for learning in the rest of their lives is to pay more attention to the informal dimension of their learning lives while they are involved in formal study in higher education. By equipping them with tools and strategies that enhance their self-awareness, by encouraging attitudes that view life experiences as opportunities for learning and development and by valuing and recognising learning and development gained through life experience, universities and colleges can greatly enhance individuals' preparedness for learning through the rest of their life.

'Lifewideness' adds value to 'lifelongness' dimension of learning (Jackson 2011b) by recognising that most people, no matter what their age or circumstances, simultaneously inhabit a number of different contextual spaces - like work or education, running a home, being a member of a family and or caring for others, being involved in a club or society, travelling and taking holidays and looking after their own wellbeing mentally, physically and spiritually (Figure 1.2). We also inhabit different psychological (cognitive and emotional) spaces within and across these physical spaces. We live our lives in this multitude of spaces each with its own temporal rhythm for the activities we perform so the *timeframe* of our lifelong journey and the multiple *spaces, places and timeframes* of day to day existence across our lives, intermingle and connect and as we accumulate and learn from our experiences, who we are and who we are becoming are the consequences of this complex intermingling and sense making.

In the different spaces we inhabit we make decisions about what to be involved in, we meet and interact with different people, have different sorts of relationships, adopt different roles and identities, and think, behave and communicate in different ways. In these different spaces we

encounter different sorts of challenges and problems, seize, create or miss opportunities, and aspire to live and achieve our purposes and our ambitions. These different spaces also provide affordances for our creativity. Affordances that we can seize because we are motivated and inspired by our interests and the possibilities they hold. So the spaces that provide the contexts for our life enable us to create the meaning that is our life and develop the purposes and values that motivate or inspire us to lead a certain sort of life.

Lifewide learning is a powerful concept because it embraces all the types of learning - learning that is developed in formal educational environments which is directed or self managed, learning that is intentional or unintended, learning that is driven by our interests and its intrinsic value, as well as our needs, and learning which just emerges during the course of our daily activity. To be a competent lifewide learner requires not only the ability to recognise and take advantage of opportunities and the will and capability to get involved in situations arising from these opportunities, it also requires self-awareness derived from consciously thinking about and extracting meaning and significance from the experiences that populate our lives. It is the understanding of what it means to be a lifewide learner that individuals use in future imaginings, decision making and activity and it is this consciousness that lifewide education seeks to develop: what Rogers (2003) calls learner conscious learning but within task or experience-oriented learning situations.

## Learning Ecologies

Emerging from this exploration of the idea of lifewide learning and education is the idea that we create our own ecologies for learning, developing and achieving.

I first encountered the idea of learning ecologies when I read John Seely Brown's (JSB) influential paper 'Growing Up Digital: How the Web Changes Work, Education, and the Ways People Learn' (Seely Brown 2000). Here was one of the great contemporary thinkers working across the education business interface, providing insights into the way our

learning lives were changing. He likened the way people were using the web to a new ecology of learning which he characterised as:

an open, complex, adaptive system comprising elements that are dynamic and interdependent - a collection of overlapping communities of interest (virtual), cross-pollinating with each other, constantly evolving and largely self-organising (Seely Brown 2000:19)

In his view, the learning ecology was an emergent property of the internet Web 2.0 as people with diverse backgrounds found and interacting with each other driven by the interests, passions and needs they shared.

Let's consider a learning ecology, particularly one that might form around or on the Web.....consider the Web as comprising a vast number of "authors" who are members of various interest groups, many of which embody a lot of expertise in both written and tacit form. Given the vastness of the Web, it's easy these days to find a niche community with the expertise you need or a special interest group whose interests coincide exactly with your own.....

informal learning often involves the joint construction of understanding around a focal point of interest, and one begins to sense how these cross-linked interest groups, both real and virtual, form a rich ecology for learning (Seely Brown 2000:19)

I admired the way JSB linked the conceptual points he was making to the real world through stories he told about the learning lives of real people: something I have tried to emulate in this book.

A second trigger for my thinking about learning ecologies emerged as I was editing 'Learning for a Complex World'. One of the contributors Maret Staron used the idea of learning ecologies in her exploration of how to support vocational education and training (VET) in the knowledge era. The conception she and her research team developed was called 'life-based learning' (Staron et al 2006, Staron 2011). This located the idea of learning ecologies in the everyday learning and enterprise of people. The ecological metaphor made sense to me and I knew that at some point I must explore the idea for myself.

A learning ecology metaphor is: dynamic – with ever-shifting relationships and interdependence informing learning and doing; adaptive – which is a key survival capability within an ecology; and diverse – a core requirement in knowledge work... It enables a move away from seeking the 'one way to get it right' to a more open orientation to learning – including *multiple* ways of working, learning and living. A learning ecology metaphor also invites us to work with apparently contradictory concepts that often challenge us, such as using an anticipative approach rather than a predetermined approach; using approximations rather than exactness; seeing fuzziness as a strength; and watching self-organisation happen even though there may be no explanation for where the self-organising pattern comes from (Staros *et al.* 2006:26).

In 2011, I left the University of Surrey and decided to establish a social enterprise formed around the idea of lifewide learning and education. Not surprisingly I went through a significant transition as I left the professional environment I knew and moved into the uncertain space of creating my own environment for learning and achieving things I cared about. Even now, nearly five years later, I feel I'm in a liminal space

(Turner 1967), a state of being 'betwixt and between'. No longer an academic in practice in a university but still clinging on to my academic identity and investing time and effort into

The state of liminality tends to be characterized by a stripping away of old identities, an oscillation between states and personal transformation (Savin-Baden 2008:75)

maintaining it, but nevertheless uncertain of where my journey is taking me. Perhaps because of this uncertain and sometimes ambiguous mental, physical and virtual space I inhabit, I have become more conscious that it is essentially down to me to decide how I am going to spend my time and what I am going to try and achieve, at least in my professional domain.

The continuous challenge of motivating myself and constructing my own trajectory for learning, development and achievement has made me more aware of the 'ecological' relationships I have with my world. By that I mean that what and how I learn and develop in all the different contexts

and situations in my everyday life, feels more like a living, emergent, organic process involving me, my purposes and goals, and my relationships with the physical, virtual and social worlds I inhabit, rather than something that I plan, design and implement according to my plan. I feel I, and my learning, are part of an ecosystem which I help create and maintain but do not control and sometimes I'm pushed and pulled in all sorts of unforeseen directions. I am faced with abundant choice and the decisions I make take me in different directions but regardless of the decisions I make I seem to move in the general direction in which I want to go. The idea that I am part of an ecology and I help create my own ecology intuitively feels right so over the last few years I have thought about this idea in the context of my own life and the lives of people I know, and also tried to find out how others have thought about it too. So this book is partly the result of my own experiments with myself in my everyday contexts but also the result of experiments that others have conducted with themselves in their own lives.

Once I embarked on my exploration I discovered a significant body of literature which engages directly or indirectly with the idea of learning ecologies, and which I have drawn upon throughout this book. There were many instances where knowledge and insight shared by authors enabled me to develop my own understandings. But I would like to acknowledge one person in particular, Jay Lemke, whose thinking created much affordance for my own.

## Threshold Concept

For me the idea of learning ecologies has been, and continues to be, a threshold concept (Land et al 2014:200).

concepts, practices or forms of learning experience can act in the manner of a portal, or learning threshold, through which a new perspective opens up for the learner. The latter enters new conceptual terrain in which things formerly not perceived come into view. This permits new and previously inaccessible ways of thinking and practising.....They provoke a state of 'liminality'—a space of

transformation in which the transition from an earlier understanding (or practice) to that which is required is effected. This transformation state entails a reformulation of the learner's meaning frame and an accompanying shift in the learner's ontology or subjectivity. The latter tends to be uncomfortable or troublesome for, in many respects, we are what we know.

It's likely therefore that the idea will also be uncomfortable and troublesome for others who also experience the idea of learning ecologies as a threshold concept.

## Learning from Nature

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 ecology within the ecosystem so the whole is made up of many individual ecologies competing for resources and contributing to the system as a whole so that the whole system is sustained.



The central proposition of this book is that 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 living. While all ecosystems are complex adaptive systems that learn to live with, and when necessary adapt to, their environment, the making and meanings and sharing of understandings (learning) are a primary interest and enterprise of human ecosocial systems (Lemke 2000) This book explores the application of the idea that people create

their own ecologies for learning, development and achievement through the narratives they create about their learning lives.

Every organism has an environment: the organism shapes its environment and 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 development (Ingold 2000:20). 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.

Formalised education tends to treat learning as something separate from the rest of life. Applying the idea of ecology to learning, personal development and achievement is an attempt to view a person their purposes, ambitions, goals, interests, needs and circumstances, and their 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 this exploration 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 disruptive world. Yet to date, there has been little consideration of these ideas in the higher education curriculum or teaching and learning process. One of the

purposes of this book is to encourage teachers and curriculum designers to explore and use the ideas in their own learning and teaching contexts.

## Learning Ecologies in the Social Age

I am of the generation that has spanned the transition from the Industrial Age of work to an Information Age in which knowledge resources and expertise are as crucial to success as other economic resources. But we tend to overlook the fact that at the start of the 21st century we are entering a new 'Social Age' (Stodd 2013, 2014) of learning aided by the internet and its associated technologies and our changing habits of communicating and participating in the on-line worlds we increasingly inhabit. We are situated in a rapidly changing global landscape in which learning, personal and professional development are being re-imagined and the concept of ecosystems for learning and personal learning ecologies not only sits comfortably in this landscape (Seely Brown 2000), but the communication and social networking technologies now available expand our ability to enrich our learning ecologies well beyond what could be imagined even a few years ago.



**Figure 1.3 Progression of technological ages**  
(Stodd 2014)

Foresight studies offer a new vision of future learning in which personalisation, collaboration and informalisation (informal learning) will be at the core of learning in the future.

The central learning paradigm is characterised by *lifelong and lifewide learning* shaped by the ubiquity of Information and

Communication Technologies (ICT) (Redecker et al 2011 and chapter 9). An exponentially growing digital networked infrastructure is amplifying our ability to access and use nearly unlimited resources and tools to aid learning and connect and communicate with one another. However, the type of learning that is going on as a result looks so very different from the kinds of learning described by most educational theorists that it is essentially invisible. This new type of learning is a cultural phenomenon. It takes place without books, without teachers and without classrooms, and it requires environments that are bounded yet provide complete freedom of action within those boundaries (Thomas and Seely Brown 2011). This then is the new social-technological environment in which ideas of learning ecologies and ecosystems have been given new meaning, significance and practical value.

## My Ecology for Developing Ideas & Creating this Book

One of the most important arguments I am making in this book is that we expand our awareness and understanding of the idea of learning ecologies by evaluating and developing the idea in the context of our own everyday learning life. So throughout the book I will try to illustrate the idea with reference to my own life.

This book began as a project to help me prepare for an international seminar on the theme of 'Lifelong Learning Ecologies', organised by the E-learning Centre at the Open University of Catalonia in November 2015. I saw the book as the means to organise and consolidate my thinking but once initiated my ecology for learning took on a life of its own. I would expect nothing less: you cannot produce a book without a substantial ecology for learning. Figure 1.4 provides a sense of the journey I have undertaken - my learning *process*. It shows the main features of my conception of a learning ecology that will be considered and elaborated in more detail in subsequent chapters and I will explain this particular learning ecology in more detail in chapter 4.

## Important elements of my learning ecology

By imagining a book I was creating a new *affordance* in my life ie the imagined book invited me to create and engage in a process that would lead to its formation. This idea of imagination creating affordance is something I have not thought about before. Twelve weeks separate the starting and end points in the representation of my learning ecology. At the heart of the learning ecology is the *space* I created for 'exploring the idea'. This *exploratory space* enabled me to think, inquire, imagine and develop ideas, write, share and discuss my ideas, and discover, read, think about and assimilate the ideas of other people.

**Figure 1.4** The learning ecology I created for this book between August 20 and November 20th 2015



In this self-determined process I drew on an abundance of information and knowledge *resources* in books, articles and blogs using a range of technological tools. I also drew on my own information resources primarily interview transcripts from research studies I made in the past. I utilised some of my existing *relationships*, for example my collaboration

with illustrator Kiboko Hachyion enabled me to illustrate some of the ideas in pictures. I used some of my *existing relationships* to seek feedback on my ideas and used social media to expand my personal learning network for this purpose (see acknowledgements). At the heart of my process was the writing process through which I curated my resources and tried to make sense of ideas. What emerged from this process - the tangible outcome - is the book, which constitutes the principal but not the only mediating artifact created through the process.

It all seems planned and logical when the words are laid out like this but the reality was very different. The ecological view of exploration is about determining your pathways as you explore them, you respond to what emerges through the process of exploring, and even then what has been explored only seems like a starting points for further exploration. I kept what I wrote when I began writing this chapter 4 months ago.

Writing this one week into my 'journey with an idea', I am very uncertain as to how it will work out. But I have enough confidence and belief in myself to know that I have the basis for a strong learning and engagement process and if I do certain things to bring the ideas to life, the book will surely be brought into existence

This not only reflects the uncertainty of exploration but also the conviction I had that by creating an ecology for learning, the book will emerge through the circumstances I have created.

This brings me to another important point about our ecologies for learning: they are also our ecologies for achieving and for bringing new order and material things into existence. In other words, they provide the affordance for our creativity. I believe that an important part of our creativity is being able to see affordance to achieve something which we value in the circumstances of our life. What is eventually created is original, at least to us but probably to the world, because 1) no one else cares about the thing we are trying to create like we do and 2) no one else can see this affordance because we are the only people who understand and can influence our life circumstances. The ecologies we create to learn, develop and achieve are therefore the vehicles for our

creative self-expression and the means by which we bring new things into existence. Our ecologies are rooted in and grow from the circumstances of our lives, our needs, interests, responsibilities, purposes and ambitions and it is these things that also motivate us to utilise our personal creativity.

The *explorative space* (Law 2008) at the heart of my learning ecology for this book is liminal or transitional in nature - in the sense it represents the space 'betwixt and between' past ecologies through which I have developed understanding and the new representations and formulations that are provided in this book which must always be viewed as provisional. Which brings me back to the idea of a never ending journey. Never ending because even when I hang my pen up so to speak, there will always be someone else to pick up the ideas and begin their own journey. That is the way ideas develop and how they travel through the minds and practices of people, across cultures and throughout the history of human existence. My ecology for learning is simply one small contribution to the ecology of learning involving all mankind.

## Value of an Ecological Perspective

This book sets out to imagine and explore the possibilities in the idea of a learning ecology. But what is the value of an ecological perspective on learning and personal development for higher education. I can think of four good reasons why an ecological perspective has value to higher education practice.

### Conceptual value

The concept of a learning ecology provides us with the means to visualise the dynamics of a complex self-determined and self-organised learning process and to appreciate how the different elements of the ecology - contexts, process, will and capability, relationships and resources, fit together. The concept provides a more holistic perspective on learning and development than is normally considered in higher education.

An ecological perspective conveys learning and personal development or growth as a living emergent process in which we continuously change our understandings and apply what we know in a continuous stream of new situations.

All too often in formal education, learning is viewed as the acquisition of prescribed codified (book or paper) knowledge in ways that are largely determined by teachers and educational institutions, the retention and abstract use of which is tested through assessment. The reality of everyday learning outside formal education is very different when needs, interests and curiosity drive individual's motivation and they have to find the resources they need to learn from the world around them. This process is necessarily less systematic, more intuitive and organic than the professionally designed and organised world of formalised education this perspective adds value to the way we might visualise and represent lifewide learning and education.

We have argued that learning is not simply scoring high on a test or assignment, but should involve increasing possibilities for action in the world. Learning ...is about successfully participating as part of an ecosystem, an intentionally bound network [of affordances], and it fundamentally involves increasing opportunities for action in the world. Life-world expansion, [is] the ultimate trajectory of learning.... (Barab and Roth 2006:11)

The conceptual tool developed in chapter 2 (Figure 2.5) can be used to evaluate, from an ecological perspective, narratives of learning, development and achievement such as those presented in Chapters 3 to 6. The narratives reveal the motivations to create a process for learning and the agencies and capabilities used to form a particular process. They all contain significant relationships through which learning was facilitated or gained and they reveal the self-regulatory nature of learning (chapter 6) as people respond to the situations they are in and the nature of the resources that were found, used and created. Similarly, Figure 7.7 in chapter 7 provides a conceptual tool to facilitate the auditing

of a curriculum to identify affordances that have been designed so that learners can create their own ecologies for learning.

### Value to the learner

The value of an ecological perspective to a learner is that it encourages them to see learning as a process that connects them in a holistic way to other people and to their environment. In particular it enables them to appreciate the ways in which they engage with contexts by creating processes that utilise and develop relationships and resources in order to do what they have to do. The ecological perspective emphasises that this is a living dynamic process which they orchestrate and improvise according to the effects of their actions and the feedback they receive on the effects of their actions. Such an appreciation lends itself to the idea that we continually nurture and grow our learning ecologies rather than starting with a blank sheet of paper each time we have to learn something new. An ecological view of the relationship between learning, developing and living will also help prepare student learners for the ecological worlds of organisations they will inhabit when they progress into work and perhaps raise their awareness of the important link between their learning ecology and living a sustainable life. An ecological perspective will also encourage learners to trust their own instincts.

We learn in relationship and in context - not in isolation. This is why our learning ecology is so important to us..... It tells us about our learning environment and interrelationships - with others, with our culture, work and with our educational institutions. And importantly, it tells us about our learning relationship with ourselves. We need to trust ourselves to establish a learning ecology that is meaningful, authentic and supportive of our growth and personal wellbeing (Staron 2013:7-8)

### Value to a teacher or mentor

The value of an ecological perspective to a mentor or teacher is that it firstly encourages them to appreciate their own learning processes in a

holistic way - to appreciate how they use and expand their own learning ecology to meet the challenges of new learning and development projects. Secondly, it might encourage them to view their own strategies for encouraging students' learning as an ecological process that they have designed and resourced and perhaps this may open up new possibilities for contexts, relationships and interactions as they appreciate that the learning ecologies of their learners' extend beyond the classroom.

For mentors who are encouraging and supporting lifewide learning, an appreciation of a particular learner's learning ecology may enable them to help their mentees consider other affordances for learning and development in their lives as they engage with specific learning projects. After examining a learner's learning ecology a mentor might reflect on and share their perspectives (Staron 2011:154) on such matters as:

- Assumptions - whether their assumptions about learning help them fulfil their aspirations.
- Strengths - whether their strengths align with their values, goals and purpose.
  - Reality - recognise that their reality (or context) is both 'internal' and 'external'.
  - What works and what does not work - so that they focus on what works for them and helps achieve their dreams.
  - Different perspectives - from which perspective they view their learning ecology, whether mental, emotional, physical and/or spiritual, or whether through a formal, informal or lifewide learning perspective, and what all this tells them about their relationship with their learning environment

### Value to higher education

Sustainability is perhaps the greatest challenge facing mankind. It permeates all aspects of our lives and manifests itself at all levels of society. 'One of the great challenges facing environmental educators is to prepare students to participate effectively as members of sustainable communities in an ecologically healthy world' (Capra 2007: 9). But, as

Capra himself points out, this is not only a matter of environmental education it is of concern to everyone who is involved in education. By viewing our learning and development as an ecological process we have the potential to raise learners' awareness of the ecological world they inhabit and help create.

The ecology of our learning and how we develop it for particular purposes is key to knowing how to learn and to our ongoing process of learning how to learn. Knowing how to learn and continuing to develop capability for learning throughout our life (captured in the expression 'learning to learn'), are political as well as educational issues. In 2009 the EU Directorate General for Education and Culture commissioned a foresight study aimed at visualising the Future of Learning (Redecker et al 20011) the overall vision emerging from the study is that 'personalisation, collaboration and informal learning will be at the core of learning in the future. The central learning paradigm is characterised by lifelong and lifewide learning and shaped by the ubiquity of Information and Communication Technologies (ICT)'. The key words - personal, collaborative, informal and lifewide - have particular meaning when viewed through the lens of personal learning ecologies.

While the concept of personal learning ecologies does not yet feature in EU and UK educational policy the concept of *learning to learn* has. A report by an EU working group on 'Key Competencies' contains the following definition.

'Learning to learn' is the ability to pursue and persist in learning, to organise one's own learning, including through effective management of time and information, both individually and in groups. This competence includes awareness of one's learning process and needs, identifying available opportunities, and the ability to overcome obstacles in order to learn successfully. This competence means gaining, processing and assimilating new knowledge and skill as well as seeking and making use of guidance. Learning to learn engages learners to build on prior learning and life experiences in order to use and apply knowledge and skills in a variety of contexts: at home, at work, in education and training. Motivation and confidence are crucial

to an individual's competence..' (Education Council, 2006 annex, paragraph 5).

The idea of personal learning ecologies is simply another way of representing these essential orientations, dispositions and capabilities that we require in order to undertake significant learning projects. However, the idea of being able to create a learning ecology extends beyond *being aware of one's own learning process and needs to creating one's own processes for learning in order to meet those needs*. Furthermore, it adds to this abstract list of learning to learn characteristics in that it embeds them in the specific social contexts, relationships and situations that comprise everyday life and gives them meaning and significance in the contexts of our purposes, values and beliefs.

We live in a world beset by complex problems within which our affordances, if we can only see them, offer hope for the future. But seeing such affordances is dependent an ecological mindset: the complexities of the world can only really be understood in terms of an ecology of ideas (Bateson 1972 xxiii). An ecology that comprehends the way people and society interacts with the world and the way all sorts of stuff emerges from these interactions.

Perhaps the most important tasks for a university is its support, encouragement and facilitation for learners to think with sufficient complexity to understand the complex web of relationships that connect phenomenon and their causes and effects and to develop their awareness, understanding and capabilities to create and sustain their own ecologies for learning when confronted with such complexity. In other words to think and behave in an ecological way. Such ways of thinking integrate the imaginative and associative, the critical and the analytical, they are by definition creative in so far as they will lead to connections that have not been thought of before and from such connections new solutions can be brought into existence.

Regardless of whether we look at the educational system or the institution as an ecosystem, or a teacher's ecology into which students fit themselves to learn, or a learners own ecology for the purpose of learning

- the idea of a learning ecology has value and it's worthy of exploration and application. I hope that in some small way, the ideas and illustrations offered in this book will cause the reader to reflect on their own learning life and appreciate the wonderful complexity of their own ecologies for learning, development and achievement.

### Value to me

All my books are, to some extent, biographical, in the sense that they were written at a particular point in my life and they reflect the roles I performed and some of the ideas I was working with at that particular time. This book is no different in that it has grown from the circumstances of my life and it has formed around ideas that are important for me to try to understand at this point in my life. What makes this book different is the extent to which I have shared the details of my life as a means of exploring what these ideas mean in my own contexts and circumstances. In exploring and applying the idea of learning ecologies to my own life I have been able to make more sense of the way I have experienced it and learnt from it. I have used the ideas to help me understand and create meaning from my life and I hope that you will also see the value in using these ideas to reflect upon, and learn from and through, your own life. By sharing the narratives of my life I am hoping that you will see how I have come to know the things I am writing about.

# CHAPTER 2

## Conceptualising Learning Ecologies

### Introduction

'How do *moments* add up to *lives*?' This simple but profound question posed by Jay Lemke (Lemke 2000:1) caused me to think about my own life and circumstances. Now in my 60's I have had many moments and considerable time to reflect on the many different ways in which I have added up the moments I have experienced to make my life. When I think about the moments that resulted in this book they were grown and connected within the process of imagining, assembling, researching, writing, re-writing, illustrating and discussing with myself and with others, while producing this book. But they also include moments that were not directly related to writing, for example some of my moments involved participating in a workshop, seminar or mooc, or perusing my Twitter feed, or reading a newspaper or watching TV or being involved in things that are family related or any number of things. Because particular thoughts that emerged in these situations were interpreted and given meaning by me in the contexts of this book. The book is the tangible expression of a process of purposefully connecting and integrating the thoughts and actions from many moments of my life. The goal of creating this book resulted in the journey with an idea, that gave these moments meaning and fulfilled a significant purpose in my life.

Within the book I describe other processes through which I and others have connected up some of the moments in our lives. Our life is full of such processes which according to Lemke (2000) provide the fundamental unit of analysis to represent the dynamics in the complex social (eco)systems we inhabit. The narratives in this book are a way of explaining how some moments are connected and coalesced into events, processes and experiences that constitute the meaning that is

someone's life. Ultimately, the 'adding up' process is all about making meaningful connections: making sense of the moments in my life. So ultimately, this book is about a *process* for interpreting and creating meaning that is my life.

## Concept of an Ecosystem

The etymological roots of the word 'ecology' are in Greek *oikos* (household) and *logos* (knowledge). Oikos suggests notions of dwelling or habitat (Ingold 2000). My learning ecology is therefore the habitat in which I think, do, learn and become. But I also feel that I, and my learning, are in a relationship with my habitat: we are both part of an ecosystem which I help create and maintain but do not control. Rather I have to continually flex, respond and adapt to the flow of situations, experiences, people and information I encounter in my habitat.

There are at least three linked, yet different, ways that the concept of the ecosystem can be used namely, meaning, model and metaphor (Pickett and Cadenasso 2002:1-2). Each of these uses can be considered a separate dimension of this complex concept. 'Meaning' is a technical definition that can be used in a wide variety of situations. However, for the definition to be used in a given situation, a domain and a variety of features must be specified (Jax 1998). 'Learning' is the domain that we are exploring and the features that are relevant to a learning ecology must be explained in a 'model' that embodies the specifications needed to address the many real or hypothetical situations to which the definition might apply. Some of the words and ideas that might be associated with the ecological metaphor in the context of learning, personal and professional development include: organic, natural, growing and growth, developing and development, creating, becoming, flourishing, nurturing, cultivating,

'far from being simple and straightforward, the ecosystem is in fact a subtle and complex concept'  
(Pickett and Cadenasso 2002:1-2).

connecting, reacting-interacting, adapting, evolving, emerging, collaborating, co-operating, resilience, persistence, environment, resources, processes, energy, culture, forces and flows.

## Definition

Sir Arthur Tansley defined ecosystem as a biotic community or assemblage and its associated physical environment in a specific place (and time) (Tansley 1935). He chose the word 'system' to highlight the dynamics and interactions between the biotic and abiotic components and because the components of the ecosystem are themselves complexes within which there are interactions, a nested hierarchical structure is implied in the basic definition.

The definition has other important characteristics (Pickett and Cadenasso (2002:2). First, it is scale independent (Allen and Hoekstra 1992). An ecosystem can be of any size so long as organisms, physical environment, and interactions can exist within it. However, all ecosystems have an explicit spatial extent. Such specification is in fact the reason that the concept needs the second dimension of models. Another important feature of the basic definition is that the ecosystem concept is free of narrow assumptions. It is not restricted to equilibrium, or complex, or stable systems. In fact, ecosystems may be far from equilibrium, so that they are changing in composition, content, or the processing of nutrients and energy (Holling 1973). In fact some ecosystems are transient phenomenon and may only exist for a short time.

The power of the general definition articulated by Tansley (1935) is that it is applicable to any case where organisms and physical processes interact in some spatial arena (Pickett and Cadenasso 2002:2). However, the power of the general definition can only be captured and used effectively if there is a framework or way to organize the huge array of cases and approaches. Therefore, a second dimension of the ecosystem concept is required - a model, to specify how the abstract definition is being used in a specific case or range of cases

(Jax 1998). Models are necessary to translate the definition into usable tools (Pickett and others 1994). Translation requires that the parts, interactions, and scope of the system of interest be specified. Models may be verbal, graphical, diagrammatic, physical, or quantitative.

The ecosystem idea also has an informal and symbolic use as a metaphor for a type of structure or behaviour. Structural metaphors include the ecosystem as an organism stimulating and sustaining growth, or competing for and consuming resources, while behavioral metaphors include ecosystems as resilient or fragile entities (Cronon 1995).

According to Pickett and Cadenasso (2002:7-8) all important and widely significant ecological concepts have these same three dimensions—a core definition that is neutral in scale and constraint, the capacity and need to be specified in different cases through various kinds of models, and a metaphoric aspect that stimulates both scientists and the public (Pickett and others 1994). Competition, succession, evolution or development, and landscape are examples of other ecological concepts that are multidimensional but for them to be useful beyond the metaphorical, qualities like scale, process, content, boundaries, flows, exchanges, currencies, interactions and dynamics must be specified in a particular model for the concept to have context specific meaning.

## Ecosystems as Complex Adaptive Systems

Ecosystems are complex adaptive systems (Marten 2001). They are complex because they have many parts and many connections between the parts; adaptive because their feedback structure gives them the ability to change in ways that promote survival, evolutionary development and flourishing in a changing environment. Biological systems have a hierarchy of organizational levels that extends from molecules and cells to individual organisms, populations and ecosystems. Every individual plant and animal is a collection of cells; every population is a collection of

individual organisms of the same species; and every ecosystem consists of populations of different species

Each level of biological organization from molecules to ecosystems has characteristic behaviours which emerge at that level. These distinct behaviours, called *emergent properties*, function synergistically at each level of organization to give that level a life of its own which is greater than the sum of its parts. This happens because all the parts fit together in ways that

allow the system as a whole to function in a manner that promotes its survival. Because the parts are interconnected, the behaviour of every part is shaped by feedback loops through the rest of the system. A mixture of positive and negative feedback promotes growth and change in the system as a whole.

The richness of expression of emergent properties increases with the complexity of the organism. Populations and ecosystems are not organisms, but some of their emergent properties are analogous to the emergent properties of organisms because they can be described by words such as 'growth', 'regulation' or 'development'.

A second important feature of complex adaptive systems is that they are self-organising. Ecosystems organize themselves by means of an assembly process resembling the well-known process of natural selection in biological evolution (Marten 2001). All the plants, animals and microorganisms living in an ecosystem have been assembled into a food web through a process known as community assembly which is an emergent property of ecosystems.

Complex Adaptive Systems consist of a number of components or agents that interact with each other according to a set of rules (or instincts) that require them to examine and respond to each other's behaviour in order to improve their own behaviour and thus the behaviour of the system they comprise. In other words such systems operate in a manner that constitutes learning. (Stacey 1996:10)

Ecosystems regulate themselves in order to exist and persist within their physical environment. Self-regulation involves balancing the forces that resist change (negative feedback) and forces that promote change (positive feedback) (Marten 2001). Negative feedback keeps essential parts of the system within the limits required for them to function together, while positive feedback provides the capacity to make large changes if necessary. Negative feedback may dominate at some times and positive feedback may dominate at other times, depending on the situation. As a result, ecosystems and ecosocial systems may stay more or less the same for long periods, but they can also change very suddenly. The changes can be like a 'switch'. 'Switching' is an emergent property of all complex adaptive systems, including ecosystems and social systems.

Ecosystems change in two ways (Marten 2001) through 1) progressive (or incremental) change due to internal self-organizing assembly processes (biological community assembly and cultural evolution) or 2) sudden change from one stability domain to another because of external disturbance (ie 'switch'). The progressive and sudden changes combine to form a complex system cycle. 'Growth' is a time dominated by positive feedback and self-organizing assembly processes. It is a time of expansion and increasing complexity. 'Equilibrium' is a time of stability. The system has reached a high level of complexity and connectivity between its parts. Negative feedback predominates. The system may become rigid and seemingly indestructible, but stagnation and a lack of flexibility may eventually make the system vulnerable to

*An ecosystem is:*

- a habitat in which individuals of various species co-exist in relative stability and inter-dependence;
- a set of overlapping but distinct territories and niches, each with its own rules, affordances and constraints;
- a self-regulating system that consumes and recycles resources;
- an organisation in which change occurs over time, modifying individuals, species and inter-relations, without destroying the overall cohesion and balance.

[Open Space Learning](#)

destruction by an external disturbance. ‘Dissolution’ is when the system is destroyed by an external disturbance. Positive feedback generates dramatic change, and the system falls apart. It is pushed out of its stability domain. ‘Reorganisation’ is a time when the system begins to recover from falling apart. It is a creative time when change can take a variety of possible directions; that is, the system has the possibility of moving into a variety of new stability domains. ‘Chance’ can be important to the way a system reorganizes, determining which new stability domain it enters. The growth stage that follows reorganization depends on the course initiated during reorganization. An ecosystem that survives profound change in its environment can be said to be resilient.

## Ecosocial Systems

The ecosystem concept has been applied to many contexts and is well suited to human interactions.

'A human community is a special kind of ecosystem, if we define it to include not just persons, but all our tools and artifacts, the other species that we depend on and those that depend on us, the air we breathe, the water we drink, the waste we create. In fact, we should define it now as an ecosocial system (Lemke 1994, 1995). What is so special about ecosocial systems among all other possible ecosystems is not that they contain us and our things, but that our behavior within the system, and so the overall dynamics of the system as a whole, depends not just on the principles that govern the flow of matter and energy in all ecosystems, but also on what those flows mean for us' (Lemke 1997).

Human ecosystems view people in their physical, social and virtual environments living within particular cultural, historic and everyday social contexts, consuming, recycling and producing resources, including information and knowledge, and changing (learning and developing) through the process of interaction with the things that matter to that society (Germain and Gitterman 1994). Like any other ecosystem, ecosocial systems are complex, dynamic, self-organising entities whose

patterns of behaviours are emergent rather than prescribed or predetermined. Jay Lemke has done much to explore and explain the complex nature of behaviour and adaptation in ecosocial systems (Lemke 1997).

The dynamics of any ecosystem depends on the networks that link, couple and connect this element with that, make this process interdependent with that. In an ecosocial system, there are additional links based on other principles of cultural meaning. You cannot analyze the behavior of an ecosocial system with just physics, chemistry, and biology; you also need to take into account economics, politics, and other sorts of cultural beliefs and values. If we are made by our participation in networks of microecologies of situated activities, then the conditions of what we can become are determined by the global structure and dynamics of the ecosocial systems which these networks help constitute (Lemke 1997).

People live and work within particular social, physical and cultural contexts. Each context provides an environment within which individuals participate in what Lemke calls - 'micro-ecologies of situated activities'. Across our lives, at the scale of a day, we are likely to be participating in many such micro-ecologies which are co-created by all the participants and things in the ecology. Lemke explains these relationships and processes very clearly.

How we play our parts in these micro-ecologies depends not just on what the other parts do to us, and us to them, but on what these doings mean for us...

[But] what does it mean to learn as a participant in such an ecology of people, meanings, and things? Jean Lave [Lave and Wenger 1991] has given us the beginnings of a model of learning as participation in a "community of practice" in which we join others in their ecological doings, their situated meaningful activities, as a "legitimate peripheral participant" and come in this way to be able to do as they do. Our activity, our participation, our "cognition" is always bound up with, co-

dependent with, the participation and activity of others, be they persons, tools, symbols, processes, or things. How we participate, what practices we come to engage in, is a function of the whole community ecology, or at least of those parts of it we join in with.

As we participate, we change. Our identity-in-practice develops, for we are no longer autonomous persons in this model, but persons-in-activity. We are somewhat different as persons from one activity to another, and as participants in one community of practice or another. Work must be done to construct continuities for ourselves across these contexts (cf. Bruner 1990). Learning now becomes an aspect of this developmental process; it is as universal, persistent, and inevitable as change itself.

Ecosocial systems are also developmental systems (Lemke 1997). They have a relevant history which connects past and present and an evolutionary trajectory in which each stage of development creates the conditions for the next stage of development. They are also epigenetic systems: meaning that the course of their development depends in part on information laid down (or actively available) in their environments from prior (or contemporary) systems of their own kind (Lemke 1997).

The unique feature of an ecosocial system compared to none human ecosystems is the way in which meaning(s) are co-created by participants. Our ecologies for social interaction are also sites for the making and re-making of meaning.

Semiosis is meaning-making; it is taking one thing as a sign for another, construing a thing, event, process, or phenomenon in relation to one or more others. Semiosis is selective contextualization; it is making something meaningful by seeing it as a part of some wholes rather than others, as being an alternative to some options rather than others, as being in some particular relation to some things rather than others. Meaning is possible only where not all possible relations and combinations are equally likely in all possible contexts; deviation from this condition means that

there is information, order, regularity, form, meaning, structure, system, semiosis.

## Ecologies for Learning

Learning and the making and re-making of meanings so that the ecosystem can develop and be sustained are of primary interest and concern of ecosocial systems.

Siemens (2007:63) defined a learning ecology as '*the space in which learning occurs*'. According to Siemens (*ibid* 62-3) learning ecologies are:

- Adaptive, dynamic and responsive - the ecology enables (or more specifically fosters) adaptation to the needs of the agents within the space.
- Chaotic - diversity generates chaos which is created in dynamic environments and systems
- Self-organising and individually directed - organisation occurs through the ongoing interactions of elements within the ecology
- Alive - features continual changes, newness, activity
- Diverse - with multiple viewpoints and nodes (often contradictory) exist
- Structured informality - structure enables ongoing diversity of openness not restricting development. Minimal control is required to function but no more
- Emerging - the space itself is evolving and adaptive.

Translation of these abstract ideas requires that the parts, interactions, and scope of the system of interest be specified. For example, natural ecosystems might be described and characterised in terms of such features as, scale, context, process, content, boundaries, flows, currencies, relationships and interactions. To give tangible meaning to the idea of a learning ecology we must create an appropriate model that describes the general characteristics of the system. An attempt is made to outline these features below.

## Content

The content of a learning ecology comprises all the things that are within the space created for learning (e.g Figure 1.4). These include: the person or people who create it, and all the people who are involved; the materials, tools and technologies used, the ideas, information and knowledge resources that are used or created in the process; the process(es) themselves and the thinking and activities that underlie the processes; the environments, spaces and places in which learning takes place, the mediating artifacts that are produced and used, and the products and performances that both demonstrate and effect learning (the learning trajectory).

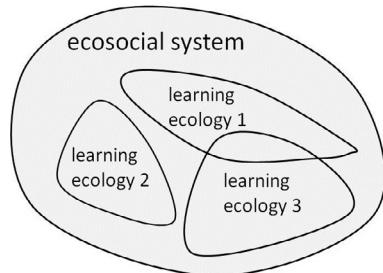
## Scale and scope

Our ecosocial system spans the length and breadth of our lives and they embrace the people, contexts, situations, conversations and other social interactions that make up our lives. Our learning ecologies are located within and emerge from our unique ecosocial system (Figure 2.1)

**Figure 2.1** Our learning ecologies are located within our broader ecosocial system. They may be 'distinct', formed around a particular project, or connected.

The scale and scope of learning ecologies that are associated with a specific goal or project might be easily defined but sometimes it is not easy to define the boundary where one learning ecology grows into another. The examples of learning ecologies provided in Chapter 3 range from Nadia's story describing a learning ecology over a few hours, through complex learning projects containing many different learning ecologies lasting several years.

When we use the ecological metaphor in human society we are thinking in terms of whole systems that contain many interacting



components. Urie Bronfenbrenner, a developmental psychologist, introduced his ecological paradigm for interpreting human development in the 1970's in a series of papers. He argued:

in order to understand human development, one must consider the entire ecological system in which growth occurs. This system is composed of five socially organized subsystems [A to E below] that help support and guide human growth. They range from the microsystem, which refers to the relationship between a developing person and the immediate environment, such as school and family, to the macro-system, which refers to institutional patterns of culture, such as the economy, customs and bodies of knowledge  
(Bronfenbrenner, 1994:1643).

Bronfenbrenner's (1994) conceptual framework highlights the nested nature of ecosystems. Two of the levels (micro and meso) are of particular interest to learners and those who support learning.

A) The *microsystem* contains the factors within someone's immediate environment, the day-to-day situations they encounter and their relationships and communications with the people they meet or interact with using communications technology. This is the level of our lifewide learning experiences, the level at which our individual situations and our responses to these situations matter to us and to the people they affect. This is the level at which we make decisions and plan what to do and how to do it and the level at which we act and use our capability (everything we can bring to a situation). This is the level at which we reflect on our experiences and the effects of our actions. This is the level of our learning ecology - the contexts, tools, technologies and resources we are able to draw upon to do what we have to do and the level at which we create new ecologies for learning and achieving.

B) The *mesosystem* encompasses the interrelations of two or more settings for example their wider experiences in life and the university course they are studying. It involves people who have an interest in promoting and supporting learning. It is the level at which guidance and tools are provided to help learners fulfil the requirements for their

programme. Appropriately organised activity in the mesosystem enables people to learn more and better in their own microsystem.

C) The *exosystem* consists of settings that do not involve us directly, but which contains events that impact on us. This is the ecological level at which an institution adopts and embeds certain policies that affect the way a programme is designed, or determine in a broad sense the types of attributes the institution wants to see as an outcome of the education it provides.

D) The *macrosystem* is the wider society in which all other settings are nested including the socio-economic, cultural and political contexts. It includes government policies and strategies for promoting and supporting lifelong learning. This is the ecological level of the higher education system and the vision is that one day the system as a whole will embrace the idea of lifewide education.

This book is primarily concerned with the microsystem and individual's personally constructed ecologies for learning within their own ecosocial system. But it is also concerned and with the mesosystem which connects learners' personal ecologies for learning to, for example, their university course. In education we also need to be concerned with the exosystem - the level at which educational institutions create policies and practices to recognise and value individuals' learning and personal development and finally the macrosystem which is the level at which society values particular ways of encouraging and supporting learning and achievement.

## Affordance

Affordance is the key property of a learning ecology as it can be found in any of the relationships between the person and any of the components of their ecology. An ecological perspective of learning argues that we cannot separate our learning from the physical social-cultural environment in which we are learning.

From an ecological perspective, the learner is immersed in an environment full of potential meanings. These meanings become available gradually as the learner acts and interacts within and with

this environment. Learning is not a holus-bolus or piecemeal migration of meanings to the inside of the learner's head, but rather the development of increasingly effective ways of dealing with the world and its meanings. (van Leir 2000: 246)

The idea of affordance was developed by Gibson ( 1977, 1979, 1982, 1986) to explain a relationship between an object or an environment and an organism, that affords the opportunity for that organism to perform an action. For example, in the human environment, a floor affords walking upon, a cup affords grasping, water affords drinking and a bed affords lying and the possibility of sleeping.

Affordances provide a way of seeing the world as a meaning laden environment offering countless opportunities for actions and countless constraints on actions. The world is full of potential, not of things.

The meaning or value of a thing consists of what it affords (Gibson, 1982: 407). The original definition (Gibson 1997, 1979) described affordance in terms of all actions that are physically possible: *action possibilities* latent in the environment, objectively measurable and independent of the individual's ability to recognize them, but always in relation to agents and therefore dependent on their capabilities.

An *affordance* is an action possibility formed by the relationship between an agent and its environment ..... (Nye and Silverman 2012). It resides neither in the learner nor in the object, technology or environment, but in the relationship between the two (Williams et al 2008:17)

Greeno (1994) suggested that affordances are "preconditions for activity," and that while they do not determine behavior, they increase the likelihood that a certain action or behaviour will occur. Shaw, Turvey, & Mace (1982) introduced the term effectivities, the abilities of the agent that determined what the agent could do, and consequently, the interaction that could take place.

If an affordance is a possibility for action by an individual, an effectivity is the dynamic actualisation of an affordance.....an effectivity set

constitutes those behaviours that an individual can..produce so as to realise and even generate affordance networks. When an individual has a particular effectivity set, he or she is more likely to perceive and interact with the world in certain ways—even noticing certain shapes of networks that are unavailable to others (Barab and Roth 2006:6)

Perception and action were co-determined by the effectivities and affordances, which acted 'in the moment' together (Gibson 1986): the agent directly perceives and interacts with the environment, determining what affordances can be picked up, based on his effectivities. This view is consistent with Norman's (1988) theory of "perceived affordances," which emphasizes the agent's perception of an object's utility as opposed to focusing on the object itself. It is the notion of perceived affordances that has particular value to a person who is scanning their environment to identify affordances that they can utilise in their learning ecology.

*A perceived affordance* .....requires an agent to be aware of the affordance, either through direct perception or experience.... a perceived affordance is primarily a relationship between an agent's cognition and the environment

*A perceived affordance* describes a potential for action: in the case of an interaction between a person and their environment the perceived capacity of an object to enable the intentions of the person. (Nye and Silverman 2012).

The concept of affordance is fundamental to the concept of a learning ecology. It relates individuals situated in their physical, social, emotional and virtual environments trying to comprehend, resolve problems, challenges and perplexities, and make the most of opportunities, by finding and utilising affordances that their environment provides. Or perhaps by expanding or adapting their environment in order to create and access new affordances.

By realising the action possibilities in their environment the individual is utilising and developing their effectivities which can be utilised in future situations. In this way we develop our awareness and capabilities for

acting and learning ecologically. By improving our effectivities we are better able to sustain ourselves in the world.

While I was writing this I was invited to participate in a mini mooc on the theme of Creativity for Learning in Higher Education (1). The short 'course' was completely on-line using Web 2.0 technologies. My first task was to make sense of the technologies that were being used. I made a map to help me understand the functions and purposes of the different platforms we were using.

The designers of these spaces had created a range of affordances for each piece of technology (*designed affordances*). In addition, participants who had used the platforms had probably discovered further affordances beyond the intentions of the designers (*discovered affordances*). From my initial starting point, with little experience of some of the platforms, I could only appreciate a small number of the possible affordances that were available (*my perception of affordance*). By watching and learning from other participants I was able to extend my understanding of how the technologies complemented each other.

After several weeks of participating in the course and experiencing how the technologies could be used, I realised or observed much of the potential for action that was available in these platforms (*realised affordance*). My ignorance had been replaced with knowing gained through the experience of intentionally using the platforms in a social learning process. I have developed my capability or *effectivity* to use the technologies in the situation I was involved in. I have learnt something about the affordances in the technology and the insights and capability I have gained can be drawn upon in future situations. In fact, before the course had finished I used the same platform to begin crowdsourcing content for an issue of Lifewide Magazine. This story illustrates how, by gaining experience through participation, we can see and exploit affordances in our environment that hitherto had not been recognised.

## Spaces

Natural ecosystems occupy a particular physical space at a particular point in time. Their boundaries may be sharp or fluid as

important variables change over time. They contain the medium (air, water, soil) in which organisms live, the nutrients that sustain them and the physical environment they interact with, including other organisms. A human ecosocial system also contains these things but there are additional dimensions such as the spaces for our thinking that our imagination can create. Our spaces include both natural and man-made environments (physical and virtual).

Siemens (2007:63) defined a learning ecology as '*the space in which learning occurs*'. But the space of a learning ecology is not a particular sort of physical space like a classroom, office, cafe or garden - it can embrace many sorts of physical spaces simultaneously, rather it is what Savin-Baden (2008: 8-9) describes as a learning space.

the kinds of spaces I am referring to include the physical spaces in which we place ourselves, but what is important, vital even, about learning spaces is that they have a different kind of temporality and different ways of thinking.....[in such spaces]..... flows of capital, information, technology, organizational interaction, images, sounds and symbols go from one disjointed position to another and gradually replace a space of locales 'whose form, function and meaning are self-contained within the boundaries of physical contiguity' (Castells, 1996: 423). Space is inseparable from time; it is 'crystallized time' (Castells, 1996: 411). What I am referring to is not merely about managing time, finding time or rearranging one's day..... Instead I am arguing for locating oneself in spaces where ideas and creativity can grow and flourish, spaces where being with our thoughts offers opportunities to rearrange them in spaces where the values of being are more central than the values of doing. Learning spaces are often places of transition, and sometimes transformation, where the individual experiences some kind of shift or reorientation in their life world. Engagement in learning spaces does not necessarily result in the displacement of identity.....but rather a shift in identity or role perception so that issues and concerns are seen and heard in new and different ways. Learning spaces might also be seen as liminal in nature in that they can be seen as betwixt and between states that generally occur because of a particular need of an individual to gain or create a learning space.

### *Space for exploring, inquiring & adventuring*

Human affordance includes the potential to create mental spaces for the consideration of ideas, objects and phenomenon. Our learning ecologies provide spaces for exploration - 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, 'an explorer can never know what he is exploring until it has been explored' (Bateson 1972 xxiv),

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 (1922 cited in Cook and Brown 1999) called 'productive inquiry': finding out what we need to know in order to do the things we need to do. Our ecologies for learning create new spaces for inquiring which Dewey considered to be 'the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole.' The ability to pose and form good questions to help us understand an indeterminate situation, and be able to find things out in order to make good decisions about what to do, is an essential capability to be developed if we are to help learners become integrative thinkers and doers. 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. These tools for learning are what Dewey understands the term knowledge to mean and using knowledge in this way is an example of that form of knowing which Dewey called productive inquiry' (Cook and Brown 1999:62).

### *Space 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 but this term seems to conjure up faithful reproductions of situations remembered. But 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 them to all sorts of things, select and synthesise particular thoughts and create entirely new perspectives and possibilities.

### *Spaces for conversation & discussion*

Learning ecology spaces are also dialogic spaces within which conversation and discussion can take place between an individual, themselves and the people involved in their learning ecology. Savin-Baden (2008:51) describe such dialogical spaces in these terms.

dialogic spaces .... encompass the complex relationship that occurs between oral and written and the way, in particular, that written communication is understood by the reader. Thus dialogic spaces transcend conceptions of dialogue, which is invariably conceived as the notions of exchange of ideas, and dialectic as the conception of transformation through contestability. This is because dialogic spaces encompass written and verbal communication with others and one's self, but also dialogic spaces have at their core the sense that through encountering and engaging with dialogic spaces (within which conflict and disjunction is likely) transformation will result.

Within our learning ecologies we create spaces for conversation with others and ourselves that are relevant for a particular purpose, goal or learning project.

### *Smooth and striated learning spaces*

Deleuze and Guattari (1988) offer another perspective on space that we can usefully weave into our understanding of learning ecologies. They argue for smooth and striated cultural spaces. For them the notion of smooth space is one of becoming, it is a nomadic space where the

movement is more important than the arrival. Smooth learning spaces are open, flexible and contested, spaces. In such spaces learners create their own stance toward knowledge(s). The learning space is not defined, but becomes defined by the creator of the space. In the context of a learning ecology this is the space in which individuals imagine and implement their own learning as autonomous, self-regulating and self-directing individuals.

In contrast, striated learning spaces are characterized by a strong sense of organization and boundedness. Learning in such spaces is epitomized through course attendance, defined learning places such as lecture theatres and classrooms, and with the use of (often set) books. Savin-Baden (2008: 13) suggests that there is a strong sense of conformity, of authorship, of clear definition, of outcomes, of a point that one is expected to reach in such spaces. For example, students will be expected, to take notes in lectures and learn and subsume disciplinary practices, rather than challenge them.

So the learning ecology space is a smooth cultural space for learners and learning: an ecological space in which learners can perceive and explore affordances for learning in their own lives. But, according to Savin-Baden (2008: 14), this poses problems for the striated cultural spaces of education, in which participants engage in formal learning.

smooth learning spaces are often seen as suspect, or as privileged spaces for the undisciplined, and to be partisan about such activity can set up challenges to other academics about what counts as legitimate learning space. However, this is not to say that striated spaces cannot contain smooth spaces, yet when they do this presents difficulties about the relationship between the two spaces and the relative value of each.

An ecological view of learning provides a framework within which both of these conceptual spaces can be accommodated.

### *Liminal spaces*

Learning ecology spaces are also liminal spaces. The inquiring space induces a state of 'liminality' (Land et al 2014).

—a space of transformation in which the transition from an earlier understanding (or practice) to that which is required is effected. This transformation state entails a reformulation of the learner's meaning frame and an accompanying shift in the learner's ontology or subjectivity (Land et al 2014:200)

Within a liminal space Land et al (2014: 201) suggest that the liminal state performs a progressive function which begins with the encountering and integration of something new. This subsequently entails recognition of shortcomings in the learner's existing view of the phenomenon in question and an eventual letting go of the older prevailing view. At the same time this requires a letting go of the learner's earlier mode of subjectivity. There then follows an envisaging (and ultimate accepting) of the alternative version of self which is contemplated through the threshold space. Meyer and Land (2005: 380) characterised liminality as 'a "liquid" space, simultaneously transforming and being transformed by the learner as he or she moves through it.

Liminal states and spaces are also induced when we encounter serious disruptions in our life either through circumstances that are not of our own making or intentional acts that take us into contexts and challenges we do not understand (chapter 5 explores this dimension).

### *Spaces for creating, finding/using our voice*

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.

Our spaces for creating and making are intellectual, emotional, physical and virtual. Affordance is embedded in all of our contexts and our relationships with people, tools and the resources we use. It is the way we perceive our situations that determines how we respond to them and whether they provide us with the challenge or opportunity for creative action and the 'mediums' for creative self-expression. For an artist the medium includes his artistic expression (drawing, painting, sculpture, performance, film or other art form) and it includes the materials and tools he uses to create his art. For a writer his medium for self-expression is the words he writes with a pen and paper in a notebook (old technology) or perhaps using a computer to write a blog (newer technology). For a performer like a footballer, his medium is the football field and ball, and his creativity is expressed in playing the game of football which enables him to interpret and interact with the ebb and flow of the game to utilise his talents and skills to play football.

Being in my element and creating a space that allows me to feel and say that I am in my element is crucial, not only for my creative practice, but for my personal well being. This *space* harbours my thoughts, ideas, anxieties, moments of genius, trials, tribulations, the list continues. I can lock myself inside and disappear, emerging victorious or pensive, as well as have meetings and previews of my works in progress. I can function on multiple levels and evolve, and the space evolves with me, echoing my personal and creative growth, thought process and hosting and cataloguing my varied life experiences  
(artist illustrator Kiboko Hachyion 2015:6)

If we want to live a fulfilled and meaningful life finding affordance for creative self-expression is an important and continuous search through all the circumstances and situations in our life. Our creativity flourishes when we inhabit the particular contexts and challenges in which we can fully utilise our aptitudes, abilities, talents and enthusiasm for doing something, because we care deeply about what we are doing and are motivated to perform in a committed and inspired way to achieve things

we value. It happens when we feel what we are doing is in tune with our purposes and our values.

Henry David Thoreau wrote, "Most men lead lives of quiet desperation and go to the grave with the song still in them." The song of which Thoreau is speaking is not music, it's the unexpressed authentic self, the creative essence of infinite Intelligence -- life itself -- seeking an outlet..... [But] it requires courage to "sing our song" whatever it may be. That courage will indeed take us to the very edge of our comfort zone, that dark place called fear: fear of rejection, fear of failure, and perhaps, even fear of success (Jones 2013)

But we don't have to be an artist to feel like this we can find and inhabit a context or situation in any aspect of our life where we can utilise our aptitudes, abilities, talents and enthusiasm for doing something, because we care deeply about what we are doing and are motivated to perform in a committed and inspired way. The ecologies we create to learn, develop and achieve to the things we value are the means we have to give substance to our creativity and our unique voice as long as we have the courage and confidence to try.

I find that the work that nobody sees is some of my most creative and challenging. This is the type of work that helps streamline process, connect dots, or pulls the right people together..... ....In my role as a producer and project manager, [I am] the connecting cog in the creative machine. Acting as a conduit for the ideas of those around you, and subtly adding your own unique flavour to each project you work on. You can heavily influence the result by creating processes that bring the right people together at the right time.

(Kroeger 2016)

## Contexts

Contexts are the circumstances that form the setting for an event, experience, practice, idea or any real or imagined thing in terms of which it can be understood. Contexts provide meaning for our thinking,

including our imaginings, our doings and our learning that emerges from our doings. Luckin (2008:52) describes the context as: 'a situation defined through the relationships and interactions between the elements within that situation over time.... in the case of a learner's context we can describe it as 'a situation defined by the social interactions that are themselves historically situated and culturally idiosyncratic.'

Savin-Baden (2008) defined the context for our learning as involving the interplay of all the values, beliefs, relationships, frameworks and external structures that operate within a given learning environment. Contexts are situational and usually social: we are in some way inhabiting them. They can be problems, challenges, opportunities, our work, our programme of study, our doing a jigsaw puzzle with your child.

Brigitt Barron (2006) applied the idea of personal learning ecologies in her study of how young people developed their digital literacies. Her research discovered that individuals developed their digital fluency through many different activities in many different places and circumstances (contexts) inside and outside school. Her definition of a learning ecology emphasises the happenings and doings in that contextual space.

the set of contexts found in physical or virtual spaces that provide opportunities for learning. Each context is comprised of a unique configuration of activities, material resources, relationships and the interactions that emerge from them' (Barron 2006: 195).

This conceptualisation of a learning ecology resonates with Lemke's notions of the microecologies of people participating in social activity 'persons-in-activity.' The social-cultural arrangement of practices and artifacts and the ecosystem of environmental processes are treated as a single unified system, and the semiotic practices are also regarded as being material processes. The meanings they generate play an essential role in the overall dynamics of the system (Lemke 1997).

Context provides us with certain sorts of knowledge because the things that happen and the knowledge that emerges is situated in that context. Learning ecologies demand that we become contextual knowers.

Contextual knowers construct knowledge claims internally, critically analysing external perspectives rather than adopting them uncritically. Increasing maturity in knowledge construction yields an internal belief system that guides thinking and behaviour yet is open to re-construction given relevant evidence. Cognitive outcomes such as intellectual power, reflective judgement, mature decision making and problem solving depend on these epistemological capacities. (Baxter Magolda 2004:9)

### Time

Ecosocial processes have temporal dimensions as well as spatial dimensions and they have the capability to connect different spaces, contexts, resources and situations existing simultaneously and through time. In this way they form the bridges between past, present and future contexts and situations that we encounter or create in our lives.

Each scale of organization in an ecosocial system is an integration of faster, more local processes (i.e., activities, practices, doings, happenings) into longer-timescale, more global or extended [processes].... It is *relative timescale* that determines the probability and intensity of interdependence....and it is the circulation through the network of *semiotic artefacts* (i.e., books, buildings, bodies) that enables coordination between processes on radically different timescales.

In this view the two fundamental questions for analyzing the dynamics of ecosocial systems—and human activities within them—are: What processes, what kinds of change or doing, are characteristic of each relevant timescale of organization of the system/network? and, How are processes integrated across different timescales? (Lemke ibid: 275).

Our learning ecologies connect our moments and the thoughts and actions undertaken in such moments and organise them into more significant experiences and networks of thinking and action, through which we can begin to see new patterns of understanding and learning. Comprehending such patterns give us confidence to act in the world and plan our future actions. Our learning ecologies embrace all manner of

activities each with their own rhythm of time (Barnett 2011:25) some measured in minutes or hours, others extending over days, weeks, months or even years.

Our learning ecologies - part planned and deliberate, and part intuitive, accidental and opportunistic, result from interactions with the world around us guided by a sense of purpose that has meaning to us. How we think and act reflects our experience, confidence, will and capability. Our own agency and capability is an essential component of the processes we create and the process of imagining, designing, constructing and implementing our learning ecology changes us and our future actions as new ideas and understandings emerge, relationships form and evolve, objects, tools and other artifacts are made, used and invested with meaning, and new opportunities for learning emerge from the circumstances of our lives.

The most amazing feature of developmental processes is that each step along a developmental trajectory changes the way the system interacts with its environment at the next step. There are no "shortcuts" in development; you must pass through each step in order to be prepared to take the next one because at each step you become a dynamically different system. Different dynamical possibilities are open to you. You have also extended your trajectory to a new timescale on which there are emergent phenomena, both in you and in your interactions with a larger-scale environment. (Lemke 2000: 284).

Our learning ecologies pervade every aspect of our life and are associated with every social interaction. They underlie the contexts we call family, work, study, hobbies, travel and any other significant activity we engage in that involves us in interacting with our environment and the people in it. We create and develop our learning ecologies for particular purposes. The ecologies we develop to accomplish our work will be different to those we create for our hobbies and interests, and those we create with our families and friends. But there may well be connections across these ecologies and things we learn in one learning ecology are available for application in another.

From the above it would seem that our self-created learning ecologies are an essential component of the way we learn and develop outside settings where our learning ecologies are either determined for us or severely constrained. They are the means by which we connect, orchestrate and integrate our lifewide and lifelong experiences and the learning and development we gain from them. They are the means by which we are able to transfer and connect our thinking, learning and development across the contexts that constitute our lives.

Our time is a resource. When we commit to developing an ecology for learning we are committing our time which means we cannot spend that time doing other things. Similarly, when we get involved in other people's ecologies for learning we are giving them our time.

## Resources

In nature ecosystems exist and flourish because organisms are sustained through the availability and flow of energy, food and other nutrients through the system. These *resources* nourish and sustain the essential processes for life. Resources are anything that is of value to the organism and the sustainability of the ecosystem. Anything can be a resource: it is all a matter of perception and skill. We say someone is resourceful if they are good at finding and harnessing the resources available in their immediate environment.

In an ecology for learning and personal development the key resources that nourish learning are information, knowledge and experiences. The knowledge may exist as codified knowledge or be tacit and embodied in a person's know how and practices. Or knowledge might be embodied in artifacts and tools used to facilitate communication or create meaning. Resources also include the technological tools to search for, gather, process and analyse and communicate information.

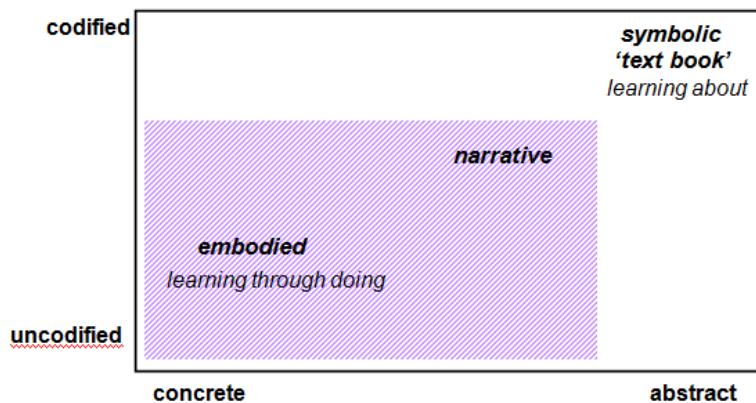
Luckin (2008:52-5) developed the 'learner centric ecology of resources model of context' describing it as 'an ecology of resources: a set of inter-related resource elements, including people and objects, the interactions between which provide a particular context.' Her model places the learner

at the centre but uses their interaction with resources as the essential ecology through which learning takes place.

### *Knowledge(s)*

How we understand what knowledge is and how we develop the knowledge and knowings necessary to learn, develop and accomplish something is important if we are to create our own ecologies for learning. Our epistemology - what is knowledge? how is it acquired? what do I know? how do I come to know what I know? how do I use my knowledge and ways of knowing to develop more knowledge? fundamentally shapes our ability to create ecologies for our own learning. Boisot (1998) provides a useful conceptual aid for viewing different sorts of knowledge (Figure 2.2).

**Figure 2.2** Conceptual framework for viewing knowledge. Adapted from Boisot (1998)



Using the two-by-two matrix of codified/abstract and uncodified/concrete knowledges he shows schematically the relationship between the knowledge that is embodied in everyday thinking and practices - our personalised working knowledge that we use to deal with situations - and

more abstract/symbolic and codified knowledge such as that which we find in books, reports and working papers.

Our personal embodied knowledge, and the embodied knowledge of other people, mainly populates the shaded area. It is created or co-created with others through participation in the things we do and the extraction of meaning through our reflections on the situations we have encountered. It includes knowledge that we have gained from codified sources and from every other source (including what we have sensed and felt).

Narrative or storytelling provides a communication medium, often rich in metaphor, that links these two domains the embodied and codified knowledge domains. Bauman (1986) argues that oral narrative is constitutive of social life itself.

When one looks at the social practices by which social life is accomplished one finds - with surprising frequency - people telling stories to each other, as a means of giving cognitive and emotional coherence to experience; constructing and negotiating social identity; investing the experiential landscape with moral significance in a way that can be brought to bear on human behaviour; generating, interpreting and transforming the work experience; and a host of other reasons. Narrative here is not merely the reflection of human culture, or the external charter of social institutions, or the cognitive arena for sorting out the logic of cultural codes, but is constitutive of social life in the act of story telling (Bauman 1986:113-14).

Michael Eraut has developed a rich conception of personal knowledge based on his observations of the knowledge people develop and use in work situations (2009, 2010, 2011).

I argue that personal knowledge incorporates all of the following:

- Codified knowledge* in the form(s) in which the person uses it
- Know-how* in the form of *skills and practices*
- Personal understandings of people and situations*
- Accumulated memories of cases and episodic events*

Other aspects of personal *expertise*, *practical wisdom* and *tacit knowledge*

*Self-knowledge, attitudes, values and emotions.*

The evidence of personal knowledge comes mainly from observations of performance, and this implies a *holistic* rather than *fragmented* approach; because, unless one stops to deliberate, the knowledge one uses is already available in an *integrated form* and ready for action (Eraut 2010:2).

Cognitive maturity (Baxter Magolda 2004:6-10) is the capability to make use of these different sources and forms of knowledge and it is necessary for the conscious development and deployment of ecologies for learning. It is characterised by the ability to reason and think critically and creatively, analyse situations and consider the range of perspectives necessary to make good decisions on how to act, and metacognitive and reflective capacity to create deeper meanings and enduring understandings. Cognitive maturity requires knowledge to be viewed as contextual recognising that multiple perspectives exist.

Thomas and Seely Brown (2009, 2011) argue that the traditional model of learning in formal education, which is focused on codified knowledge is based on *thinking and learning about* something i.e. knowledge is something to be studied and accumulated. But the world of outside formal education is more concerned with *learning through doing, making and achieving something in a particular context* and putting the things we learn into action. In the case of work this is often within the context of an epistemic community (Thomas and Seely Brown 2009).

*Homo Sapiens:* '(hu)man as knower' is a fundamental statement about what it means to be human. It is also an ontological statement about learning. There are three senses in which learning happens in relation to change. The most basic sense is 'learning about' which corresponds to contexts in which information is stable. We learn about things which are stable and consistent and not likely to change over time. The second sense is 'learning to be,' which requires engagement with an epistemic community and provides a sense of enculturation in practices which allow one to participate and learn how to learn and

even shape practices within that community. The third sense, which emerges out of a context of rapid and continual change, is a sense of *becoming*. This sense of learning is itself always in a state of flux, characterised by a sense of acting, participating, and knowing. This sense of knowing requires us to be reflectively aware and reflexively responsive to our learning and to the continuing changes we need to make in order to adapt. (Thomas and Seely Brown 2009:5)

These are not just abstract ideas; they are the reality of learning, being and becoming in an ecology for learning and achieving something. Although people may not be able to articulate their understandings in these ways, they will come to realise these things in their own way, through their own experiences of trying to learn something that is not readily available in a book.

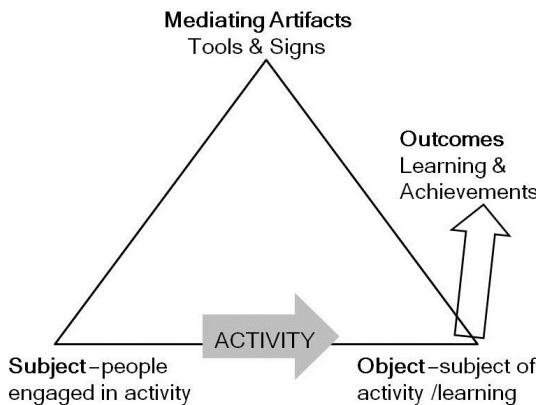
### *Mediating artefacts (tools & signs)*

Mediating artefacts are used by individuals to carry out an activity. The concept was developed in the socio-cultural theory of learning developed by Vygotsky (1978) and his co-workers and used by Engstrom (1987) and others in his interpretations of Cultural Historic Activity Theory (Figure 2.3). In Vygotsky's view we learn, think and do through the use and creation of mediating artifacts.

Vygotsky argued that what distinguishes humans from other animals is their use of speech in relation to practical activity (Vygotsky, 1978:24). He argues that words can shape an activity into structure. He describes the analogy of signs as tools. Signs can be used as a means of solving a given psychological problem (to remember, compare, report, choose, etc.) and he argues this is analogous to the use of tools. Therefore signs act as an instrument of psychological activity in a manner analogous to the role of a tool in labour....He argues that a tool's function is to serve as a conductor of human influence on the object of activity; i.e. it is externally orientated. Whereas a sign changes nothing in the object of psychological operation, it is internally orientated. Therefore humans use tools that are developed from a culture, such as speech and writing, to mediate their social environment (Canole 2011:2)

There are two types of mediating artefacts - signs and tools. A tool, such as a hammer, pencil, mobile phone or computer, mediates object-oriented material activity, whereas signs (like language) function as a means of social or intrapersonal interaction. The sign acts as an instrument of psychological activity in a manner analogous to the role of a tool in labour (Vygotsky 1978:52).

**Figure 2.3** The mediational triangle adapted by numerous authors from Vygotsky (1978) utilised by Engstrom (1987) in his interpretations of Cultural Historic Activity Theory (CHAT). People with intentions (subject) engage in activity which is mediated by tools/artefacts to achieve an objective, which results in outcomes - learning and achievements.



According to the model of ecological cognition (Bishop 2005), mediating artifacts have affordances that are perceived by the user, who will use them to engage in planned activity. Mediating artifacts embody knowledge for practice and communicate information for decision making and action. Eraut (2010:12) observed different professional groups using a range of mediating artefacts including: hand over sheets for nurses, accounts used by accountants and engineers using drawings, photos and

progress reports. In virtual environments, such as Internet applications, mediating artifacts take the form of text and graphics and in some cases video and other multimedia, which allow users to carry out actions in order to achieve their goals.

Course designers use a range of mediating artefacts (MAs) to support and learning (Canole (2011:3) including:

- textually based narrative case studies, describing the key features of the LA and perhaps barriers and enablers to its implementation,
- more formal narratives against a specified formal methodology such as a Pedagogical Patterns..
- visual representations such as a mind map or formalized UML use case diagram,
- vocabularies....such as taxonomies, ontologies or folksonomies,
- models....foregrounding a particular pedagogical approach (such as instructivism, problem-based learning or an emphasis on a dialogic or reflective approach).

Canole argues that mediating artifacts can be derived from existing learning activities by a process of abstraction and the same learning activity (LA) can result in a range of abstractions. Indeed, this book constitutes a mediating artifact formed around a powerful metaphorical idea (psychological tool) for transferring and making sense of concepts (Hung 2002). It includes many of the features outlined above eg text-based narratives, visual representations, vocabularies and models

Our tools, including the technologies we use, are an important resource in our learning ecology. Luckin (2008) emphasises the important role of technology in formal learning environments and describes the relationships between learner, resources (like books, pens, paper and ICT and internet technologies), and other supportive individuals and a learner's curriculum through the 'learner centric ecology of resources model of context'.

Over the last decade we have witnessed a significant change in the tools and technologies we use to communicate, learn, develop and achieve our purposes. According to Stodd (2012, 2014) we have entered

a new era of human evolution known as the Social Age. The Social Age is defined by the massive global use of social media platforms that are changing behaviours and habits in respect of how we find, use, develop and distribute information and knowledge and create new meaning and understanding. It is being brought into existence as a result of the web 2.0 and web-enabling communication technologies and ever faster broadband, wifi, 3G + 4G technology that enable connectivity almost anywhere at anytime with infinite information resources, personal knowledge residing within personal learning networks. Enhanced connectivity is at the heart of the Social Age might be defined in terms of 'the creation of *value* (knowledge, understanding [or learning] and relationships) by connecting individuals who want to share their interests, knowledge, passions who form a relationship to co-create new understandings.

The Social Age has transformed our relationship with the many forms and sources of knowledge we work with in our daily lives. The use of social media in particular has expanded the range of tools we now have for learning and communicating for example social media - computer-mediated tools that allow people to create, share or exchange information, ideas, and pictures/videos in virtual communities and networks. Social media depend on mobile and web-based technologies to create highly interactive platforms through which individuals and communities share, co-create, discuss, and modify user-generated content. Social media makes it effortless for us to connect, engage, produce, curate, share and distribute information and knowledge. It's virtually synchronous making our encounters more conversational, more about story sharing than publication. Communication is often rich in visual representation to allow more opportunity to create meaning (Stodd 2014).

Social media gives learners more choice in controlling their own learning, mediated by a raft of technological tools. Web 2.0 software such as blogs, folksonomies, peer-to-peer (P2P) media sharing, and wikis, are providing students with unprecedented opportunities for learning and creative self-expression (McLoughlin and Lee 2007: 672). But social

media and other digital tools and environments have necessitated the need for people to develop new literacies in order to access, use, create meaning from and participate in this media (Haythornthwaite 2012).

**Figure 2.3** The 5C framework for considering the way social media are used (Nerantzi and Beckingham 2014)

Nerantzi and Beckingham (2014) developed the 5C framework for considering the ways in which social media are, or might be used in our learning ecologies. The framework embraces - communicating, connecting, collaborating, creating and curating (Figure 2.3).



### Relationships for learning and achieving

An ecology for learning is a relational concept. By that I mean it embodies the idea that what, how and why we are leaning has a complex and comprehensive set of relationships with our environment and all sorts of things contained within it. For example it includes - what we know and can do and bring to a situation to deal with it, our past experiences of learning which enable us to learn our way into the future, the particular contexts and situations in which we are currently inhabiting and the affordances they contain, the sources of information and knowledge we are using, and the tools, technologies and mediating artefacts we are utilising and creating, the people we are interacting with, and our own beliefs, values, attitudes, perceptions, needs and interests. It is through our unique set of relationships that our learning, development and achievement emerge and we are able to give expression to our personal creativity. We might view our learning in the same way that Carl Rogers

viewed creativity namely, 'the emergence in action of a [new] relational product growing out of the uniqueness of the individual on the one hand, and the materials, events, people, or circumstances of his life' (Rogers 1961:350). In adapting and appropriating this definition I have simply replaced 'novel' with 'new'. Our relationships with people, objects, events and the circumstances of our life provide affordances for learning.

### *Personal Learning Networks*

In the Social Age, knowledge by itself is no longer power: What is important is our ability to be creative with the knowledge to synthesise and create meaning out of multiple sources, to add value to what exists, and to be able to use our personalised knowledge to effect change and achievement. These are the things that make us influential, that give us authority around a subject. It's not about what we know and hide away, it's about the conversations that we get into and how generous we are and how willing we are to learn with others and to share what we have learnt.

Our Personal Learning Networks (PLN's) are an important component of our learning ecology they comprise the connections we make with the people we believe can help us achieve our particular goals, and beyond this

The result of networking is a personal professional network, *i.e.*, an egocentric, personally and intentionally created network of people set up by an individual specifically in the context of her professional activities. This network gathers a heterogeneous circle of people, distributed across different groups and places, and connected to the individual with connections of varying degrees of strength (Rajapol 2015a)

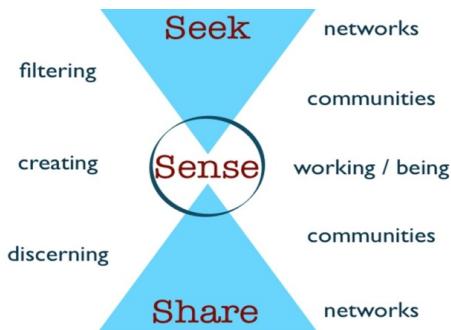
perhaps, who we feel might provide emotional support and enrich our lives. PLNs are like the blood vessels in our body or the roots and capillary vessels of a tree. They provide the structure and means of connecting to others and the means of tapping into the essential nutrients for learning - the flow of information, knowledge, wisdom and creativity within our

learning ecology. They connect our ecology for learning with the ecologies developed by others for their learning.

Every time we embark on a new project that requires significant learning we intuitively begin to create a PLN with particular goals and objectives in mind. If we have inhabited a context for a while we will have established a PLN that contains a number of people and resources and tools we can readily draw upon. But if the context and or problems are unfamiliar then we will have to find and develop new relationships with people we do not know.

The Social Age has created new affordances for networking and changed the way we access information and people. Communication technologies enable us to connect to the imaginations, writings, illustrations and conversations of a multitude of people, located anywhere in the world, through the internet, social media, RSS feeds, mailists, forums, skype and many more technologies.

Harold Jarche (2014) developed the Seek-Sense-Share model of information flow (Figure 2.4) to represent the way we set out to find information that is relevant to our learning and development projects, make sense of and use that information then share with others our understandings.



**Figure 2.4** Seek-Sense-Share model of information flow in a personal learning network Jarche (2014)

*Seeking* is finding things out and keeping up to date. Building a network of colleagues is helpful in this regard. It not only allows us to “pull” information, but also have it “pushed” to us by trusted sources. Good curators are valued members of knowledge networks. (Jarche 2014)

Seeking can be passive ie we connect to people, communities and organisations who share their knowledge freely and wait with 'watchful anticipation' for something to emerge that is of interest. And then there is the more deliberate mode where we invest lots of time and energy seeking out information that has the potential to be useful.

*Sensing* is how we personalize information and use it. Sensing includes reflection and putting into practice what we have learned. Often it requires experimentation, as we learn best by doing. (Jarche 2014)

Sensing is about trying to make sense of the information we receive or find. We try to connect it to our own understandings which we may need to alter in the process. It is all about creating meaning and then perhaps learning to use what we have learnt.

*Sharing* includes exchanging resources, ideas, and experiences with our networks as well as collaborating with our colleagues. (Jarche 2014)

Sharing involves gifting our understandings or personal sense making to the world either by making it accessible in publications like magazines, books, papers, blogs, twitter posts and any other open access publication vehicles. It's also about using it in work or other social practices.

## Processes

The way we discover or create new affordances to support our learning is to create new processes and practices. Lemke (2000) argues that social ecologies cannot be defined simply by the spaces they occupy: they must also be defined in terms of their processes - an ecosocial system is a system of interdependent processes within which relationships are developed and enacted, and affordances are accessed and utilised.

In dynamical theories of complex systems, the fundamental unit of analysis is a process... It is in relation to the process that its participants are defined, as filling roles in that process. *Things*, or *organisms*, or *persons*, or *institutions*, as usually defined, are not dynamical notions: they are ordinarily defined in terms of their stable and persistent, or invariant, properties. They are not about dynamics, not about change and doing, but about being what they are. Every process, action, social practice, or activity occurs on some timescale (in complex cases on more than one timescale). In a dynamical theory, an ecosocial system is a system of interdependent processes; an ecosocial or sociotechnical network is described by saying what's going on, what's participating and how, and how one is going-on is interdependent with another (Lemke 2000: 275).

The processes in an ecology for learning and achieving do not happen by themselves they have to be created by people who imagine, orchestrate, enact, encounter, make sense of, and connect up the moments that ultimately form a definable process. Processes have to be imagined, usually in an iterative and emergent way. Actions and activities have to be planned to a greater or lesser degree, choices and decisions have to be made about what or what not to do, effects have to be observed and experienced and actions and thinking have to be modified in response to what happens. In short we are dealing with processes that are the product of individuals, engaging with situations that may or may not be of their making over which they can exert influence through their self-determined or mediated actions. It is therefore necessary for people to develop the capability and insights to be able to create and sustain their ecologies for learning.

The process of creating, connecting and dealing with situations that coalesce over time into a process is fundamentally a process of self-regulation as described Zimmerman (2000). Self-regulation can be represented as a continuous process involving forethought (planning and decision making), action/performance and self-reflection on action/performance Chapter 5 explores this in more detail. Our processes enable us to interact with other people and our environment and through

these interactions gain the feedback we need to judge our performance in the world.

### Agency - will, confidence, capability, awareness, creativity

You cannot have a learning ecology without a person or persons.

Ecologies for learning are willfully constructed by people who have the desire (will) to put time and effort into developing an ecology that is fit for the purpose of learning what they want or need to learn. They must also have the capability and self-awareness to build an ecology that will enable them to achieve their learning goals and self belief that what they are doing stands a good chance of working or, if it doesn't, the belief that they can change what they are doing until they achieve their goal.

Cairns and Stephenson (2009:16) argue that capability is a holistic concept which encompasses both current competence and future development through the application of potential. In their opinion the concept of capability is applicable across individuals and organisations and it includes:

- the capacity to operate in both familiar and unfamiliar situations
- the utilisation of creativity/innovation
- being mindful about change and open to emergent opportunities
- being confident about one's abilities
- being able to engage with social values relevant to actions
- engaging with learning as a self-directed process
- operating to formulate and solve problems.

Cairns and Stephenson (ibid:17) identify three elements to capability:

- *ability* - to carry out observable behaviours to a level of acceptable performance and potential skills and attributes that can be realised with effort and opportunity
- *self-efficacy* - defined as the confidence of the individual, acts as a motivational force and with success a confidence builder supporting further risk taking, persistence and capable behaviour

- *values* - the way individuals' actions are guided by a personal set of values and their ability to articulate any values issues associated with that action.  
Capable implementation of actions requires (*ibid*:18):
  - *Mindfulness - awareness and openness to change.* Mindful people are conscious of their thinking and working out of solutions and progress
  - *Self-management.* All learners need to be self-managing and responsible for their own learning and development.
  - *Effective problem formulation and problem solving.*

I would like to emphasise five qualities or characteristics of capable people all of which are important for creating effective learning ecologies.

The first characteristic of capable people is that they have the *will* to try and to keep trying until they succeed. Without the will to try, and determination to persist, nothing is possible. You have to be willing to involve yourself in a situation in order to influence it. Belief in ourselves and our own capacity and ability to effect a change or achieve a result is an integral part of our willingness to try. Knowing that you are able to do something in order to deal with a situation also feeds into our preparedness to try.

The second characteristic is that they are able to think in an integrative way: they are able to think in a way that combines and integrates in a synergistic way their creative imagination and their critical thinking (Puccio et al 2005).

The third dimension of capability is *applied ability*. We have to develop practical skill and knowledge of how and when to use the skill in an appropriate manner to turn ideas into effective action: action that will one way or another achieve their goals. Skill is not a checklist of things we can do but an *integrated set of functionings* that are adjusted in response to the ongoing monitoring or 'sensing' of our effects as the results of our actions emerge. Here we return to the conundrum of what knowledge and skills do we choose to help students' develop for a rapidly

changing world? Perhaps the overarching capability is the ability to develop and utilise new knowledge and skill when it is needed and to combine and adapt existing knowledge and skills in order to improvise in new and unfamiliar situations.

The fourth component of capability is *self-awareness* the ability to recognise and evaluate the effects we are having and adjust what we are doing if necessary. Our ability to sense and observe situations and make sense of what is happening (our ability to create meaning) feeds into our self-regulatory action-oriented mechanism to help us refine our actions and intentions. Our preparedness and ability to reflect on a situation enables us to learn from our experience so that we can have more immediate effect and more impact in the future. Reflection is the key sense and meaning making process in our life and it ultimately feeds into what we value and our sense of satisfaction and fulfillment.

When we participate in a formal learning situation we are conscious that the purpose of what we are doing is to learn. But much of what we do in life is not directly concerned with learning, rather it is to accomplish a task where learning , or may not be, learning is a bi-product of the process of trying to accomplish something. Rogers (2003) uses this distinction to argue there might be two basic contexts for learning namely, task-conscious learning and learning-conscious learning.

*Task-conscious learning* goes on all the time. It is 'concrete, immediate and confined to a specific activity; it is not concerned with general principles' (Rogers 2003: 18). Examples include much of the learning involved in parenting or with running a home. In this situation whilst the learner may not be conscious of learning, they are aware of the specific task they are engaged in and what they want to achieve by accomplishing the task.

*Learning-conscious learning* arises through processes (directed or self-directed) that facilitate learning. There is a consciousness of learning - people are aware that the task they are engaged in entails learning and the job of facilitation whether it is through a teacher directing a class, a coach or mentor guiding someone in a work situation or a parent guiding

a child, is to make people more aware of their learning or what they need to learn.

At one extreme lie those unintentional and usually accidental learning events which occur continuously as we walk through life. Next comes incidental learning - unconscious learning through acquisition methods which occurs in the course of some other activity... Then there are various activities in which we are somewhat more conscious of learning, experiential activities arising from immediate life-related concerns, though even here the focus is still on the task... Then come more purposeful activities - occasions where we set out to learn something in a more systematic way, using whatever comes to hand for that purpose, but often deliberately disregarding engagement with teachers and formal institutions of learning... Further along the continuum lie the self-directed learning projects on which there is so much literature... More formalized and generalized (and consequently less contextualized) forms of learning are the distance and open education programmes, where some elements of acquisition learning are often built into the designed learning programme. Towards the further extreme lie more formalized learning programmes of highly decontextualized learning, using material common to all the learners without paying any regard to their individual preferences, agendas or needs. There are of course no clear boundaries between each of these categories. (Rogers 2003: 41-2).

This synthesis by Rogers effectively embraces all the conditions and catalysts for learning that an ecology for learning might embrace. We participate in ecologies for accomplishing a task all the time and we may or may not be aware that we are learning. But when we deliberately set out to learn something we are conscious of what we have to do in order to learn. Our ecologies for learning depend on this awareness.

### Learning trajectories

Learning is often a byproduct of trying to achieve something rather than the explicit goal of what is being done: the net effect of a person creating a learning ecology to resolve a problem, overcome a challenge

or exploit an opportunity is learning regardless of whether the person was successful or unsuccessful in achieving their goal. Learning is often not simple to define and we may only know we have learnt something when we suddenly realise that we can do something that we could not do a few weeks or months before.

Eraut and Hirsch (2007:11) used the term 'learning trajectory' to embrace the 'progress in a person's performance' and the learning and development that was associated with the progress. Examples of making progress in a developmental and performance sense involves doing things better, doing them differently and doing different things, and might include (ibid:12).

- Doing things faster
- Improving the quality of the process
- Improving communications around the task
- Becoming more independent and needing less supervision Helping others learn to do the task
- Combining tasks more effectively
- Quicker recognition of possible problems
- Expanding the range of situations in which one can perform competently
- Increases in task difficulty/ taking on tasks of greater complexity
- Dealing with more difficult or more important cases, clients, customers, suppliers or colleagues.

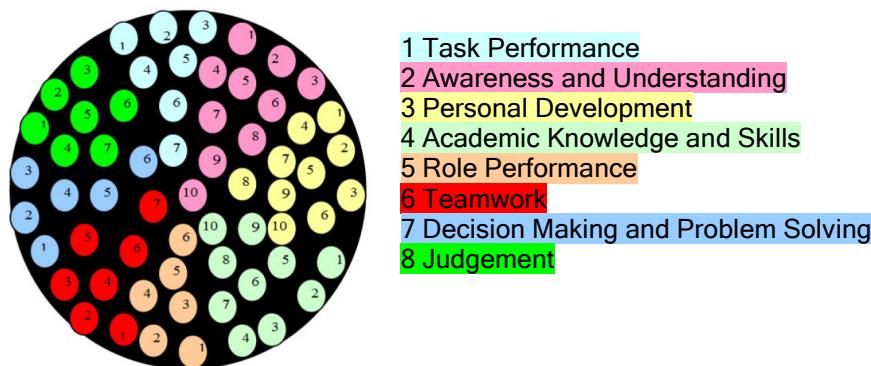
Eraut and Hirsch (ibid) viewed performance as complex and multidimensional, and development of one set of performances (and related capabilities) along a trajectory, does not mean that other capabilities are being developed at the same time. Indeed, some capabilities and related performances might regress if there are no opportunities to practice and perform them (ibid:12). Eight learning trajectory categories and 32 learning trajectories were identified to cover complex performance in the professional work environment (Table 2.1 and chapter 4).

**Table 2.1** Learning trajectory categories defined by Eraut and Hirsch (2007)

Any significant experience that a person participates in, will afford them the opportunity to develop along a number of trajectories simultaneously but will reflect development in a specific set of contexts and the experience and knowledge gained may, or may not, be transferable to other contexts. What is transferable is the ability to learn in these sorts of circumstances.

<i>Learning Trajectory Category</i>
Task performance
Awareness and understanding
Personal development
Academic knowledge and skills
Role performance
Teamwork
Decision making and problem solving
Judgement

**Figure 2.5** Representation of Eraut and Hirsch's (2007) learning trajectory model as a set of strands within a rope (Willis 2010:13 Figure 10). Note that in the original diagram a different colour was used for each category of learning trajectory.

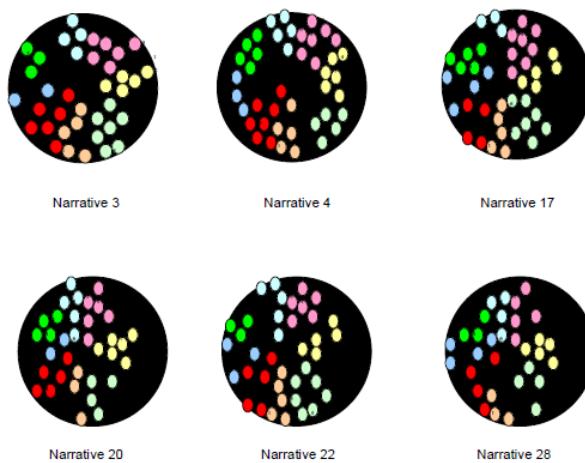


Most of the categories of learning trajectory used by Eraut are also relevant for learning in contexts other than the professional environment. Perhaps the only one that is not so relevant is 'Academic knowledge' but

if this was reworded as codified knowledge it would be more relevant to contexts other than non-professional work. Willis (2010) demonstrated the validity of the concept in a study of the way students developed through their year-long work placement. She imagined the complex pattern of learning, development and achievement depicted in Earut's learning trajectories as 32 separate strands in a rope (reproduced in Figure 2.5).

Using the 32 possible learning trajectories as a tool, Willis (*ibid*) analysed student reflective accounts of their development through their work placement experience and discovered that many students had engaged with and developed themselves along a majority of the learning trajectories. Some examples are shown in Figure 2.6.

**Figure 2.6** Representations of self-reported learning and development trajectories of students after completing a one year work placement (Willis 2010:13 Figure 10)



## Self-authorship and transformative learning

The idea of learning ecologies is consistent with the constructive-developmental tradition of human development (Piaget 1950, Perry 1970 and Keegan 1982). Constructivism refers to humans' tendency to construct meaning by interpreting their experiences. Developmentalism suggests that these constructions evolve over time through periods of stability and transition to become more complex.

Piaget describes three interconnected dimensions of human development that are central to our meaning making. The cognitive dimension refers to our assumptions about the nature and certainty of knowledge and how we come to know. The intrapersonal dimension consists of our assumptions about our sense of self and identities. The interpersonal dimension addresses our assumptions about the nature of social relations. We construct these sets of assumptions by making sense of our experiences (Baxter Magolda 2014:8)

Kegan (1982) elaborated further the epistemological, intrapersonal and interpersonal dimensions in this evolving process describing a series of meaning-making structures that evolved from relying on external others for meaning making to taking responsibility for one's own meaning making. He used the idea of a journey to self-authorship to capture this process: an idea that has been applied and developed through the extensive longitudinal research study of Marcia Baxter Magolda (1992, 1999, 2001, 2004, 2009, 2011). Self-authorship involves not only the acquisition of relevant knowledge and skills to solve problems and extending our frames of reference into new areas, what Mezirow (1990) calls informational learning, it also involves transformational learning, through which we alter our frames of reference to navigate complexity and come to terms with emergence. It involves bringing all dimensions of a person to bear on significant challenges for learning and developing, not just their cognition (Mezirow *ibid*). For Keegan (1994) transformational learning involves the growth of the mind, or the remaking of one's meaning making about knowledge, identity and social relations.

For Baxter Magolda, learning to deal with the complexities of adult life and play an active role in society requires learning to extend beyond the traditional acquisition of knowledge and skills gained in the classroom in order to achieve a level of maturity to think with complexity on the three dimensions of development (Baxter Magolda 2004c; King and Baxter Magolda 2011, Baxter Magolda 2014).

Epistemological maturity is required to analyse and judge the validity of multiple perspectives to make wise decisions. Personal maturity is necessary to enable acting autonomously yet collaboratively and acting with integrity. Relational maturity is required for effective collaboration that integrates multiple perspectives in an uncertain and complex world. Kegan (1994) portrayed these three dimensions of development as integrated throughout the lifespan and defined self-authorship as the point at which adults take internal responsibility for their belief systems, their identity and the nature of their social relations (Baxter Magolda 2014:77-8).

Baxter Magolda (2011, 2014) recognises that the development of epistemological, personal and relational maturity is a lifelong and lifewide project and involves learning, developing, achieving and sometimes failing, in many different contexts and circumstances. It cannot be achieved in the classroom alone using methods that avoid risk and uncertainty, and only seek 'the right answer'.

The idea of learning ecologies might usefully be added to the conceptual toolkit for explaining the ways and means by which learners develop these maturities to think and work with complexity, uncertainty and risk. The learning ecology model developed in this chapter enables learning and development to be understood from the perspective of the whole person immersed in their situations dealing with complex relational and emergent problems and opportunities that require epistemological, personal and relational maturity. Many of the narratives in subsequent chapters (3, 4, 5 and 6) that are analysed through the lens of a personal learning ecology, reveal the person in a state of transformation. They are transformed as they search for, find and utilise affordances for

accomplishing what they value, create activities, processes and experiences to achieve goals which they determine for themselves, inhabit and create their own spaces for learning, use and develop their relationships with people who can help them, find, create and use the resources they need to accomplish their goals and progressively change their perspectives of and perceptions of the situations they encounter.

One of the key transformations to occur in the journey to authoring our own lives is the recognition that we cannot control reality but we can control our responses to it. I believe that the conscious and deliberate act and process of developing an ecology to learn, develop and achieve something significant, is the way that we respond to exploring our perceived affordances in the reality of the situation or circumstances. We change our understandings of reality as our perceptions change as we immerse ourselves in the situation.

## Trust

To reach maturity in the manner outlined above, we have to learn to trust ourselves. We have to trust that the decisions we make for ourselves, in particular situations, are the most appropriate decisions weighing up the complexity of the situation and the effects our decisions will have. Trusting ourselves lies at the heart of our learning ecologies (Staron 2013).

We learn in relationship and in context - not in isolation.....This is why our learning ecology is so important to us. It tells us about our learning environment and interrelationships - with others, with our culture, work and with our educational institutions. And most importantly, it tells us about our learning relationship with ourselves. We need to trust ourselves to establish a learning ecology that is meaningful, authentic and supportive of our growth and personal wellbeing.

For many, trust is an issue. We defer to what others expect of us and to the social norms of the day. We feel confusion or doubt around the decisions that we make or goals that we set. We respond to what others demand of us rather than to what's most appropriate and authentic for ourselves... How does this relate to learning

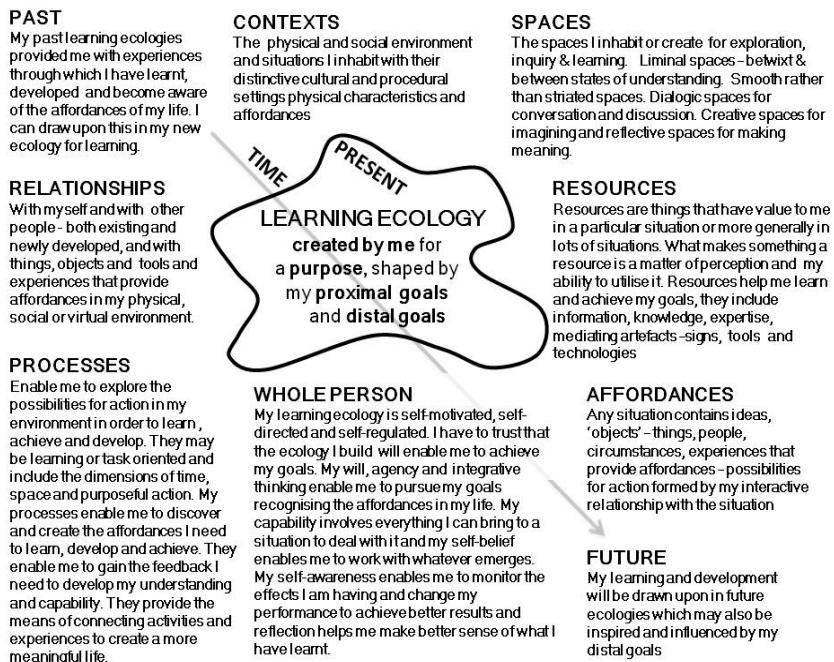
ecology? Without self-trust, it's hard to understand and to modify our learning ecology. Our learning ecology needs to take us towards our lifewide learning goals, rather than away from them. I believe it's crucial to trust that still small voice within (our higher self), that part of us that knows what works best for us (Staron 2013: 7)

## Learning Ecology Model

Having explored the most important parameters of an ecology for learning, developing and achieving we are now able to visualise a model that embodies these dimensions. An individual's self-created learning ecology grows from the circumstances (contexts) of their life and is established for a purpose that is directed to accomplishing proximal goals connected to more distal goals. Their learning ecology comprises themselves, their environment, their interactions with their environment and the learning, development and achievement that emerges from these interactions. It includes the space they create for themselves, their processes, activities and practices, their relationships, networks, tools, other mediating artefacts and the technologies they use, and it provides them with affordances, information, knowledge and other resources for learning, developing and achieving something that they value. We might represent these defining statement symbolically in a diagram (Figure 2.7).

Our learning ecologies are the means by which we connect and integrate our past and current experiences and learning and they provide the foundation for future learning. They embrace all the physical and virtual places and spaces we inhabit and the learning and the meaning we gain from the contexts and situations that constitute our lives. Our learning ecologies are the product of both imagination and reason and they are the vehicle for our creative thoughts and actions. They are one of our most important sites for creativity and they enable us to develop ourselves personally and professionally in all aspects of our lives.

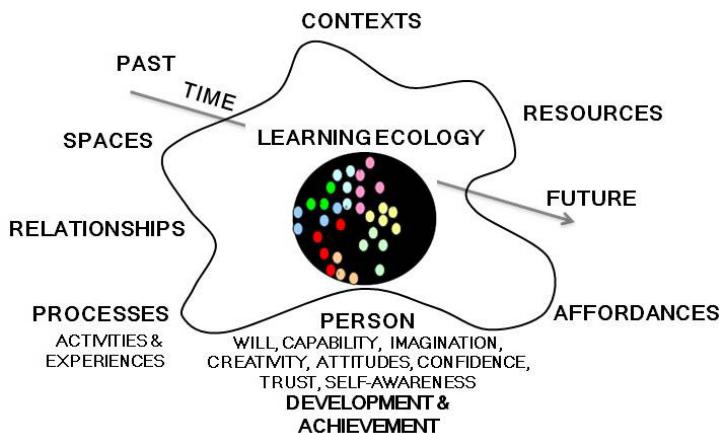
**Figure 2.7 Components of an individual's learning ecology**



This conceptual tool/mediating artefact is heuristic rather than hierachic. It represents the integration and interdependence of the person living in their environment perceiving learning and achievement needs and the affordances to satisfy these needs and creating processes to utilise the affordances they perceive. In acting on the affordances available to them through their own agency and creativity they form relationships, find, create and utilise resources and tools to aid thinking and action. Such actions may be directed explicitly to learning or mastering something but more likely they will be primarily concerned with performing a task, solving a problem, or making the most of a new opportunity. Furthermore, in the process of trying to achieve something new affordances for learning and achieving might be perceived.

The ecology we create to develop something, like a new educational course if you are a teacher, is the vehicle for our creativity. The ecologies we bring into existence for the purpose of learning and achieving are acts of creation using Rogers (1961) concept of creativity. Our learning ecology is our self-determined and self-expressed process for achieving tangible proximal goals, within which we create our novel relational products [*including our own development*] grown out of our individual uniqueness which has been shaped by our past histories and imaginings of a different and better future, and the materials, events, people and circumstances of our life. In this way our learning ecology becomes the means through which we seek and utilise the affordances for learning, development and achievement within the circumstances of our life and the environments we inhabit.

**Figure 2.8** Representation of the complex developmental outcomes emerging from a learning ecology in the professional work environment shown as a family of learning trajectories (based on Willis, 2010)



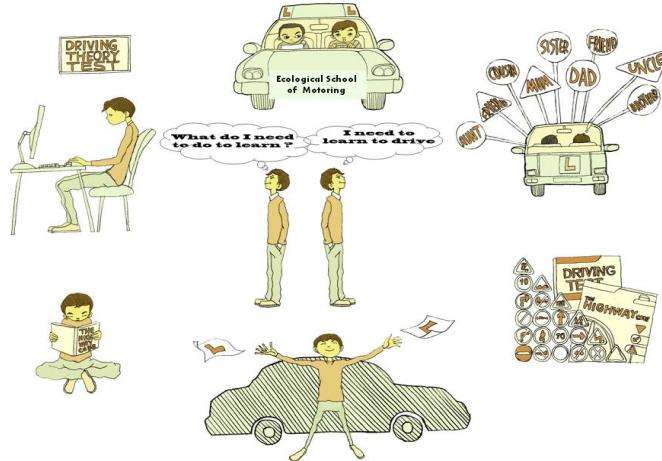
Any significant new project an individual undertakes will require them to create an ecology to achieve the goals of the project and learn and develop through the processes and practices that are involved. In any

significant project, all the components of the learning ecology will be involved and learning and performance will emerge from the ecology. This way of viewing development as improved or new capability demonstrated through performance along one, several or many trajectories simultaneously provides a useful and holistic way of viewing the developmental outcomes from a learning ecology.

### Illustration of how the model works

We might illustrate the idea of a personal learning ecology through the scenario of learning to drive a car (Figure 2.9) an important learning project for most people. The scenario involves the learner in a comprehensive way and it contains both formal learning-conscious and informal task-conscious learning (Rogers 2003). We can relate this scenario to the synthesis model for a learning ecology (Figure 2.9).

**Figure 2.9** Personal learning ecology created in order to learn to drive a car and pass the driving test. Includes a self-created process for learning to drive, the contexts in which the person learns to drive, and a set of relationships and resources that enable the person to learn.



Ultimately, a body of knowledge has to be learned and applied and a level of competency has to be gained, embodied and demonstrated in order to pass the driving test. The process begins when the learner decides he wants to learn to drive (*motivation/will*) and take the test to demonstrate proficiency (*proximal goal*). The individual has created a need and must perceive the affordances available to him in his environment in order to meet his need. The individual, often with parental guidance and support, creates a new ecology (*process*) drawing on the affordances in his existing ecosocial system, to learn and develop himself in line with his objective. The ecosystem he creates includes *context, resources, relationships and an unfolding (emergent) process over a period of time* eg several months or longer.

Typically, the process will last several months and involve:

- activities such as reading, learning driving skills and practising, discussions and observations
- access to a car(s) so they can practice
- access to information about driving and the rules of the road - either as a book/booklet, DVD or on-line resources
- a range of driving instructors including a trained professional instructor and untrained family members and friends
- physical environment - safe areas for practising - like empty car parks and quiet roads - then public highways with various traffic conditions.

This scenario provides a good example of a learner appreciating the *affordances* they have to learn to drive in their particular *contexts* - their social, physical and virtual environment. They formulate a specific *proximal goal* - to learn to drive and pass the test to become a qualified driver and create for themselves the *spaces* for inquiry and action. This particular scenario is instructive because it involves formal structured learning experiences (via an instructor) and more informal learning experiences. The learners self-determined learning *process* is likely to draw up on *resources* available for learning in their own environment -

the knowledge and experience of people they know (*relationships*) - family and friends. As they practice driving they are immersing themselves in situations that are relevant to their learning and through their experience they are developing their own case examples of situations they encounter on different sorts of roads under different sorts of driving conditions. They are developing and applying procedural and situational knowledge. Experience is accumulated in a range of contexts - road, traffic, day time/night time and weather. As they participate in this process they can tap into the experiential knowledge (*resources*) of the people who accompany them on journeys as both drivers and passengers and their new awareness also encourages them to be more observant as a passenger so that they begin to think like a driver, reading and anticipating situations even when they are not driving. In this way there is likely to be quite a lot of incidental learning of which they are not aware.

This ecology for the purpose of becoming a competent and qualified driver - may last several months and perhaps involve 50-100 hours of *time* and effort in which learning and its embodiment in their driving practice is the primary goal. This time is scattered across and through a busy life perhaps extending of several months or even years. The learning ecology connects these experiences and the learning to make a coherent whole. Through the process the learner learns and masters a body of procedural knowledge and embodies the practical knowledge and skill in the performance of driving and they have to demonstrate this to a defined standard in order to pass their test. Their learning and development has progressed along a *trajectory* from little or no knowledge and capability to a level of capability where they can be trusted to drive safely under the conditions and in the situations they have experienced to date. Learning and achievement emerged through relationships and interactions in their everyday environment and life.

This example of an ecology for learning and achieving is hypothetical. The next four chapters draw upon real life narratives of people to illuminate and animate the concept of a learning ecology.

# CHAPTER 3

## Learning Ecology Narratives

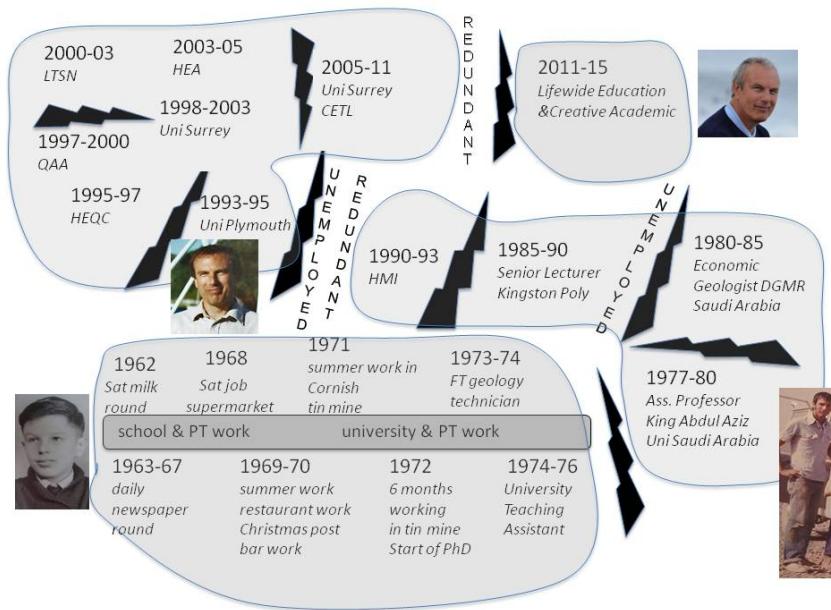
### My Learning Life

There are two spatial-temporal dimensions to the narrative of my learning life. The first is a lifelong journey of personal change and development. When viewed at the scale of a whole life it seems that I have been in a perpetual state of transition from being one sort of person to becoming another. Viewed in this way life is nothing more than being in a state of transition of moving into, through and out of - one stage of life into another, or one physical environment and its social - cultural contexts and relationships into another, one role with its particular contexts, problems, challenges and identities to another, and even one field of professional knowledge to another. Some of this change is self-determined out of necessity, obligation, interest or opportunity, but sometimes it's forced upon us. Regardless of the cause we have to learn to adapt to the new set of circumstances. Looking back over my life I can create a narrative around my personal and professional development at each stage of my life so cumulatively my overall pattern of learning and development can be recognised and I can give an account of why I have come to be the person I am. Figure 3.1 shows the lifelong dimension of the pattern of my learning, development and achievement through my formal education and the various jobs and work roles I have had.

But there is another dimension to my lifelong narrative of development namely the lifewide journey I make every day by living and performing the roles I have in all the different contexts and spaces I inhabit simultaneously in my life (Jackson 2011a). While the lifelong dimension of my life makes sense after I have lived it, the lifewide dimension is the space in which the meanings of my life are created through every thought and activity I engage in. It is in this dimension of my life in which I think and perform, and engage in activity that enables me to move into, through and out of - one stage of life to another, and one

physical environment and its social - cultural contexts and relationships to another, and one role with its particular contexts, problems, challenges and identities to another, and one knowledge field to another, which all give my life meaning and the sense of who I am.

**Figure 3.1** Main educational and work domains in my life. The black jagged lines represent significant dislocations in my life which will be discussed in chapter 4.



My every day journey is the one that really matters because it's the one I can influence and experience and that is why, from an educational perspective, it is far more important to recognise and work with than the more abstract idea of my lifelong journey. It is also important because it is this lifewide dimension of my life in which I grow my ecologies for

learning, developing and achieving. Later in this chapter I will illustrate how these ecologies are grown from the personal interests, needs and circumstances of people's lives.

## Learning Projects and Episodes

As adults much of our learning is incidental to our doings: the continuous flux of thinking, activity and being that make up the lifewide dimension of our life. It is worth reminding ourselves of what learning means in our adult life. The following passages written by Allan Tough captures well the variety and richness of our everyday learning (Tough 1971:3).

Men and women learn in many ways: by reading books, magazines and newspapers; by watching television and movies; by seeking subject matter and advice from friends, relatives, neighbours or fellow workers; by consulting a doctor or lawyer, a salesman or librarian, an extension agent or financial expert. They may also attend discussion groups, lectures and private lessons.

Sometimes the adult sets out to gain certain knowledge and skill because it will be highly useful in the very near future. At other times he simply wants to possess the knowledge and skill for its own sake, perhaps to have a broad understanding of the world around him. occasionally the main reason for a learning project is the desire for credit toward some degree or certificate....

Adults learn a wide range of knowledge and skill. An individual may set out to increase his own understanding and self-acceptance, or he may simply want to learn how to refinish a coffee table. he may want to learn some area of history, philosophy, economics, current affairs, natural science or social science. He may want to gain more knowledge before making an important decision on the job, or about his own financial affairs. He may learn to play a musical instrument, or to play golf or bridge. He may want to increase his skill in teaching, raising children, supervising, or in some other major task. He may learn in order to plan a trip, buy an appliance, operate a ham radio, deal more effectively with people, or develop a philosophy of life.

Some efforts to learn are relatively brief or superficial..... Other learning efforts are aimed at changing one's self-concept, perception and understanding of others, deep feelings or creativity. Some efforts are aimed at modifying overt behaviour, such as a habit, or an addiction pattern.... Some learning projects are primarily cognitive or intellectual, some are aimed primarily at attitudinal and emotional change, some are designed to develop physical skills and many are a mixture...

But people generally don't talk about learning, unless they are situated in a context where learning is the overt activity, and they certainly don't talk about learning ecologies. Allen Tough used the idea of personal learning projects when discussing learning with adult learners. A learning project is simply a major, deliberate effort to gain certain knowledge and skill or to change in some way, according to the learner's interests and needs. His surveys of adults suggested that almost everyone participates in one or two major learning efforts each year and some individuals undertake as many as 15-20 and it is common for individuals to spend 700 hours or more on their significant learning projects.

Learning projects are made up of episodes during which the individual engages in a cluster of related activities in order to learn and or

A learning project is a series of related episodes, adding up to at least seven hours\*. In each episode, more than half of the person's motivation is to gain and retain certain... knowledge and skill, or to produce some other lasting change in himself (Tough 1971:7)

An episode is a period of time devoted to a cluster or sequence of similar or related activities - including all the persons experiences, (everything he does, thinks, feels, hears and sees) during that period of time. (Tough 1971:7)

A learning episode is an accumulation of activities in which the primary objective is to learn, 'more than half of the person's motivation is to gain and retain certain definite knowledge and skill (Tough 1971:8)

accomplish something. A minimum time period of 7 hours was chosen in the definition of an episode: equivalent to a working day. Almost all projects contain several and sometimes many episodes. Our learning ecologies may be formed around a single learning project or many connected projects.

## Personal Learning Narratives

A person's learning narrative reveals their participation in their own learning and development, and enables them to reflect on and make sense of their experience and make judgements about their achievement. Learning narratives are the vehicles for describing the substance and dynamics of a learning ecology. In the following section a number of learning narratives give meaning to the ideas of personal learning projects, learning ecologies and learning trajectories to be examined and appreciated. To help appreciate and map the dimensions of the learning ecology the simple conceptual aid developed in chapter 2 will be used as a reference point.



### 1 How did I learn to play Pokemon?

Trying to master something that interests us provides the intrinsic motivation to create a learning project, and a process and new relationships (ecology) through which we might learn. In this narrative 12 year old Andrew describes his process for learning to play Pokemon.

When I started playing it was around spring last year and I had pretty much no idea of how to play the game. My friends had played it

for many years before me and I felt I should join in too. First I bought myself a “theme deck” which comes with a complete deck and a very rough and uninformative rulebook. I read this and still had hardly any idea of how to play the game so I went to a games shop and got taught by a very experienced player. She taught me how to play the game but not the complex aspects such as deck building and strategies. When I noticed that I still was lacking in many areas of playing I started listening to a podcast that was released every week. This was very valuable. I knew the person who ran it and frequently asked them for tips which helped me play with more strategy. I also watched tutorials and deck reviews on YouTube and read articles on the internet. This has all been very successful because, earlier this year I competed in the National Championships. I would have not got in if it wasn’t for these things and they have been an invaluable resource.

This narrative reveals how the building of personal learning ecologies can occur at an early age if the *desire* to learn and master something is strong enough. Andrew's project grew from his desire to participate in what seemed



to him like an enjoyable social activity by playing the game with his friends (the social - cultural context). This was his proximal goal but through the *process* he developed a more distal goal - to become an expert player in the sense of competing with other experienced players. This ensured he persisted over a significant period of time. He realised that he couldn't learn much from the instructions so he sought help from an experienced player (*new relationship*) before accessing other learning *resources* available through a podcast (and interactions with the person who produced the podcast), YouTube tutorials and articles. Eventually he put himself into an entirely *new context* competing with other players at

tournaments in order to see how well he has mastered the game and to learn from the experience of playing against others. His *learning trajectory* shows that he began this process with no knowledge and skill and ended up with sufficient knowledge and skill to compete with other experienced players.

## 2 Inspired to play the piano

Personal learning ecologies often emerge from the everyday doings of life as illustrated in this story told by 15 year old Nadia.

we have a music block and sometimes we go in there at lunchtime because it's warm and no teachers kick you out especially if you've got someone actually playing an instrument. One of my friends, Ellie she's amazing at playing the piano. She is grade seven. She was playing the piano. I was sitting there feeling slightly bored, because I couldn't play the piano and even if I could she was hogging it. So I thought, "Well I might as well do something with this time," and so I went and I sat next to her, and when she finished the piece I was like, "Can you teach me something on the piano?" Just because I wanted to be able to play the piano just so I could come home [and play it], because we've got a piano just sitting there. Even if I just sat there and played a scale over and over again, at least I had something to play.

She was like, "I don't know what to teach you," and so for about ten minutes she went through her own pieces and did a couple of things and I was saying "I don't mind what you teach me, just something easy so I can learn it." Eventually I said, "Okay, well why don't you just teach me a scale?" because I had done the flute before so I know what scales are. She was like, "Oh, okay." So she taught me the C major scale, which is just going from C to C. So yes I learned that and then I came home and I wasn't really in the mood to do any work because I'd spent the whole day in, like, this zombie state waiting to go home. So when I came home I had my break and because my internet wasn't working that well I came into the sitting room and just sat down at the piano and I started practicing the scale. I saw my sister's [piano] book just sitting there on its own, looking all lonely. So I was like, "Well if that's got any instructions, I might as well see if I can do anything else because I know where C is now on the keyboard."

Even if I just press that over and over again, maybe there is a song for that." I read the book and I just started teaching myself how to play the piano, just for fun, which is probably the weirdest thing I've ever done, especially for fun.

Although I was familiar with music notation from years ago when I started learning the flute, it was different for piano and then you've got the right and the left hand, which I'm just starting to teach myself five notes on the left hand. I'm very proud of myself, I can do both hands, just. Yes, so they are all different and my sister whose book it was before had written on the notes, but I wanted to learn the notes for themselves, like to recognise them on the page. I didn't want to read it off. So I'd rubbed it out. So I'm trying to learn it, where they are on the page so I can just look at it and be like, "Oh, that's this note. That is this note," because then it's much easier to learn other pieces.... I just learned a piece, which has five notes in it and I was insanely proud of myself because I'd done something I've never done before. I had done it on my own. No one was expecting me to do it.

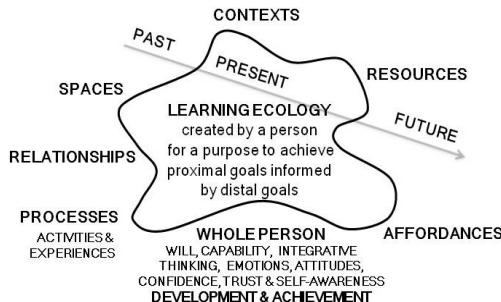
My friend is such a nice person. She is always willing to help me and everything. So I think if I learned a bit and I went and I talked to her and I was like, "Well, could you help me with this?" or "Do you have any of your simple books on grade one that I could borrow?" if I didn't want to buy any, she would be like, "Yes, sure. That's fine." She wouldn't laugh at me. She wouldn't make fun of the fact that even though I'm her age I only know five notes and I'm just doing it for fun... she is someone I feel would really help me.

In this narrative of learning we see Nadia in two different contexts (school and home). She has encountered the same situation before but this time she decided to try and learn something. She was both inspired by her friend and also felt that her friend would help her without making her feel stupid. But the motivations for her decision were complex.

I've got to say it's a bit out of jealousy that everyone else can play a musical instrument so well and I didn't, although I've only got myself to blame. Also partly out of a bit of boredom, to be honest, because I wanted to do something different and the piano was something

different that I had access to at home. I suppose also because she inspired me to do it....

Nadia's learning project grew out of the circumstances of her life. It wasn't planned, and she didn't have a distal goal. Her proximal goal to learn a tune, emerged through social interaction with her friend and she saw



affordance in the situation and then realised the opportunity through her actions. Her personal learning ecology comprises the *contexts* of school and home, the material *resources* of two piano's, one at school and one at home, a book of music at home, a significant *relationship* with her friend who provided the inspiration and essential knowledge/skill resource (her expertise). Learning occurred when Nadia recognised the potential in the situation to achieve something worthwhile and she created a *process* to make use of the resources that were readily to hand. She set aside the time to practice and master the musical notation and used the book of piano music that had been sitting on the piano ever since her sister gave up playing the piano. The personal learning ecology was created only when Nadia decided to use the situation to achieve something that she thought she could achieve that was valuable to her. One of the most interesting aspects of her story is the complexity of the motives that triggered her will to behave in this way - boredom, jealousy, the desire to do something different and being inspired by hearing her talented friend play, combined with the belief that she could achieve what she set out to do. Nadia's *learning trajectory*, her capability development, is manifest in the fact that she could play a tune that she couldn't play before. Interestingly, she did not continue to learn the piano - she lacked the distal goal that would have encouraged her to persist.

### 3 Mastering the mysteries of a Morris dance

The intrinsic desire to master something can infect people of all ages and in all circumstances and provide the motivation to commit time and energy to creating and sustaining an ecology for learning and personal development. In this illustration Paul, who was interested in Morris dancing (a form of English folk dance), wanted to develop his expertise and master a particular dance.

I have taken it upon myself to develop an expert understanding of the Morris dancing and related folk music tradition.... I've committed myself to this journey and for me its about getting to mastery, not the rate in which I get to mastery. I purposefully put myself in positions to learn more.....I have been focused on learning a jig called "I'll go and enlist for a sailor". Some of the steps were eluding me. Over this last weekend I attended the Marlboro Morris Ale and was fortunate enough to meet John Dexter, who could teach me the jig. I was shown the steps in detail by a master of the dance, much of the mystery of the steps were demonstrated, they are no longer a mystery. All my reading of the dance, and watching videos had prepared me well for this master / apprentice type session. I was ready to learn and the correct situation presented itself as I was on my learning journey, often it is important to hold the faith that the right learning is available at the right time. The Morris Ale became a part of my learning ecology.

Paul had a distal goal - to develop his knowledge and expertise in a field that he was interested in. He also set himself a proximal goal to learn a particular dance. Paul makes the point that in order to learn you have to put yourself into an environment (*context and situations*) in which you are more likely to find the *resources* and *opportunities* you need to learn. He saw the *affordance* for developing himself in the Morris dancing event. By reading about the



dance and watching videos (*resources*) he prepared himself so that he was ready to learn. His most important opportunity for learning came about when he put himself into a situation where Morris dancers came together to perform and share their tradition. By building a *new relationship* with an expert he was able to gain access to the help he needed to enable him to complete his learning project. This example illustrates the importance in personal learning ecologies of particular spaces, places and times (contexts) in which specific social practices occur and the resources and relationships for learning are more likely to be available. It also illustrates the importance of creating a learning process that will increase the chance of accessing resources and relationships necessary for learning. His learning trajectory is demonstrated in the fact that he could perform a dance that he could not perform before.

#### 4 Helping someone else

Sometimes our learning projects stem from a desire to help other people rather than being driven by our own interests and needs. Such learning may be quite modest in its scope but be of significance to the person we are helping. In this example James, who is now in his 80's, reveals an ecology for learning he created in order to help his wife.

This learning project began from my being an interested bystander of a complex situation. My wife is a member of the Business Committee of a charity. Recently they have been troubled by a very delayed claim of harassment, made by a former employee regarding his treatment by certain office bearers. This claim, which was being properly considered, was and is of no interest to me. However an intriguing side issue began to emerge when the former employee emailed a wider group of charity members. He sought to justify the case he was making. His source of addresses was from the "cc" section of an email which he had properly sent out from office equipment during his employment, and which he had presumably retained. Members of the Business Committee queried, and are still querying, what bearing the Data Protection Act has on his activities after leaving the employment of the charity, using data to which he had access while employed. My

wife described the Data Protection issue, but not the substance of the complaint, with me. I was intrigued.

What learning ecology came to bear? I consulted papers and notes I had retained from my training by a previous employer in Data Protection and Freedom of Information. I consulted the internet on several occasions, following several different though linked lines of enquiry. My wife reported to me at second hand, and discussed with me, the views and especially the questions and issues being raised in meetings of the Committee (of which I am an Emeritus member). I raised the matter in general terms with a friend who widely circulates "smileys" to those on her list, but always exhorts us to do as she does and only to copy them on under "bcc" which conceals addresses, of course. In a bizarre encounter, while waiting for a burly supermarket man to load a heavy parcel in our car, I discovered that the woman arranging this was a final year law student and was willing to offer me (free) advice on the question of culpability; but it was confusing advice, as too many options had emerged before the man returned having loaded our parcel.

I have now listed questions beyond the original one - and motivation to understand more about the implications of legislation regarding Data Protection. My list increased recently, when I sought to discover with what grade of second class degree one of my grand-daughters had graduated a few days previously. I spent ages on the university's websites, before being told that Data Protection legislation precluded them from making that information available, although the full graduation list had been published in the Times some days earlier. My new questions emerge from my desire to know if the Act does in fact preclude this publication and, if so, why? My learning ecology may expand to benefit from the eventual formal judgement by those to whom the case has been referred, further reading on the internet, and a discussion with a retired lawyer friend.

James' learning project grew out of the circumstances of his life. It wasn't planned, and he didn't have a distal goal, other than to support his wife. His proximal goal to answer the specific question about the use of privileged information after someone has left employment, grew out of a situation that he found 'intriguing'. His interest and motivation were driven

by his innate curiosity. He describes and evaluates his own ecology for learning which included documentary and web based resources, conversations with his wife, friends and chance interactions with a stranger and he illustrates well how new questions, for which he wants answers continues to drive his learning process. His learning trajectory reflects the knowledge he has acquired through this process.



## 5 Learning Italian

In this narrative Sophie a higher education teacher and educational developer, describes her attempts to learn Italian with her husband and draws attention to the emotional side of a learning ecology. The previous illustrations have all been about learning informally. This example of a personal learning project connects the formal and informal worlds of learning.

Italy has been our favourite family holiday destination for the past twenty years or more. For a long time we had said to one another that one day, when we had time, we would learn Italian - conversational Italian so that we could be more at ease, more engaged and in tune with the culture when on holiday.

The opportunity came with a short course at the local university comprising four taught sessions and access to the Rosetta Stone online learning software over six weeks. My husband and I both enrolled and were informed that this was to be a quite immersive learning environment of conversation and exercises in class, and computer based exercises, quizzes, and pronunciation practice.

After the first couple of classroom lessons, I was taken aback to be so vividly reminded of the emotional elements of my own learning

experiences. I have spent my career in facilitating the learning of others, as teacher, trainer, on-line tutor, coach, mentor etc., and managing my own continuing professional development. However, in this chosen learning experience I felt, by turns, nervous, shy and embarrassed, daunted, and uncomfortably competitive. I felt better when using the Rosetta Stone materials, even though I felt that I was making quite slow progress. I enjoyed the experience and the look and feel of the online materials, and felt reassured by the repetition and revision built into the exercises. By contrast, I felt that the classroom lessons each added more new vocabulary and complex grammar to the unending list of what I still needed to learn. The fast pace of the group work in the classroom did not work well for me.

My husband seemed to be coping well with the course, whereas I started to feel that I was overwhelmed and at sea - truly "immersed". I found myself seeking out approaches to language learning that I had used in my school French: lists and rules, declined verbs, explanations of tenses and grammar etc. I reminded myself that I like to see patterns and linkages in my learning, and that I need to successfully master basics, before I move on to new learning. I tried to master some basics using resources such as books, web materials, and other language learning packages I had found and borrowed from friends. Meanwhile, my husband was progressing to reading Italian newspapers and browsing Italian dictionaries for new vocabulary. He started sending me texts written in Italian.....I started to panic and really felt like giving up.

I spoke to my sister who had learned Portuguese by simply moving to Portugal with her husband and very new baby, and just getting on with it. She was supportive and encouraging to me...

When we actually went to Italy, I found that although I was reticent to speak I was more ambitious in my decoding of menus, posters, radio and television commentaries, and overheard conversations.....Several people we encountered on holiday: waiters, a café owner, people in shops, were remarkably warm to us, and seemed interested in our attempts to use our Italian (more my husband's than mine of course). I started to feel that I might be able to slowly learn enough Italian to feel confident to converse. The "list"

challenge I had faced had morphed to the idea of more of a “map” to explore. I sent a couple of texts and instant messages home to family members, using a little Italian. I decided I might investigate Italian films this autumn.

There are lots of situations in life where, in order to learn something, we need to create a learning ecology that combines learning in a range of *contexts* both formally structured settings and informal unstructured settings. Sophie's narrative

illustrates this type of learning ecology very well. Her implicit distal goal was to develop herself as a person but her proximal goal was to develop her language skills so that she 'could be more at ease, more engaged and in tune with the culture when on holiday'. With her husband, a co-learner in the process, she embarked on a structured course with tuition which she perceived as the key affordance for her learning together with holidays in Italy. She utilised a multitude of *resources* (books, language software, menus, posters, radio, TV, films) and a range of *relationships and social interactions* including a teacher, fellow learners, family members and people she encountered on holiday. The story also reveals how she felt about the process of learning - the emotional roller coaster that both inhibits and motivates us during such processes and her need for encouragement and support to offset the feelings of incompetency. In engaging in this process Sophie realised something that was profoundly important to her professional role as a teacher and contributed to her distal goal of developing her professional self.



I have been vividly reminded that my own learning ecology crucially includes other people, as sources of encouragement and inspiration. I guess this is also probably true for my approach to most life

challenges. I have re-learned something immensely valuable for me as a teacher and mentor about the emotional environment in which learning occurs, an environment which extends far beyond a formal and managed learning situation and any support for learning that might be designed into it.

This story illustrates that by changing the context for her learning - holidaying in Italy, she created entirely new opportunities for learning. In this context she started to gain the confidence to practice what she had learnt. Her *learning trajectory*, though slow, is revealed in her attempts to interpret what she read, saw and heard and her willingness to text in Italian.

## 6 Learning to be an archaeologist

Turning to the higher education environment what can we learn about the way students create their ecologies for learning from their narratives? In this account Michael, an archaeology graduate, tries to make sense of his experience using the idea of a learning ecology.

[In going to university] my core aim was to develop my understanding of archaeology to the highest possible level I could achieve. I wanted to become an archaeologist and that ambition caused me to get involved in many things outside my course that I thought would help me become an archaeologist.

The most obvious process and set of relationships I engaged with to learn and understand archaeology was the timetabled and structured university course. This involved the reading of set course material much of it accessed through on-line journals and participation in lectures. This structure that was designed and taught by my teachers allowed me to follow a very clear process of learning, helping me to fully understand what information I had to know within the course. My degree course formed the backbone to my learning about archaeology. It provided me with contacts with people who were also interested in my subject and enabled me to develop a mind-set that encouraged me to engage with archaeology in many different ways.

The one experience in my course where I feel I had to create my own learning process was my final year dissertation which required me to create a learning project around something I found interesting and challenging. I had taken a module in my second year which involved a technique called ZooMS for analysing collagen in animal bones to identify animal genus. The academic responsible for developing the technique wanted someone to try the technique on erasure rubbings from bones. I thought this was interesting so I wrote my proposal and created a process that involved me sourcing samples, experimenting using different rubbing and collagen extraction techniques, analysing the collagen using a Mass Spectrometer, then processing the data and writing up the results. Although the process for achieving my goal was not particularly smooth it was one that I had largely created based on my past experiences of academic research gained throughout my three years at university. A lot of different people helped me including my supervisor, laboratory technician, two of my peers who were involved in similar work, a museum curator, and a PhD student within the department. I drew on a range of resources and facilities including collections of ancient animal bones, specialist laboratory, processing software, and articles. The research process was not straightforward and I was forced to modify my process as I realised that certain methods did not give me the results I was hoping for.

Some of the best opportunities for me to learn how to be an archaeologist lay outside my degree course. For example, in my second year I joined a group of students that acted as an editorial team for a monthly archaeology journal called The Posthole, which published articles by archaeology students. I acted as a coordinator and also tried to attract writers. Working within this team was an important learning curve, ensuring that the team operated together smoothly to achieve a goal while bringing together the priorities of different individuals within the team.

Being an archaeologist involves 'digging' to expose artefacts through which we can interpret the past. Unfortunately, my course only provided a four week introductory fieldwork course so I joined a number of 'digs', six in total run by two different PhD students, a member of the academic staff, a commercial company, and an

external public organisation. Overall I probably spent over three months on excavations which gave me valuable insights into how to organise and conduct a dig, how to conduct various types of surveys, how to prepare, identify and display artefacts and beyond this how to work as a member of a team. The commercial digs I undertook introduced me to the world of commercial archaeology and the different approaches and mindsets that are used in the commercial world.

One of these projects had a particular significance for me. Homeless Heritage was started in 2009 by a PhD student at the University of Bristol. It is dedicated to working with homeless communities in order to understand and value the spaces used by such communities using archaeological methods. But it is more than archaeologists just applying archaeological techniques to the study of spaces that a particular group of people use: it involves working *with* homeless people in order to understand the relevance of what is found. In this way I was able to form friendships with people I would never have come into contact with in my student life. I began to appreciate the problems of homeless people and to see the world through their eyes. The experience enabled me to understand the value of contemporary archaeology, but I also began to see a new relevance of what I was doing, through it I became interested in the ways archaeology can be used to engage communities. The excavation was only the first stage of our project, the next stage involved telling people what we had learnt. After carefully cleaning, describing and cataloguing the artifacts we had discovered we organised a week-long exhibition, in which everyone was able to get involved and introduce the project to a wider audience.

Through the Homeless Heritage project I developed an interest in using archaeology as a means of involving people in a community project and I made this the subject of a seminar I had to give at the end of my course. In my final year I began to imagine myself working in the field of 'community archaeology' and I discovered that the Council for British Archaeology (CBA) offered a number of Community Archaeology Training Placements. I decided that I would apply for one of these and to give myself a better chance of securing this position I volunteered to help the local organiser of the Young

Archaeologists Club (YAC) and was able to assist her with the running of a number of Saturday trips for school children which I really enjoyed. Unfortunately, because of illness, I was not being able apply for the Community Archaeology Training Placements but the experience provided me with a useful insight into archaeology as a possible career, outside the more traditional roles of archaeologists.

Throughout the three years of my course I was fortunate enough to attend a number of conferences organised by the Theoretical Archaeology Group. I had to pay for these and they were outside the academic term. I thoroughly enjoyed the experience and it was a great opportunity to be exposed to people working in the field who presented the results of their research. This experience gave me the idea that we could perhaps run a conference for archaeology students nationally . With two other students I spent a significant part of my final year organising and marketing the two day conference which we held in July 2013. It was a great success with over 60 participants. Throughout the months of organising the conference a whole range of problems and issues were raised from working out the live streaming of the conference through to booking rooms and organising payments. Each of these challenges required us as a team to find contacts and resources that would help us to overcome each challenge allowing us to fully develop the conference into the successful project it was.

Looking back over my higher education experience I can now see that my course provided me with the basic knowledge I needed but that my attempts to learn archaeology and become an archaeologist involved much more than turning up for lectures and studying the reading list. I believe that the choices I made in getting involved in these wider experiences personalised my experience and the learning I gained from it. Most of these experiences were connected not so much to my course but to the bigger context of being amongst, and putting myself amongst, like-minded people interested in archaeology. The relationships I formed with some members of staff and doctoral students in particular opened new opportunities for me and enabled me to find the help I needed when I needed it. Since finishing my course, circumstances have meant that I probably will not pursue archaeology, other than for my own

interest, but what I will carry with me is the belief that there are always opportunities to learn and develop if you look for them and if you are willing to get involved.

Michael's narrative demonstrates how the idea of learning ecologies can be applied to undergraduate higher education. It shows that the process of learning, being and becoming is not simply confined to the structure, content and assessment of a course. Rather we see how his intrinsic motivations, his desire to become the sort of archaeologist he wanted to be, form the central purpose around which he creates his personal learning ecology not only to gain a good degree but to develop himself beyond what his course could provide.

Michael had a clear distal goal - to learn archaeology and become the best archaeologist he could be and gain a good degree. That goal sustained his motivation over the three years he was studying for his degree but it was the particular projects he embarked on that gave him his proximal goals through which he created his own understandings of what it meant to be an archaeologist.

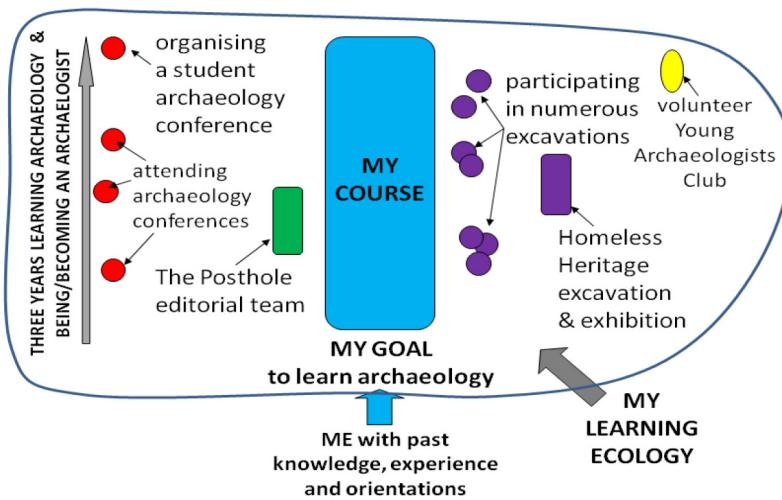
Michael's story shows how he found *affordance* to be and become an archaeologist in many different contexts many of which grew from the immediate circumstances of his life but some of which he searched for and found beyond his everyday living. His story reveals an unfolding and sustained process to access and utilise these affordances. Figure 3.2 was constructed with his help. It attempts to capture the main features of his ecology for learning.



Within the boundaries defined by the three years of his course and the significant things he did that relate to his being and becoming an archaeologist, we see a multitude of *processes*, each with their own purpose and proximal goals, connected by his overarching goal, a

multitude of *relationships* involving people associated with the course and the university, and some people in the world outside the university, including people he met at conferences and on digs. He also experienced a multitude of *contexts* within which learning, development and achievement were accomplished. Through these different contexts he accessed and utilised an enormous range of *resources* eg codified and experiential knowledge and archaeological artefacts and tools such as specialist equipment.

**Figure 3.2** Michael's learning ecology to become the archaeologist he wanted to be



We see his learning ecology being used not just to learn about archaeology, or even to be an archaeologist, but to become a certain type of archaeologist and beyond this we see Michael discovering that what he really enjoys doing is working with people. The narrative reveals how he discovered the particular aspects of being an archaeologist that he enjoyed and valued, and in that process how he found a possible way of

continuing the ways of being that he valued through employment after university.

Michael's *learning trajectory* is complex. One perspective would be that he went to university knowing next to nothing about archaeology and he graduated with a first class honours degree. But other perspectives might be offered by his performances and achievements in the digs he participated in and the exhibition he organised, in his editorial work for the student-led archaeology magazine, or his leadership and organisation of a national conference for archaeology students. While Michael's course clearly provided the 'backbone' to his '*learning about*' archaeology it was the other experiences that he engaged with outside the course and in some cases outside the university environment, that enabled him to appreciate and learn what '*being an archaeologist*' meant to him.

## 7 Learning to be a radio news reader

Students use their time at university to explore possible careers in fields that are not related to their academic studies. They effectively build an ecology in order to gain experience and learn about a field they know little about. This story is told by Natasha who was in the second year of a politics degree when she realised that she had an interest in and a talent for radio broadcasting. She developed an ecology to explore whether radio might provide her with the basis for a career.

During the Easter vacation of my first year at university I got involved in the production of a play. It was through the play that I was first introduced to the university's radio station as a couple of us who were involved were given the opportunity to advertise the play on a news show. I enjoyed my role as guest on the radio show and after the show I talked to my friend about how I might get more involved and she recommended that I guest on her chat show, where students talked about topics that were of interest to them. In this way one opportunity led to another and opened up an entirely new interest for me.

I enjoyed the experience of live radio so much that when I returned home for the summer break I decided to look for a job in local

radio. I called up lots of radio stations but no one was able to offer me any work experience. At this point my perseverance was tested as I could see no improvement therefore I lost motivation and thought about giving up..... Then my father spotted an advert for someone with media interests and skills for a local radio station. I ended up applying for a job at Susy Radio as a 'social media executive'. However, when I arrived for my interview I was informed that the role had already been filled. But I seemed to get on well with the presenter who interviewed me and when I told her about my work on the university newspaper and my interest in politics she told me that there was an opening within the news team as a news broadcaster. I bit her hand off! After a week of training, which was mainly observing how it was done, I took over as a news reporter, preparing a four minute bulletin and reading it on air at 6pm and 7pm.

Working as a news reader has been a very steep learning curve. I observed news being read one day and the next I was reading it! I feel that one of my greatest assets in this field is my voice which because of past experience and coaching gained through drama and Lambda I can control and I am able to modulate, which makes it more interesting for the listener. Written communication has also been very important to the role. I had to write a script that is short, gets straight to the point and is factually correct.

Also through working at Susy I met Geoff the radio station Director. Geoff has helped me improve in many aspects of my performance on the radio, he has offered me advice and helped me to analyse my own performance, helping me spot where I have done well and where there is room for improvement. From a practical point of view, having this experience in radio has greatly improved my employability as I have effectively started training for radio work through this job.

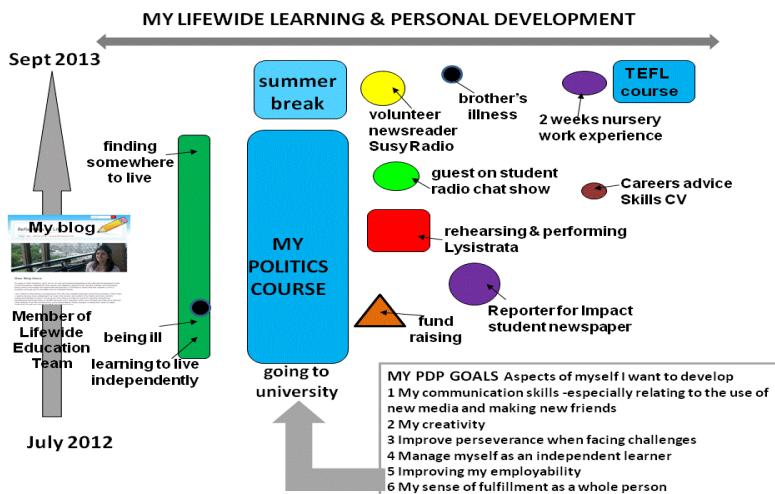
In this narrative we can see Natasha realising that she had affordance in her life to become a radio presenter. She is motivated by a number of distal goals, one of which was to develop herself so that she was employable when she graduated, so like many students she is conscious that she needs to use all the opportunities available to her. The

opportunity to get involved in live radio (*context*) emerged unexpectedly through being involved in a theatre production. She took the opportunity to be involved and found she had a natural aptitude and enjoyed the experience. She then went searching for other

opportunities (local radio). The *relationships* she developed enabled her to gain the experience she wanted and also helped her develop the necessary skills for the role of news reader tapping into the *resources* - technical tools, information and the knowledge of the experienced broadcaster who became her mentor. Her *learning trajectory* was demonstrated through her live radio broadcasts which she had recorded and which sounded very professional.



**Figure 3.3** Natasha's ecology for learning during 15 months while she was studying for her politics degree.



## 7 Exploring the unknown

We use our learning ecologies not only to explore our ability to cope with uncertainty but to challenge ourselves, test the skills we have developed and push ourselves to develop our capabilities further. For some students, physical activities like sport and outdoor pursuits provide an important context for skill development and the building of character. In this example Richard and Colin, two third year undergraduate students, describe the process of planning and then successfully participating in a kayaking expedition to Ethiopia to explore rivers that had not been kayaked before.

*Richard:* We originally intended to go to Pakistan, the northern area around Gilgit.....The only difficulty was that it was in Pakistan and Pakistan isn't very stable as a country....three weeks before we were due to go ten foreign trekkers were murdered by the Taliban in the area we were going to.... We decided it wouldn't be safe or sensible for us to go to Pakistan. So with three weeks to go we had to decide on another location for our expedition. We did in fact have a plan B. One of the team members (Peter) had proposed southern Ethiopia at the selection weekend....He had already done some ground work for an expedition to Ethiopia so we decided to go for that. He knew a lot about the rivers in Ethiopia but he didn't have contacts in the area we were going to, but he did have a contact in the rafting industry in Kenya who put him in touch with people in Ethiopia [which has been a great help]. One of the most difficult things has been trying to find a driver, a vehicle and a guide for when we are out there. We have tried to find contacts and people who can help us in a variety of ways. Some of it has been through internet searches and finding people who have kayaked in Ethiopia before and then trying to use their contacts. At a personal level my little sister is adopted from Ethiopia and when my mum was out there for just over a month she made connections in Addis, so I contacted these people and we're going to stay with them at their guest house initially and they said they would help put us in contact with a driver. ....We've got maps for the rivers but we will need a bit of a fixer. None of us speak Amharic, unfortunately, so we need someone who can fix things for us if we get stuck and if we're in trouble we need somebody who can talk to local people and if we're desperate we need to sort out food or water.

In this narrative we see a small group of people with similar distal goals of wanting to become great in their sport, and who were looking for adventure, coming together in the *context* of organising an expedition to a remote part of the world and pooling their *relationships and resources*



to work out how to accomplish their goal. Each member of the team has his/her own ecology but they are woven together in a *co-created process* to achieve their collective goal. We see them identifying a number of logistical problems and the ways in which they were trying to solve them under the pressure of a severe time constraint. We also see that they recognise that when they get to Ethiopia they will enter an entirely new and unfamiliar *context* and need to gain access to particular *resources* and develop a whole new set of *relationships* in order to complete the challenge they have set themselves. It is a continuous *process of* knowledge building and most of that knowledge will emerge through their experiences (process) and the relationships they make. Colin, another member of the team, continues the story of the expedition.

*Colin:* So the team were in high spirits after completing the first descent of a river called the Kola, first paddling a class three section followed by a lovely 10km bridge to bridge section of continuous class 3/4 and after some permit banter we decided to make a more ambitious plan... Our plan was to:

- 1 Wake up to find a lovely sunny day.
- 2 Drive to the Gidabo, a very promising river dropping an average of 20m/km for 25km through a big gorge, to find a perfect medium water level.
- 3 Paddle a 20km first descent gorge section of awesome class 4/5 whitewater.

4 Float leisurely down about 5km of flatwater meandering through vegetation to meet our driver and guide at the takeout in time for tea.

It was a lovely plan but it didn't happen like this. What actually happened was we were woken by thunderous tropical rain throughout the night, and crawled out of bed in the morning to find a day on the damper side of sunny. We drove to the river to find a promisingly not flood stage water level. Deciding it was good to go we jumped on and

paddled 15km of awesome class 4/5 white water. Ear to ear grins were the order of the day as we proceeded smoothly and swiftly down what we all decided was some of the best paddling of its style we had ever done. The gorge was spectacular with untamed jungle and impressive cliffs towering above us. ....With beautiful black and white Colobus monkeys leaping overhead and only one straightforward portage round a scary 25ft waterfall our plan was developing well, the rapids were easing and we felt we must be getting close to the flat water at the end of the river.



....The Google map terrain showed an ominous close packing of contour lines just before the flat section, whereas our Russian topographic maps from the 70's showed no indication of this. We had decided the Russians were right. [But] instead of petering out to flat water .....the river started picking up some significant gradient again. We found ourselves picking our way through some great class 4/4+ rapids characterised by huge boulders (and enough siphons to force

concentration). Soon we found ourselves on the lip of a giant class 5+ boulder-jumble rapid and late in the day this was a clear portage for the team..... the gorge walls were [near vertical] and exactly how to portage was a lot less clear. Richard and Josh opted to gain a scary eddy above the lip of this beast and check whether access was possible along the left bank. Luckily it was and after one by one safely making the eddy some classic expedition jungle portaging ensued. A peek over the next horizon reluctantly concluded that the score was Google 1 : 0 Russia.

A few hours, lots of portaging, three swims (under trees and rocks), one paddle and some scary kayaking later we were running out of day in which to paddle. The *plan* was starting to go awry. We decided with limited daylight left and no sign of the borderline unrunnable whitewater relenting we had to call it a day and spend a night in the gorge. We found a decent footpath leading out of the gorge and pitched camp halfway up, with a troop of baboons surveying us from the opposite cliff face. Dinner was 375g of noodles and a tin of tuna shared between five of us and breakfast was a multipack snickers bar chopped into five pieces. Between these much enjoyed luxuries a bitterly cold night was endured, albeit in a stunning location.

Here we witness a small group of people working as a team (*collaborative relationships*) putting themselves into a totally unfamiliar and physically demanding *context* and relying on their *own resources and capability* as well as google and existing maps. Their passions and ambitions motivated them and they took calculated risks in order to challenge themselves and their own capabilities as expert kayakers. Their *process* for discovery was simply to engage with the river and try to read its behaviour according to their past experiences of kayaking. Through this process they discovered new knowledge about the river they were exploring: knowledge that could later be shared with other interested kayakers. The narrative also reveals that although we might make plans based on what we think might happen, the reality of the situation may be very different and we have to be prepared to improvise and adapt to the actual situations we encounter drawing on all of our past experience and capability. There is a strong element of learning from experience, much of

it improvised in *their learning trajectory*. They had tackled and been successful with a challenge that had not been attempted before and developed their skills in the process.

## 8 Performing and recording a piano recital

There are many situations, particularly in the professional environment, where people work together in close collaboration to achieve a goal and in the process co-create an ecology through which they learn how to achieve their goal. In this narrative a concert pianist (Crapoulet 2008) describes how she worked with other university students to make a high quality classical recording of Chopin's 4<sup>th</sup> Ballade (for solo piano) to include in their respective professional portfolios to demonstrate their technical and professional skills.

The [recording] project was a true journey of discovery: it was a challenging undertaking that necessitated total engagement and concentration and the use of many skills - musical, technical, technological, creative and relational. It involved good preparation, good [technical] skills and an open enquiring mind.... We were plunged into a world in itself, with its own time-scale, its own space, and a complex problem to solve, which prompted us to respond with enthusiasm and dedication, revealing a rewarding and inspiring process of investigation, enquiry and revelation....

This project involved students from all years and backgrounds, thus cutting across the usual disciplinary boundaries. [The main people involved were] the pianist (myself) a PhD student (music) , Tonmeister, final year BMus student and a producer, MMus Production Module student. Others involved included an assistant to the Tonmeister (first-year BMus Tonmeister), observers (other MMus Production Module students) and a lecturer who was their for advice but who did not directly participate in the recording. Even though we each had specific technical knowledge and an individual role to play in the process, we were also very much aware of each other, constantly interacting with one another and learning new skills. Overall, the atmosphere of the whole project was particularly exciting because we felt that we were doing something worthwhile and meaningful.

Our objective was to produce and edit a high quality classical recording of Chopin's 4<sup>th</sup> Ballade (for solo piano), one which combined a good sound quality and a good performance. A good recording should make the listeners feel that they are sitting in a concert hall hearing a live performance, but without those distractions and potential flaws which can sometimes mar the concert experience (background noises, performer's mistakes, etc.).

The context was particularly conducive to good team-work and collaboration. We were all, in some way or another, seeking to achieve the best possible result, primarily because the whole process was not a purely academic exercise, but it was intimately linked to the world of recording classical music outside Higher Education. Not only was the recording to become part of our portfolios of recordings (which we shall be using as demonstration CDs for many years to come), but it was also conducted within a professional recording studio. It was particularly motivating, for instance, to have access to some of the most up-to-date technology in use at the moment in the recording industry. We thus discovered together the ins and outs of SADiE, for instance, the editing software we used at the postproduction stage. The Tonmeister student was very much familiar with this software as it was used in the (mainly classical) Chandos CD company with which he did his placement year. He was therefore able to show us how the programme worked in great detail as well as give us insights into his experience of his placement year.

Such a complex project, involving so many different skills and people, necessarily put us to the test and challenged our creativity. From this experience, we learnt first hand which qualities are fundamental to any form of enquiry which takes place within such a close-knit immersive experience: how to work together as a team, how to listen to each others' opinions in order to discuss the issues constructively, how to sometimes allow for compromise and how to always have an open, positive and dynamic attitude.

In order to achieve "perfection", the end result of a studio recording is in fact a *collage* of the best 'takes' we made during the recording session. A studio recording could best be described as a musical

jigsaw puzzle - my performance is split up into sections during the recording session and then reassembled in step two, during the editing process. We aim to have at least two or three good 'takes' of each section from which we can choose when editing the piece.

Playing to a forest of microphones is not like playing to a live audience. In a recording studio, the musician relies exclusively on the producer and the sound engineer to achieve the best possible result. In order to be good, a classical recording must not only be note-perfect, it must also sound spontaneous and natural - something which is particularly difficult to achieve in what are often clinical studio conditions. At this stage, the producer's role is very important as [they have] the responsibility for noting down on the score all the errors and potential retakes. Throughout the session, the Tonmeister also keeps a detailed record of all the takes we make (take numbers, bar numbers, sections played, quality of take, timing, etc.) so as to be able to locate them as fast as possible in the final editing phase of the project. In this way, at the editing stage, we will not have to listen through the whole 4 or 5 hours of recording in order to find the one we want each time. The producer and the Tonmeister's work at this point is crucial from my point of view, as I cannot remember all the mistakes I have made, nor can I judge certain aspects of phrasing, dynamics or tempo. It is indeed very important to keep the same tempi and dynamics throughout, in particular in multiple "takes", so that any potential cuts will not jar. It is not only my role but also the producer's role to judge whether my interpretation remains consistent throughout the session. The producer has to focus on listening to both the micro-level (specific mistakes which may require retakes) and the macro-level (the coherence of the takes in relation to each other).

The whole recording session is extremely tiring because I have to maintain my concentration and physical energy as well as the sense of spontaneity and freshness in my playing for the whole duration of the recording session. It is also a very exciting process as we try to solve problems of dynamics (the effects on tape are often achieved differently from those of a live performance, so I have to change my interpretation accordingly), discrepancies in tempo, technical difficulties, etc. within a short time-scale. We discuss various ways of interpreting passages and most importantly, the producer and the

Tonmeister also support and encourage me when I get frustrated with certain passages which I sometimes cannot get “right” even after a dozen takes. Even in a sound-proofed recording studio, sometimes, a creaking piano stool, somebody banging a door outside or the ceiling cracking in a soft passage can spoil an otherwise perfect take, to our great dismay.

Once satisfied with all the takes, the producer, Tonmeister and myself will meet again in order to start the editing. The producer will prepare an editing plan which he works out from his notes. The idea is to have the fewest possible cuts in order to maintain continuity in the flow of the music. The tonmeister will use the producer’s editing plan to make a “first” edit. The three of us will then listen to this first edit in one of the listening rooms, marking down on the score any spots which need re-editing. Very often, the first edit is a very rough cut and the editing will take several days to complete as we listen painstakingly to each and every note. The whole recording appears on the screen as a complex network of sound waves, which enables the Tonmeister to pinpoint the very start of each note with extreme precision. Sometimes it is very difficult to paste in certain sections where no silence occurs in the music and the Tonmeister will work on blending two takes together in order to smooth over the cut.

I have never had a more stimulating and rewarding time. If I were asked to briefly summarize what made this experience so valuable, I would emphasize the quality of the teamwork and the sheer excitement of having to deal constructively and creatively with the many problems and new challenges we faced at each and every stage of the project. All three of us - the Tonmeister, the producer and myself, the pianist -worked in such close collaboration throughout and with such utter dedication to the task that we were able to produce a recording of Chopin’s 4<sup>th</sup> Ballade whose quality we felt surpassed many commercial classical CDs. On the way, I also discovered many other things: the project involved not only sitting down at the piano and playing a piece of music, but also, in this case, listening to others’ directives and opinions, deciding as a team how to proceed, and working out potential difficulties. To be allowed to try out our own ideas and proceed at times by trial and error was far more effective than to be simply told what to do. This was particularly valuable as in a

non-academic or professional situation, we would not expect to be told how to solve the problems which we would be facing. [Rather] it involved making judicious decisions at every step throughout the process, working hand in hand and collaborating closely together at each stage of the project and always keeping an open enquiring mind as to the best ways to proceed and obtain the best result.

This narrative captures something of the intensity, energy and spirit of close collaborative working (*relationships*) under pressure and in an environment akin to a commercial recording situation. The *affordance* for professional development and achievement for all those who were involved, lay in the experience of musical performance and real-time recording of the performance in an environment that had been constructed for this purpose (*space*). It provides an excellent example of a group of highly skilled people working together to achieve a complex goal, striving for excellence in their achievement and learning and developing in the process. It reveals the complex interaction between people working together, with their specialist tools in a highly specialised environment (*relationships between people, tools and environment*) which provided the physical *context* for their collaborative learning ecology.



Complex performances and achievements, such as the one described cannot be accomplished by a single individual and the involvement of a group of people working as a team and their *relationships* was core to the success of the project. Each participant contributed their talents and capabilities gained from past experiences, and together they created an inquiry-rich problem solving *process* which not only tested their own

capability in performance but also provided an experience that was rich in opportunity and potential for their own learning and professional development. The process was authentic in the sense of mirroring the commercial world of recording with access high quality *resources* - instruments, recording equipment and software that were all necessary for the performing and recording task. Their *proximal goal* - to create a recording of the highest technical and artistic quality was set within more *distal goals* concerned with both gaining the best marks for this aspect of their course and building a portfolio that would enable the students to gain employment in their chosen professional fields. Their *learning trajectory* is evidenced in the recording which was the tangible outcome from the learning ecology. The narrative also reflects the high degree of self-awareness of the narrator who was also the musical performer in the ecology.

While performance is embedded in a learning ecology (including the performance of creating the ecology) in this case the ecology is geared to achieving excellence in performance by the musician and the excellent recording of the performance by the technicians supporting her.

Performance is one of the most difficult things to capture in a reflective narrative but this performer manages to convey a sense of her thoughts and feeling about the experience very well. She reveals something about her imaginings and planning for the moment of the performance, and her knowledge of the work, how she felt as she was waiting to perform and of her act of performing as she strives for musical perfection. Such heightened self-awareness is a necessary part of the ecology of a performer and it enables her to convey what it is like to be immersed in your own ecology for achieving something you value and, through the reflective process, create deep meanings from the experience.

I sit motionless at the piano, my hands lying on my lap, my head bowed in intense and quiet concentration. I am about to perform one of my favourite pieces, a Ballade by Frederic Chopin. His fourth and last. Different from the others. Pervaded by mournful gypsy tunes reminiscent of Chopin's Polish roots, this work has always had an

elusive, strange and mysterious quality. I remember walking alone in the hills, preparing this moment, playing the music in my head, over and over again, asking myself “what, why, how?”, and linking tones with tones, phrases with phrases, chords with chords, trying to make sense of the music. As I searched for a meaning, a new world appeared, a world of abstract patterns and colours, relations and structures, a world which I would soon be bringing to life and communicating to my audience... A click. The black speaker in the corner of the studio suddenly comes to life, its little red light flashing urgently in the muted light, breaking the stillness. I look up towards the control room, vaguely seeing human shapes in the penumbra, separated from me by a thick tinted glass window. They wave and smile. I nod and wave back. ‘All set, ready to go, take 1’. The disembodied voice of the producer breaks through the air. With another click, the sound engineer flips the microphone switch off. Again, I am alone.

A wave of silence washes over me. But it is not silent. Small sounds which would have otherwise gone unnoticed are suddenly magnified out of all proportion. The aeration vents are gently breathing in and out and the fluorescent lights are softly buzzing. The room feels alive, like some sleeping beast which will soon awaken to the sound and fury of Chopin’s Ballade. I am not only to play the music. For a moment, I am to forget myself and be the music, and so doing draw my audience into the music so that they too forget themselves and become the music. But today, my audience is a forest of grey and black microphones. These are particularly difficult ears to please. Blind, unresponsive, unforgiving, silent, cold and calculating, they will remember and record every detail of my performance, the good moments, but also, the bad. It is difficult not to become self-conscious of one’s technical limitations, to focus on the bad rather than the good. It is difficult not to give up in despair when two minutes into the music, something goes wrong and the whole section needs to be played again, and again, until every note has its correct place in the flow of the music. Every flaw, however minute, needs to be rectified until the piece is “perfect”.

But what is perfection in performance? In a concert situation, many variables affect one’s interpretation. The piano itself, sometimes

bright, sometimes muted, its action heavy or light, greatly influences the way one plays a piece. The acoustics of the room - from a reverberant church to a dry, deadened hall - will affect its sound world. The audience, quiet or noisy, sullen or enthusiastic will change the whole atmosphere of the concert hall. Tempo, voicing, balance, phrasing or dynamic progressions are thus governed by such external variables, by a constant adjusting and readjusting of the interpretation to suit the moment, thus creating a two way communication between the artist and the audience. That is why each and every live performance is never perfect as such because it is always different, but also always new and exciting, spontaneous and alive.

How different is the experience of the recording studio. Playing on one of the most beautifully toned and desirable pianos in the world, in one of the most carefully gauged acoustics in the world, without the distractions that even the most well behaved audience will provoke, my interpretation is stripped down to its most essential expression. Pencil poised above the score, the producer is waiting patiently, straining to hear the first notes of the piece, wishing me to play my best, ready to inspire me to new heights by taking on the role of an entire audience, responsive, enthusiastic and trustworthy. My lifeline.

The Tonmeister sits at the control panel, keeping an eye on the little screens, hands hovering over the buttons, ready to adjust volume and balance. He has already spent hours perfecting the sound, moving microphones here and there, until the recorded piano sounds as lifelike and natural as the piano itself. I reflect that they too are in a parallel world - a small box of a room dominated by two giant loudspeakers. Connected together by a thin network of wires, we are never so close as in those instants of silence before I play, when I can sense them holding their breaths, willing me to outdo myself. Lifting my hands to the keyboard, I close my eyes and feel the space around me receding, the walls of the studio falling away. The first three bell-like notes of the opening of the ballade seem to softly probe the surrounding air, an emerging melody as mellifluous and enticing as the call of a siren to lost sailors. Gradually, more voices are heard and the calm opening section gives way to an ever increasing crescendo of colours, textures and speed. Like fireworks, crisscrossing waves of sound build webs of lightning filaments, the chains of atoms dancing

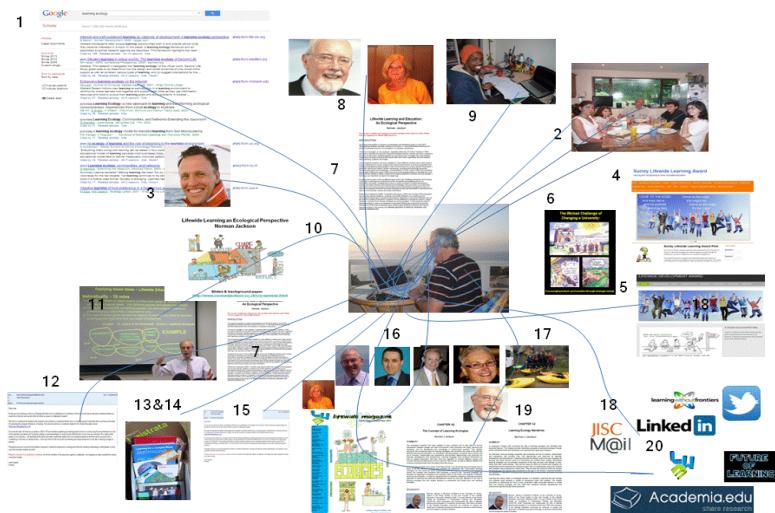
hand in hand to the sound of music. Sound is colour. Sound is texture. Sound is pattern. A revelation. I can see it, I can feel it, I can create it. Swaying slightly on the piano stool, I set my whole mind and body on building a living, ever changing architecture of sound from Chopin's masterpiece.

As the last notes of the piece die away, I feel the room heave a sigh, as if exhausted by such an onslaught of sound. The Tonmeister and producer are smiling and laughing, happy at the result. I too am elated, if slightly dazed by the intensity of the performance. Even so, for the next three hours, we painstakingly go through the piece line by line, page by page, over and over again as I try to recapture the spontaneity of the first take and improve each section so that the producer's final jigsaw of assembled takes will be as spontaneous, seamless and flowing as that first performance, so that it will be perfect not only in letter but in spirit. At the end of this experience, it seems to me that, together, we have transcended the emptiness and inhumanity of the recording studio, that I have been playing not to a blank wall of microphones but to a universal audience, the music thus reaching out far beyond the walls of the concert hall. Finally, we close the lid of the piano, disconnect the microphones and switch off the lights, locking the doors behind us.

## Mapping a Learning Ecology

Awareness of our own learning ecologies enables us to document the ecological process in more detail by creating a map of the process. When I first started thinking about learning ecologies I decided to map my process for learning. Figure 3.4 shows the first ecology I created to learn about learning ecologies. It conveys some of the dynamics of the process using pictures to represent people, relationships, activities, resources that were produced and tools and technologies that were used. Tie lines convey a sense of connectivity and numbers a sense of the sequencing of activity. Table 3.1 lists the sequence of activities I engaged in within my learning ecology.

**Figure 3.4** My first ecology for learning about learning ecologies March–September 2013



**Table 3.1** My learning ecology as an unfolding process

- I began by using google/google scholar to search for articles that might be relevant. This process of searching for and reading articles and then following up further sources of information contained in article reference lists, and codifying what I have learnt in text and images continues throughout the process. Searching for relevant information is a never ending process.
- Early in the process I had a number of conversations with my family especially my wife who is a medical doctor(GP) and my youngest daughter who is at school, about various learning projects they had been involved in. Later I gained deep insights into how the idea of

learning ecologies might be applied to undergraduate university experiences through my two children who were at university.

- 3 I found a good example of a learning ecology in a blog and contacted the person by email him to see if we could use his article in the Lifewide Magazine. He readily agreed.
- 4-6 I drew on examples of learning ecologies described by students undertaking the Surrey Lifewide Award and the Lifewide Development Award and also on interviews I had conducted for a research project into strategic change in a university which provided narratives of how teachers accomplished an innovation.
- 7-8 I combined what I had discovered from published accounts and what I had gleaned in the way of narratives of complex learning and development to produce an essay which I shared initially with two members of the Lifewide Education core team - trusted peers whose opinions I value. One of my peers provided me with feedback which caused me to think more deeply and refine some of the ideas I was offering and produce a second - significantly different essay.
- 9 I commissioned an artist to help me illustrate ideas about learning ecologies for a presentation (also with one eye on the future issue of Lifewide Magazine) and the conversations we had were helpful in representing and communicating ideas about learning ecologies.
- 10-12 I created a PowerPoint presentation for the first seminar and designed an interactive workshop. This involved people creating a narrative about a learning project they had orchestrated, then, as a group, reflecting on the narratives to identify features that were consistent with an ecological perspective. In spite of the limited time it proved to be a useful and enlightening exercise. After the workshop I invited participants by email to continue sharing their ideas in a collaborative project - only one person did she made a valuable contribution to my understanding.

13-14 I co-facilitated a second workshop at a university's staff development day. My co-facilitators designed the workshop around the idea of a shoebox containing personally meaningful artefacts around which participants created narratives of their learning and development. I decided to create my own shoebox. Choosing my bedroom as one of my lived in everyday spaces I placed a dozen objects in a shoebox that held particular significance for me around which I could create a narrative of experience, learning and developing. After the workshop I contacted participants in by email inviting them to prepare a personal learning narrative to help us gain deeper understandings of the idea of learning ecologies and a number replied positively. I also invited a small number of people who had not been involved in the workshops some of whom provided an account of a learning ecology.

15-17 I contacted a number of people and invited them to contribute their perspectives on learning ecologies for an issue of Lifewide Magazine. I interviewed a nephew who provided another useful account for the Magazine about an expedition he was planning and this led me to a live blog which described what was happening as the expedition was in progress.

18 I posted invitations to contribute personal narratives in three groups on Linked-In but nothing came from this process.

19 I sought feedback on drafts of my attempts to summarise my understandings and develop new conceptual tools. The feedback I gained was used to refine the way I presented my ideas. I sent copies of my articles to everyone who has contributed and invited further thoughts.

20 In early September I disseminated what I had learnt through the Magazine and chapters in an e-book. I circulated notices via JISC

MAIL, Linked-In, Twitter, Academia and our own websites. I also sent the chapters to the university where I had run the learning ecology workshop as they were utilising the information in a bid they were writing for external funding but nothing came of this.

## Making sense of my experience

My process for learning began in March 2013 and unfolded over five months. It followed a pattern that is well known to me as I have used the approach for other learning projects. My *distal goal* was my ongoing commitment to supporting the Lifewide Education

enterprise, while my *proximal goals* were to explore the learning ecology idea and also produce a background paper and PowerPoint presentation for two workshops I was giving in June 2013 on the theme of learning ecologies. I also knew that what I learnt would feed into the September 2013 issue of Lifewide Education's Lifewide Magazine on the theme of learning ecologies and possibly a chapter for an e-book (now morphed into this book). So I had lots of incentives to motivate me to invest time and effort in this learning project.

Figure 3.4 shows I formed lots of *relationships* in my process. I reconnected with people I have worked with before and made new connections with people who I found and interacted with. I drew on extensive existing *resources* (information that was accessible to me via google) and created *new resources* (presentations, essays, workshop designs) through my process. I used *my capability* to find, synthesise and adapt information, create meaning for myself, and build relationships with people who could help me. My *learning and achievement trajectory* is manifest in the presentations and workshops I gave and the magazine and articles produced. The products (Magazine/e-book chapters) have



been distributed via the Lifewide Education websites, JISC email lists, Linked-In groups and Twitter.

In the two years since this initial exploration I have, periodically, created new learning ecologies usually around an event or the production of a thematic issue of Lifewide Magazine and these have gradually extended my understandings. They underpin my current learning ecology to produce this book (Figure 1.4).

I have catalogued the most important actions in *my learning process* to highlight the importance of process in a learning ecology which is driven by an overall interest in trying to gain more and deeper understanding, but also a desire to create tangible products that document these understandings in the hope that they will be of value to others. The process was not like following a pre-determined curriculum. It was, and still is, a process of inquiry, searching for and trying to make sense of *knowledge resources* that are accessible to me mainly through the internet and creating *tools* to help me think about the idea.

My process involved utilising existing *relationships* and developing new *relationships* which provided me with personal knowledge in the form of narratives of learning and achievement. Much of my process was and still is emergent ie there is a general goal but the precise route to that goal cannot be seen clearly at the start of the process. I have to trust that the process I create will take me in the direction I want to go. Because I have enacted such a process before I knew I had the *capability* to find and gain access to these resources and also the *capability* to use the resources in a productive way (*self-efficacy*).

Not everything worked out in the way I hoped it would and many of the invitations to contribute a personal narrative or provide feedback on ideas did not result in contributions. But I know from past experiences that where participation in a learning ecology is voluntary this is the normal pattern of response. But I was confident that enough people will see the value in what I am trying to do and their contributions will be sufficient to enable me to make progress in my task.

The process I have outlined is probably similar to what many people engage in, in knowledge working situations. In the next chapter I will

explore what happens in situations that are not normal - when people's lives are disrupted either by themselves or by circumstances beyond their control.

# CHAPTER 4

## Ecologies for Learning, Developing and Achieving Through Work

### Learning Through Work

In contrast to learning in structured educational environments, most workplace learning is informal and occurs as a by-product of engaging in work processes and activities (Eraut 2010)

Newcomers often have to learn “How we do things here” without being given any specific objectives or advice. Thus a learning goal might be described by a vague phrase like “being able to do what X does”. Even when more detailed advice is given, learning will still be evaluated by the extent to which you can do what X does, rather than by some indirect and less authentic type of assessment. You may be given sets of objectives or competencies, but the ‘real’ assessment will be whether your performance meets the expectations of significant others in your workplace.

Although the workplace appears to be primarily concerned with capability (what you do and how well you perform it), it is equally important to be able to do the right thing at the right time. In practice this means that you have to: (1) understand both the general context and the specific situation you are expected to deal with, (2) decide what needs to be done by yourself and possibly also by others, and (3) implement what you have decided, individually or as a group, through performing a series of actions. All three of these processes contribute to a person's perceived competency (Eraut 2010).

Improving/developing capability in the work environment can involve many things (Eraut 2010:2).

- Doing things faster

- Improving the quality of the process
- Improving communications around the task
- Becoming more independent and needing less supervision
- Combining tasks more effectively
- Quicker recognition of possible problems
- Expanding the range of situations in which one can perform competently
- Helping others learn to do the task or part of the task
- Increases in task difficulty/ taking on tasks of greater complexity
- Dealing with more difficult or more important cases, clients, customers, suppliers or colleagues
- Developing entirely new practice.

Some of these types of progress could be described as *doing things better*, some as *doing things differently* and some as *doing different things*. At the most inventive end of this spectrum is *trying to do things that have not been done before*: we call this innovation.

Progression often involves doing the same thing, or not quite the same thing, in more difficult conditions or across a wider range of cases. Although these types of progress seem fairly obvious, they are not necessarily conscious. People recognise that they have learned things through experience, but do not necessarily remember how or when. Often people simply realise that they are doing things that they could not have done a few weeks or months earlier.

**Learning is situated in the social practice and environment of work**

Learning in the professional work environment is 'situated' in a particular social-cultural setting in which particular people perform certain sorts of roles and engage in certain types of social interaction. As a result people are exposed to, and learn from and with each other, the cultural knowledge of the organisation/department/team, as well as the field specific knowledge required for practice and production. These different types of knowledge are learnt and incorporated into the personal knowledge of an individual. Eraut (2010, 2011) identifies different sorts of

knowledge that is used and developed in the professional work environment.

- *codified knowledge* necessary for the job in the form(s) in which the person uses it
- *know-how* in the form of *skills and practices*
- personal *understandings of people and situations*
- accumulated *memories of cases* and *episodic events*
- other aspects of personal *expertise, practical wisdom* and *tacit knowledge*
- *self-knowledge, attitudes, values* and *emotions*.

Work provides a context and a set of situations and circumstances within which things relating to work are learned and new capability to perform the job is developed.

Situated learning was first proposed by Lave and Wenger (1991) as a model of learning in a *community of practice* comprising people who share a craft and/or a profession such as a group of people performing similar roles in the same context. Situated learning is learning that takes place in the same context in which it is applied. Lave and Wenger (1991) argue that learning in a social setting like work is a social process whereby knowledge is co-constructed by the people who are directly involved in the work in the specific environment within which work takes place. From a situated cognition perspective, learning occurs in a social setting through dialogue with others in the community (Lave 1988). Learning emerges through a process of reflecting, interpreting and negotiating meaning among participants engaged in connected work practices.

Situated knowledge is obtained by the processes described by Lave (1997:21) as "way in" and "practice." Way in involves a period of observation in which a learner watches someone who is more expert and makes a first attempt at solving a problem. Practice is refining and perfecting the use of acquired knowledge in the same context (p. 21) and perhaps extending it to other contexts. Situated learning is not only

reflecting upon and drawing meaning from previous experiences but is immersion in and with the experience.

Situational understanding is 'a critical aspect of professional work, and probably the most difficult' (Eraut 2011). It tends to be taken for granted by all but newcomers in an organisation who often struggle to make sense of practice until they develop this understanding. Situational understanding is hard to develop because people who have it take it for granted and cannot imagine anyone else "not being aware of the obvious". Even more experienced members of an organisation may encounter this from time to time, for example if they take on a new role or move to a different part of the organisation or they embark on an innovation that involves them in interacting with parts of the organisation with which they are not familiar.

## Modes of learning in work settings

Longitudinal studies of prospective chartered accountants, qualified engineers and nurses learning in the workplace during the first three years after graduating revealed that most learning was not a separate activity but a by-product of their ongoing work; and most of these events involved working with other people (Eraut et al. 2005, Eraut, 2007). Eraut and his colleagues, developed a typology of learning modes (Table 4.1).

Three modes are distinguished. In the left column learning is judged to be part of a *working processes*, from which *learning* was a *by-product*, while those in the right column are clearly recognizable as *learning processes in their own right*, several involving more experienced colleagues and more formal structured learning processes. *The middle column* contains comparatively *short activities*, such as asking questions, observing or reflecting. These activities can occur many times in a single process, and were found within almost every type of process, often several at a time.

**Table 4.1** Modes of learning in work settings (Eraut and Hirsch 2007:25)

1 Work Processes with learning as a by-product	2 Learning Activities located within work or learning processes	3 Learning Processes at or near the workplace
Participation in group Processes - collaboration Working alongside others Consulting Tackling challenging tasks and roles Problem solving Trying things out Consolidating, extending /refining skills Working with clients	Asking questions Getting information Locating resource people Listening and observing Reflecting Learning from mistakes Giving and receiving feedback Using and creating mediating artefacts	Being supervised Being coached Being mentored Shadowing Visiting other sites Conferences Short courses Working for a qualification Independent study

### Learning trajectories

In the early stages of a career trainees in most professions undertake a series of placements, through which they are expected, with suitable support, to acquire the specified level of competence. However, the learning affordances of each placement vary considerably according to the local context, and these differences will affect what each trainee learns and ultimately, their profile of experience-based competence. The research undertaken by Eraut and his team indicates that a better way of monitoring progress across complex performances in the professional work environment is to think in terms of *learning trajectories* for describing or classifying what had been learned and the capability that had been developed (Eraut and Hirsch 2007 and Table 4.2).

**Table 4.2** Summary of learning trajectories organised into eight categories (Eraut and Hirsch 2007:16)

Learning trajectory	Details
<b>Task performance</b>	Speed and fluency; complexity of tasks and problems; range of skills required; communication with a wide range of people; collaborative work
<b>Awareness and understanding</b>	Other people: colleagues, customers, managers, etc Contexts and situations One's own organization Problems and risks Priorities and strategic issues Value issues
<b>Personal development</b>	Self evaluation; self-management; handling emotions; building and sustaining relationships; disposition to attend to other perspectives / to consult and work with others / to learn and improve one's practice; accessing relevant knowledge and expertise; ability to learn from experience
<b>Academic knowledge and skills</b>	Use of evidence and argument; accessing formal knowledge; research-based practice; theoretical thinking; knowing what you might need to know; using knowledge resources (human, paper, electronic); learning how to use relevant theory in a range of practical situations
<b>Role performance</b>	Prioritisation; range of responsibility; supporting other people's learning; leadership; accountability; supervisory role; delegation; handling ethical issues; coping with unexpected problems; crisis management; keeping up-to-date
<b>Teamwork</b>	Collaborative work; facilitating social relations; joint planning and problem solving; ability to engage in and promote mutual learning
<b>Decision making and problem solving</b>	When to seek expert help; dealing with complexity; group decision making; problem analysis; formulating and evaluating opinions; managing the process within an appropriate timescale; decision making under pressure
<b>Judgement</b>	Quality of performance, output and outcomes; priorities; value issues; levels of work

The concept of learning trajectories takes account of the fact that at any point in time:

- Explicit progress is being made on several of the trajectories
- Implicit progress can be inferred and later acknowledged on some other trajectories
- Progress on other trajectories is stalling or even regressing through lack of use or because new practices have not yet been adopted.

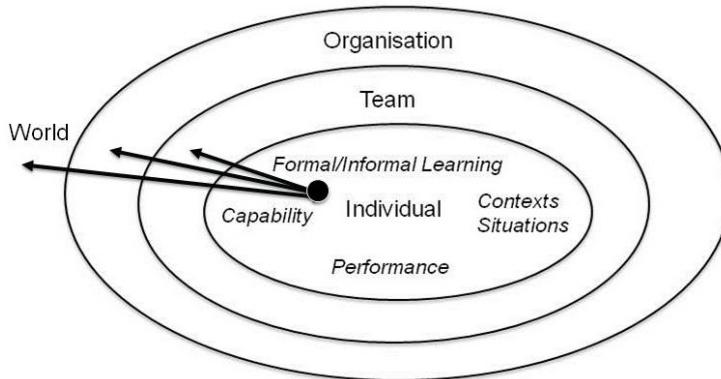
Any significant work project that a person participates in, will afford them opportunity to develop along a number of trajectories simultaneously but will reflect development in a specific set of contexts. Indeed, a complex work project (such as the two cases described later in this chapter) may involve development along all the trajectories over a relatively short period of time eg 6-12 months. The experience and knowledge gained may, or may not, be transferable to other contexts. What is transferable is the ability to learn in these sorts of circumstances. Anyone wanting to develop themselves across all categories of learning trajectory needs to be involved in the range of work projects that will enable them to do so. Prolonged engagement in work situations that are very similar will not enable a person to develop along a full repertoire of trajectories as they will not be afforded the experiences to do so. This is why professional development is closely linked to affordance in the work environment. In cases where affordance is limited a person may need to seek affordances for development outside their immediate work environment (lifewide affordance) or seek work in another organisation.

## Dynamics of working & learning in an organisation

Eraut and Hirsch (2007) draw attention to the complex dynamics of learning and developing through work in an organisation which they captured in a simple diagram (Figure 4.1). At the centre of the diagram is the individual, located in their particular contexts and situations, working on their particular projects some of which might be highly developmental. They have particular knowledges, skill sets and attitudes which together constitute their capability i.e. what persons bring to a situation that

enables them to think, interact and perform. Performance embodies what the person actually does when they deal with a particular situation - how well they perform their role. Learning underpins performance which is context and situation dependent whereas capability is inferred from a series of performances and should not be judged on only one performance. Therefore performances in different contexts spanning different levels of complexity, feed into the continuous development of capability i.e. it leads to progression along a range of learning trajectories.

**Figure 4.1** Dynamics of learning and performing in an organisational setting (Eraut and Hirsch 2007:2)



Learning in an organisational setting, can be gained through formal study - for example studying an on-line module offered by a university, training organisation or the organisation in which the individual works. However, much of the learning gained by individuals is through the process of work itself through their involvement in projects, often with colleagues, which introduce and involve them in situations that they have not previously encountered. Eraut and Hirsch (2007) estimated that between 80-90% of learning was gained through work itself rather than more structured learning situations.

## Socio-cultural environment

Learning occurs as individuals interact with their own organisation as they try to work out what they need to do in order to perform and how what they do fits in and connects to existing ways of doing things. If it doesn't fit into existing practices, they need to work out what needs to be changed and how it needs to be changed. It is the organisational context with its people, culture and structures that introduces complexity and challenge into the learning process and demands attention to the situational knowledge required in order to perform.

Organisations, communities and teams big and small develop their own cultures 'the way we do things around here' (Deal and Kennedy 1982). Culture derives from many factors, eg purposes and values, traditions, styles of leadership and management, and structures, processes and practices enacted everyday by the members of the organisation as they interact in their work. Culture is conveyed in the conversations, actions and stories of every member of the organisation.

Culture affects the way people think and behave, the way people interact with each other and the way people want to belong to and be involved in the work of the organisation. The culture of an organisation helps or inhibits people as they perform their roles. An emotionally nourishing environment helps people deal with the challenges, stresses, anxieties and frustrations of trying to fulfil their role and helps them to remain positive in the face of setbacks. Such an environment recognises the efforts and celebrates the achievements of those who are involved in change (Amabile and Kramer 2012).

Stress, anxiety and frustration are often associated with work and are especially associated with times of instability and change - a frequent occurrence in organisations. They are particularly apparent when people take on new roles or engage in challenging and demanding projects that take people into unfamiliar territory. In such situations people are building new ecologies for learning and development and the ecology provides the affordance for not only learning to fulfill work objectives but also the means of coping with the stress associated with it.

Amabile and Kramer's (2012) study of the socio-cultural work environment 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 (Amabile and Kramer 2011: 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 - all of which have a powerful influence on their performance. When people have a positive inner work life, they are more creative, productive, committed to the work, and co-operative toward the people they worked 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 (2012:131-33) identified four factors that *nourish* a work culture in which people felt 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.

### *Tensions and conflicts*

Amabile and Kramer (*ibid*) highlight the fact that work environments host a range of conditions that make them complex and often turbulent places for the intermingling of personal and social learning and development. This is particularly the case when we build ecologies for learning and development that extend beyond our immediate work environment and involve parts of the organisation with which we are unfamiliar and where our goals are at odds with the way things are done. Posing questions like, 'how can we do this?' challenges existing ways of doing things and the innovator initiates the struggle to resolve the issue. These areas of 'local contentious practice' (Holland and Lave 2009) are the 'pinch-points' where innovations can be thwarted and innovators can become demotivated if progress cannot be made towards resolving the problem. One of the really crucial factors in enabling 'local contentious practice to be resolved', is for the people who are trying to bring about change have the support of people who can help them overcome the procedural and decision making barriers between different parts of the organisation. These are the brokers and boundary spanners that silo'd organisations need in order to unblock things that seem to be frozen. They are important relationships in the ecologies of people who are developing changes in social practices within an organisation and they feature in the two case studies below.

## **Ecologies for Learning, Development & Achievement**

In the second part of this chapter I will attempt to show the relevance of learning ecologies to the context of learning through work through two case studies involving five experienced education professionals who share their stories of trying to innovate within a university's strategic change programme. For a comprehensive description and analysis of this programme see Baker, Jackson and Longmore (2014). The two case examples describe different sorts of learning ecology. Both involve turning conceptual thinking into practice but the first case is focused on exploration and design (learning through the process of designing for new social practice), while the second is more concerned with applying and implementing a design (learning through the process of implementing new social practice).

The people involved in these narratives are not the early career learners, that Michael Eraut and his co-researchers studied - they are experienced professionals involved in inventing entirely new organisational and administrative structures and social practices. Their learning and development is grown through the organisational developmental projects required by the strategic change programme and their experiences require the use of the conceptual framework developed by Eraut to show the way individuals interact with the complex socio-cultural environment in which they are situated in order to learn how to bring about change and all the messiness that entails.

### **Case 1**

In this example of learning ecologies in the work environment, Linda, a senior lecturer, with expertise in the fashion industry, works collaboratively with Mike, an instructional designer from the university's central e-Development Centre (EDC) in order to develop an innovative on-line course comprising 12 Professional Development Units (PDU's).

### *Linda's story*

I obviously used the [market] research that we had done. Discussed with the head of school and the other school management what the outcomes of this research were and the headings that we would put together to begin to develop the short courses. Then I had to find external people to help with writing content. Obviously I had to start somewhere. My strongest feeling was that I needed to provide a framework for the people to work with. So I began to think about that before getting anyone external involved. I worked with Mike in the e-Development Centre quite extensively on trying to develop this effective way of delivering taught modules online and trying to put together a framework for the externals to use when putting together their teaching material. Basically I wrote most of the unit descriptors, the sort of bible for how these would be developed in terms of teaching material and then provided that usually to the external [person].

I found these [external] people [using] my own contacts and appealing to people's better nature because I think the payment that they were receiving wasn't necessarily equivalent to freelance pay that they would normally... But I worked very closely with them. They came into the university at certain strategic times throughout the development and a lot of email communication took place with them sending me materials and me checking it and going back to them with feedback. Really, really resource heavy actually. Really time consuming for me in terms of head space and having to pull myself out of my daily operation, job, my normal responsibilities and doing this on top of that.

I was getting six hours relief from my normal duties. Six hours doesn't reflect in any way, shape or form the amount of time that I put into developing these twelve short courses that were to be accredited by the university all at once with externals helping for some of them and not for others. I was doing a considerable amount of reading through materials and feeding back during my own time in the evenings and weekends. Without that, it would not have happened. But I felt very, very strongly at the time that these are winners. There is a market for them and if we can market them in the right way I always felt they would be successful. I believed in the framework that I developed and that it was an effective, clear and understandable way

to go through a short course for anyone who is working and [wants learning] that is relevant to their industry.

It was a constant battle because I always felt as though I was having to push other departments and other areas of the university to give me answers to questions that I had. It always felt as though the answers didn't exist at that point in time, but I needed them. I needed to know answers to certain questions and I needed sometimes some kind of framework for me to be working within and none existed. I eventually got a hold of the guidelines for developing professional development units from our quality department, but I had no knowledge of that prior to poking and pushing and constantly asking for that information. I was actually quite aggrieved at the time that that existed and I hadn't been alerted to the fact that it existed before I began to develop the courses, because surely that would have helped. Some staff development for me would have been highly appreciated.

Once I had actually got past that initial stage of how do I put these first drafts of the units together, things began to roll and I began to discover who I could at least go and say 'Look I have this question, who can I ask? Who is going to answer it for me? I need answers.' I think I probably began perhaps to become a little bit annoying for some people because I kept saying 'I need an answer' and 'I need to know.'

Some of the most difficult issues, I would say, were managing the externals because some of them didn't have a huge experience of teaching.....it was very difficult to find people that could actually do this with me. I chose them based on their expertise in the areas that I wanted the content developed around. So I was having to sort of almost coach them in learning and teaching as we were going, plus trying to help them understand how their material was going to be used online and the amount of discussion on text that was required of them rather than just bullet point teaching. So that was another challenge that came later.

I was having to be a subject person - most of these [PDU's] are in an area that I can apply my expertise to. I was having to be a learning and teaching person and an online education person, working with

Mike and others from the EDC. Initially it was a couple of conversations that I was going to be doing this and understanding that a really clear framework would need to be put in place and how online teaching and learning would be different to in-class teaching and learning. They, I guess, explained to me the most important aspects to consider in on-line leaning. Then I gradually spent more and more time with the people from EDC, particularly Mike, and asked for their feedback on what I was developing and what the externals were developing with me. They got more and more involved in it because they really believed in what I was doing once the momentum got going. They sort of started to understand what I was trying to achieve from my perspective and then they saw the potential in that and gave me more and more time. Their time was then really important to the success of the project because without them helping me so much, I wouldn't have achieved the outcomes. Basically I felt like I had made some friends there and they were going to help me get through this if no one else was. So they were incredibly supportive. It wasn't uncommon for Mike and I to both be online at 11 o'clock at night talking back and forth and looking at the units online and discussing areas of the unit that were strong or not so strong, that needed a bit of work, a bit of development, changing things, 'What do you think of this?' It wasn't uncommon for us to be doing that in the evenings because of our own personal motivations.

[The development project] was a huge learning curve for me and because at certain times I was quite vocal about the fact that I wasn't getting answers and I was quite persistent and tenacious about sorting things out and getting through this project. I was just tenacious in the fact that I will get this done and I will find the help somewhere and someone will give me the answers I need because I have to do this... and there were I think two occasions when... and I am being really honest now. Two times in the year when I said 'I have had enough. No one else is as driven as I am about completing these PDUs so I give up.' You know, those moments of kind of this is just so frustrating and no one else seems to be as bothered as I am so why am I doing it. You know? Actually this is only my own personal motivation that is making this happen, so why am I so worried? But the next day was a new day and I continued to work on it because I know I am not really going to give up on doing this. I was venting frustrations and trying to

guess not get attention but get people to respond to me and find a way through. But yeah, there were two occasions at which I got to that point.

### *Mike's story*

Early in 2010 I took on the role of Instructional Developer in our Flexible Delivery team. One of our first activities as a team was to start developing a set of high quality standards for our on-line provision. We undertook an informal survey of the existing provision for distance and online learning from other higher education institutions in the UK and overseas. Places like the Open University obviously, and then Stamford and MIT, a lot of places have got open educational resources now as well and looking at the manner in which they deliver their content and what we felt was effective and what was less so. Also looking at some of the private providers as well, places like Adobe TV and Lynda.com and again, people are doing quite high quality online training or online education. And we started to distil from that survey components that we felt different providers were demonstrating. But we also noticed that nobody had the whole package as far as we were concerned, so we were consolidating a set of standards that we felt if we could work towards so we would be creating the whole package. So it was a sort of benchmarking process and it resulted in a new University Framework for Online Learning. So the work that we've done has become policy in regards to courses or online content for courses that are predominantly delivered online.

I worked with a number of academics to help them develop their on-line courses targeted at the professional market - the concept is for entirely distance and entirely online professional development units, short 12 week credit bearing units. One of the people I worked with was Linda in the Fashion Department. She had a fairly good idea of how she wanted to structure the units in terms of how the content would be delivered and also in terms of some of the learning activities that the students would participate in. Where I came in was then to look at how that actually translates into online content, how you get it online, how you guide the students through the materials, how you make it accessible, how you stage and present particular events. Because on-line units have events such as web conferences that happen two or three times during the duration of the twelve weeks,

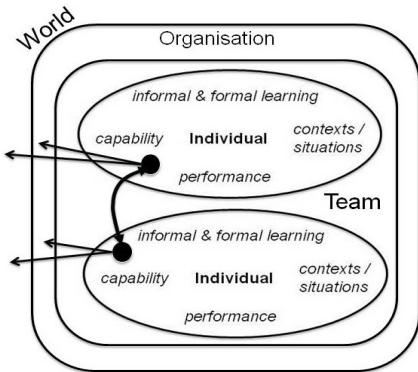
and there's points where the students are asked to then communicate with a peer partner and they might have a one-to-one tutorial with their tutor.

So I went into discussions with Linda particularly at first over the unit that she wrote herself. She was at the forefront of this area of development: she was the first person [in the university] to actually get a unit developed. I looked at what originally was a word document map of how she wanted the activities to occur, and sat down and discussed with her how that might be better structured in terms of the activity points that happen throughout it, where you might place the assessment tasks, like the formative and final assessment tasks. And then, because what we'd worked on as a team was getting a look and feel and format for how the content goes online, I worked with her word document plans and putting that up online, putting the content in the correct places. Together we created the detailed design and content Linda typing directly the stuff online or I took ideas of hers and put it up for her, putting the online tools into the correct place. And between us, moving things within her unit until it felt like there was a structure that would actually guide the students through structured study. And the work on Linda's unit kept going on for a long time because that was the one we were really trying to refine down as an exemplar. So it was a highly co-creative process and the work we did then helped us to establish a template and a guide for how other PDUs could be developed and written ...which has proved very useful.

### *Ecological perspectives on learning, development & achievement*

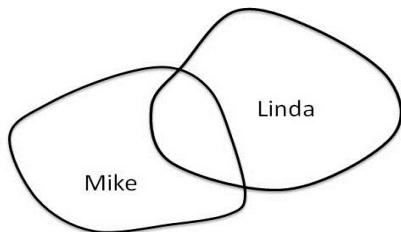
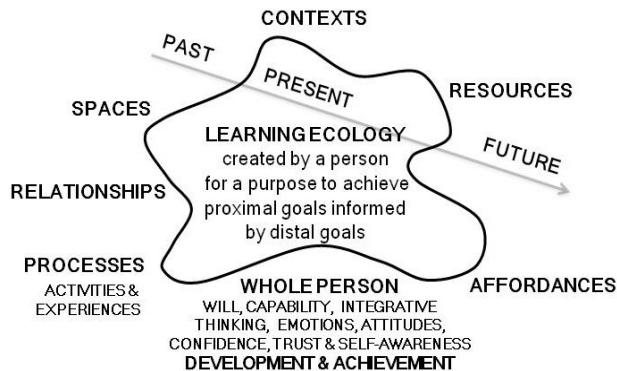
The first point to make is that the two people involved were experienced professionals working in an organisational environment that was familiar to them. Their collaborative learning project was to not only learn how to change their own practice in line with the goals of their project, it was also to learn how to bring about change in their organisation's systems and practices. This dual purpose is typical of the more significant work projects that people undertake in organisations.

Three visual aids (conceptual tools) are provided in Figures 4.2, 4.3 and 4.4. to help make sense of these narratives from the perspective of a learning ecology.



**Figure 4.2** The dynamics of performing and learning through work in the contexts described above.

**Figure 4.3** Diagram summarising the essential features of a learning ecology.



**Figure 4.4** Representation of Linda and Mike's overlapping learning ecologies

The narratives of the two most important people involved in this developmental project, reveal the wonderfully productive and supportive relationships between colleagues from different parts of an organisation who share the same vision. They formed a team of two although other colleagues from the EDC were also involved and both interacted in their own ways with the university and the world outside the university (Figure 4.2).

From each individual's description of the work they undertook we can see that it must have involved all of the modes of learning in columns 1 and 2 of Eraut's conceptual framework (Table 4.1) and included many other items (Table 4.3). Furthermore, because these are experienced professionals, the learning processes listed in column 3 of Table 4.1 are replaced by a self-motivated, self-managed and self-regulated process that engaged each participant in productive inquiry aimed at finding out what they needed to know in order to do what they needed to do.

Using Figure 4.3 as a descriptive framework we might elaborate the main features of Linda's learning ecology. The project lasted about 12 months. During this period of *time* Linda created *space* for herself, with the help of additional *resources* provided by the university (funding to buy out her teaching time), to engage in a developmental process. She had no prior experience in designing on-line courses so this space required her to explore, research, problem solve, design and experiment. It was clearly a space that was betwixt and between her past (non-existent knowledge and expertise) and her future capability in the area of on-line learning developed through the project.

The university provided the key *affordance* through its strategic development programme which set out a strategic vision for change and also provided funding for staff who wanted to contribute to this change. There were also other affordances in the environments of the two participants for example, Linda's network of professional expertise and the research that Mike and his team had undertaken to create a framework for the design of on-line learning.

**Table 4.3** Modes of learning inferred in the narratives above.  
Adapted from Eraut and Hirsch (2007)

1 Work processes with learning as a by-product	2 Learning activities located within work or learning processes	3 Learning processes at or near the workplace
<ul style="list-style-type: none"> <li>• Participation in group processes - collaboration TEAMWORK</li> <li>• Working alongside others</li> <li>• Relationship development</li> <li>• Consulting -checking</li> <li>• Market research</li> <li>• Meetings and discussions</li> <li>• Managing and contracting external contributors</li> <li>• Immersion in challenging tasks and roles</li> <li>• Creating new frameworks to guide others</li> <li>• Designing within existing frameworks</li> <li>• Learning to implement a service in real time</li> <li>• Problem solving</li> <li>• Coping and adapting to insufficient resource</li> <li>• Trying things out</li> <li>• Consolidating, extending /refining skills</li> <li>• Working with clients</li> <li>• Attempting to resolve local contentious practice</li> <li>• Creation of new on-line learning environments to support new social practices</li> </ul>	<ul style="list-style-type: none"> <li>• Asking questions</li> <li>• Getting information</li> <li>• Locating resources eg people</li> <li>• Listening and observing</li> <li>• Reflecting</li> <li>• Learning from mistakes</li> <li>• Giving and receiving feedback</li> <li>• Creation and use of mediating artefacts</li> </ul> <p><i>Also</i></p> <ul style="list-style-type: none"> <li>• Selling ideas</li> <li>• Persuading</li> <li>• Negotiating</li> <li>• Challenging existing practices</li> <li>• Designing new approaches</li> </ul>	<p>Very few of the activities listed by Eraut in Table 4.1</p> <p>Learning is essentially a self-motivated, self-regulated and managed process.</p> <p>One of the people involved had a mentor but all used each other and other colleagues to learn.</p>

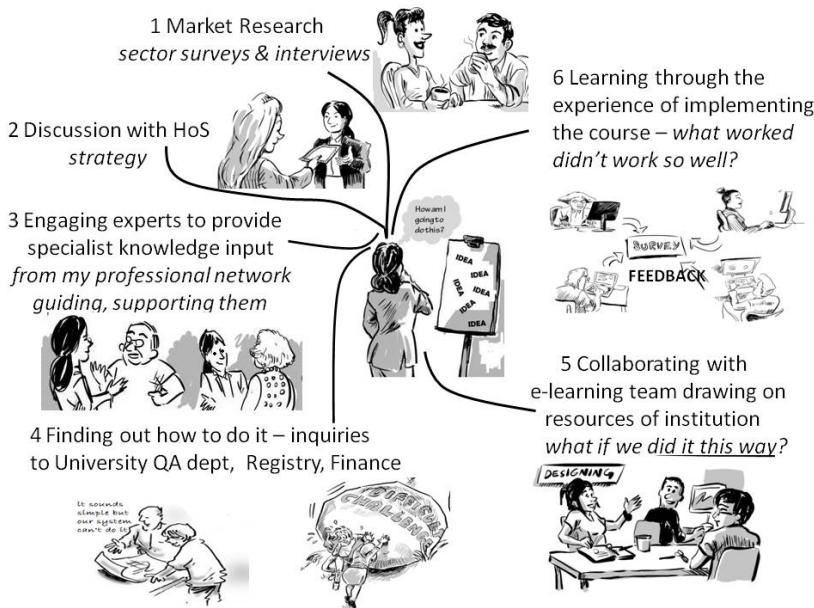
While Linda had the vision and experience to see the value in developing a suite of on-line courses for professionals in her industrial sector, she lacked the expertise to be able to achieve this goal by herself. Mike's organisational role was to help staff who wanted to develop new forms of e-learning. By combining their expertise and interests both participants in this developmental project were able to contribute ideas, knowledge and expertise to the process that enabled the new on-line courses to be produced together with the knowledge and capabilities necessary to help other members of the organisation achieve similar goals in future. In other words, development gained through the project resulted in enhanced capability at the individual and organisational levels.

The narratives are grounded in the contexts of two people involved in the project: *Linda's work context* and her desire to bring about change in her professional field and *Mike's work context* and desire to help colleagues across the university to adapt and develop their practice in order to enable the organisation to change. Both of these contexts are situated within departmental and organisational contexts which at that time, were highly supportive of staff who were attempting to innovate in line with the organisation's strategic objectives.

Both Linda and Mike had clear proximal and distal goals. Both wanted to develop the best possible on-line course. In Linda's case her proximal goal was set in her distal goal of developing her professional skills as a higher education teacher. While Mike's distal goal was to develop himself as an e-learning professional. Both were intrinsically driven by the interests and beliefs in the value and potential of what they were trying to accomplish.

Although the *process* was task-oriented significant new learning and personal development were gained in the process. Linda's *learning trajectory* shows that she knew little about designing for the on-line environment at the start, but with the help of Mike and other colleagues she designed and later facilitated an on-line course that became a model for best practice within the institution.

**Figure 4.5 Summary of the process involved in bringing the new on-line course into existence**



Linda's narrative reveals important *relationships* some of which enabled some of which hindered or mediated the innovation - but all had to be accommodated and worked with. The most important relationship was with her colleague Mike and his colleagues in the EDC. This provided her with access to the expertise she needed to learn how to develop a high quality on-line course. Learning was a bi-product of a collaborative design process.

Her relationships included people in her professional network with knowledge and expertise (*resources*) who provided her with content for the on-line courses. She developed tools and frameworks (*mediating artefacts*) to enable other people to contribute to what she was trying to achieve. She in turn made use of the tools and frameworks (*mediating*

*artefacts)* that the EDC had developed to support the design of on-line courses.

The narrative reveals something of the dynamics, messiness and emotion of developing new social practice that is significantly different to what has been before. Anyone who has tried to bring about significant change in a university will recognise the elements of the story. Linda highlights a number of tensions as she encountered resistance or barriers to what she wanted to achieve. In some areas of organisational practice her innovation conflicted with current practice. Such areas of local contentious practice are common where bottom-up innovation encounters structures and procedures that were never designed for new practice emerging through innovation. These areas have to be resolved often with the aid of independent brokers who have the power and authority to overcome the barriers to change. Such people helped Linda to complete her work and without their help she might not have succeeded.

The narratives also reveal the wonderful effects of creative collaboration by talented people who trust, respect, support and understand each other. Their relationship did more than simply combine knowledge and expertise - it stimulated ideas and helped Linda sustain her motivation particularly at difficult times. Engaging in innovation can be a very lonely business and its clear that Linda was on the point of giving up on more than one occasion but she didn't. With the support of her colleague she continued. The narrative reveals her will to succeed and her agency to imagine, implement and manage a strategy to achieve her goals with the help of people who were more knowledgeable than she was about some aspects of the project. In the process of achieving her goal she developed her capability and performance. For example, using Eraut and Hirsch's typology of learning trajectories we can see that her development incorporated all 8 categories of the learning trajectory model. At the end of the process Linda could demonstrate that she could now design a high quality on-line course, which she couldn't do at the start of her project.

**Table 4.4** Summary of learning trajectories organised into eight categories (after Eraut and Hirsch 2007)

<b>Learning trajectory</b>	<b>Linda's Project</b>
<b>Task performance</b>	Accomplishment of complex tasks and resolution of problems never encountered before; development of new skills in design and facilitation of on-line learning; communication with a wide range of people; collaborative work with people inside and outside the university
<b>Awareness and understanding</b>	Developed significant new situational knowledge and understanding about how the institution worked, her colleagues and people in roles she did not normally encounter.
<b>Personal development</b>	She encountered new situations which required her to engage with all the dimensions recognised by Eraut namely: Self evaluation; self-management; handling emotions; building and sustaining relationships; disposition to attend to other perspectives / to consult and work with others / to learn and improve one's practice; accessing relevant knowledge and expertise. Through this experience she learnt much.
<b>Academic knowledge and skills</b>	In the writing of course units she applied her academic knowledge but mostly what she achieved was the codification of tacit knowledge in the heads of experts.
<b>Role performance</b>	Linda occupied many different roles in her innovation project - she was a leader, supported and supervised external contributors.
<b>Teamwork</b>	The narratives demonstrate considerable collaborative learning and problem solving; and providing support (eg the frameworks for course design) that promoted mutual learning
<b>Decision making and problem solving</b>	The narratives reveal that Linda involved other people in her problem solving including her manager and members of the senior management team, colleagues from the EDC and from other parts of the university. The project was completed on time and within budget.
<b>Judgement</b>	The judgement of colleagues and the university was that Linda delivered a high quality product. She herself developed new expertise through her experience that enabled her to make new judgements about the quality and standards of on-line provision.

## CASE 2

In this second example of learning through work, Angela, Jane and Christine describe the challenges of implementing a Foundation Degree, which was radically different to anything the university had provided before. Although a course design had been approved the detail of the course, that enabled it to be delivered, had yet to be invented.

Implementation involved a strategic and close working partnership between the university and a local hospital NHS Trust. Again the overarching theme is collaboration to develop new social practice that was significantly different to anything that had been before. An added complexity was that the two university education professionals involved (Jane and Christine) were newly appointed. They were working in an organisation that was unfamiliar, on a course that had not yet been implemented and was radically different to any previous course the university had provided. It involved organisational complexity of the highest order and posed significant learning and development challenges and risks to the people who were involved and to the university.

### *Angela's story*

I work full time at the University Hospital NHS Trust, and I work a day a week, which [the] Uni ....fund to [help] develop a strategic alliance between the Trust and the University. What I've been trying to do is to look at opportunities between both organisations looking at what the university offers and looking at my organisation, the hospital, so I can say this is happening at the hospital, this is happening at the university, these two things might have a relationship and in a way mapping opportunities and connecting individuals together to say this is worth looking at.

[My role has] been about persuading people, it wasn't necessarily an issue at the hospital because for us we already knew we could deliver what we needed to deliver for the role because we had developed an internal training programme and tended not to use an awful lot of the Foundation Degree at Southampton University because it didn't fit what we needed. And so we had an internal programme and what we wanted to do was to review it and get it

validated and then offer it as a Foundation Degree. So in that respect it was about influencing and negotiating here at the university is this something that you would be willing to do? It's not something you do already but does it fit, would you be willing to take the risk? And they were very happy to take the risk. But it was also influencing back at the Health Authority level to say this is a university you've never worked with before as a commissioning body, we want to develop this programme with them, would you fund it? Would you be prepared to take them as a preferred provider for this Foundation Degree if people want to go on it? And because we're a big enough organisation and because we said that we could get enough people together to make the course viable, 15 at least, it needs 20 students, the Health Authority suggested they'd fund it and the university said they wanted to do this very differently... So I think it has been about bringing expertise into the university and influencing people

a lot of it has just grown out of developing and understanding what's going on, working out where the opportunities might be, linking with different people, and it's grown in that way really. And I think one of the things that's been a benefit is me being here a day a week because I'm definitely here all day, people can generally find me and also that means that I get a better understanding of how the university works.

But it was an interesting thing to start with because apart from the general principle of 'what we'd like to do is look at how the two organisations can work better together', there was nothing set out like these are the objectives, this is what we want you to achieve, these are the areas we want you to work in, it was very much a go out and see what you can find sort of thing.

And I guess quite soon after I came in to this working relationship the Foundation Degree situation emerged.....I'd only been in post a few months and we needed to be in a position to offer it within the following financial year of the NHS.....so we had from a standing start... working with the likes of Jenny and the social worker team and Robert ....and my colleagues at the hospital, we literally spun together a foundation degree with a very unique structure.

One of the really good things to come out of all this is the way people from the two organisations is the way everybody's got to know one another and collaborating means so much more than it did..... in the last few weeks we've been planning the communication unit for the autumn, myself and my colleague and Christine, and somebody from [another] Trust, and one of our clinical skills team who does a lot of communication skills with simulated patients, members of the public who play act certain roles for us with staff as part of their training. All of us have sat down together and said what do we need in the communications unit because this is the first jointly delivered unit, what do we want in it? Who has the expertise to teach what part of it? How do we want to do this and how are we going to lay out the six week programme? So we have evolved from this very anxious position in January when our concern was about whose bit of the world does it fit into, to now where everyone sits down and says this is what we need, I could teach this bit, I could teach that bit, and those bits all fit and where will we get this from and how can we develop that.

I think the biggest challenge for us was probably understanding the way the university works, and I don't just mean this university but I think how education works. It feels at times quite laborious in terms of how things have got to be pulled together, the way you've got to go through the validation stuff, the due diligence is just unwieldy

So it's given me an insight into how a university works and another institution because I've always worked for the NHS my whole working life. I've worked with universities and colleges as part of my job role, but you're on the outside looking in. This has enabled me to be in and really get behind some of those things and understand how and why it works. What's been nice for me is being involved at the strategic level and being able to go between the strategic and the operational, learning more about things which are completely outside of my experience, I've come from a clinical background and then into an educational background in-house and now I've come out and doing stuff with a university, I've gained a lot in that respect, and it's given me confidence that I've got transferrable skills that will transfer into another organisation and that I have things to offer another organisation that they see as valuable

### *Jane's story*

I arrived in November. ....I came from a health and social care background. I had been at the Subject Centre for health sciences...for years... I was delighted to be appointed overall manager of the programme

At the end of November this foundation degree in health and social care..... went for its validation.... It was literally the skeleton of a curriculum that was validated and then we had to work out the detail of the what and the how. A part time course leader had been appointed just before I came. But I had responsibility for the delivery of this programme that was due to start in January. The colleagues from the hospital who had been on that initial group, putting together the structure of the programme were all still very much involved. So it was about establishing relationships with them and just trying to get up to speed with what their vision was, what their intention was in having this kind of programme.

The fact that this was a programme that was not just written by the university and delivered to the hospital but it was actually to be developed jointly was a new approach [for the university]. The curriculum, the assessment, the delivery, were all to be developed in collaboration which the university and it hadn't been done before. I hadn't realized that at the time I started and it was only as I started to work with them that I realized we were doing something that there wasn't really a precedent for in the university.

To start with I did feel like I had jumped into a pool. I had to swim around, look around and find the right people and think "okay, so there is somebody that knows something about this and there is somebody that has got some expectations here." Identifying who those people were and trying to understand what it was that they were looking for and expecting to achieve was my initial priority. I think because of the world they work in, colleagues in health are used to responding quickly, making things happen, getting on with it. I really like that. So initially we had some very productive conversations about what we were trying to do.

I realized quite quickly there wasn't an articulated vision. I am not sure that what the hospital thought they were going to get was quite what the university thought they were going to deliver. I think as the year has gone on and we are delivering it for the first cohort of students, we are finding that out as we go along. Gradually, there is a coming together and we are developing a better collective understanding of the different roles, the different partners and whose responsibility it is to decide what is going to happen and how it is going to happen.

I think there was a lot of implicit.. Not expectations even, but sort of aspirations. I don't think it was necessarily clearly articulated. Because I was new and the course leader was new, we were trying to get a feel for finding our sort of position in it. For me a lot of that is about getting up to speed with what it is other people are expecting and how that might work.

Every single aspect of the programme has required something different from the university system than it is normally expected to do. So how the students are funded, how they register, what days they come into the university, who is responsible for writing the assessment, deciding who is going to assess it. None of that was the traditional format. So here we are, we've got a programme that is going to start in January to which students had to be recruited, but no precedent of how that was going to happen. So we made it up as we went along.

There was a lot of invention.... We didn't have the time to think everything through and try it out in advance. We had a start date for the programme and we had a hospital that knew it needed to get a particular group of employees onto it. So we worked on the assumption that we are going to have interviews. We need to meet. We have got a validation document which tells us what the entry requirements are. We have got a hospital team that need to have managers supporting them, releasing their students to this programme. So we need a joint application form which meets our requirements and meets their requirements. But we didn't quite do it in time. So we had joint interviews between the course leader and the hospital team did the interviews together and selected the students

meeting two sets of quite distinct criteria really. Our education criteria and the hospital's management and professional development criteria. So next time we do it, we know what we are looking for. But we didn't know at that point.

The students actually started at the end of January. So during January we had to work very quickly to get a handbook ready for them with all the details of the course as it would look. So we had to work out the timetabling, the dates, how that would work in terms of when assessments were due in and when the exam boards would be scheduled and all those university processes in order for when the students started to say, 'This is the course you are coming on. These are the different units and when you are going to be doing them. These are the assignments you are going to write and this is when you are going to hand them in.'

we [also] had to work very quickly to identify who was going to deliver the units and be responsible for developing the detail of the curriculum content. That has been a huge learning journey for us as well because again, it is this combination between university expectations of what counts as a level four or level five qualification and the high level thinking and the academic skills that are needed for that combined with the hospital's need to develop specific competences so that the students could do a particular job. Again, we have had to be fairly reactive in getting the units ready to deliver in the short timescale. We have learned a lot by doing it the first time, about getting that balance right between a university-driven course and a hospital-driven course. And I think we will get to a point when we get the best of both worlds.

Because the time was so tight when we had to deliver the first unit... we just had to deliver it. That raised our awareness of the different expectations of the university and the hospital and who could say, 'Yes, we can include that' or 'No, we are not going to do that.' We have learnt that each unit has to have a unit leader which may not necessarily be the person who delivers it but who has overall responsibility for it. That person needs to be really clear about liaising with the clinicians who want a certain aspect in it and then to shape that into something that has got academic purpose and rigour as well.

I think I am currently teaching an option unit on human growth. I think I have benefited from the learning that we have had in the other units that it is really important to seek that input to shape what it is you are going to deliver.

I think for the next time around it will have been a really good way of doing it because you know what went well and what didn't go well and what you need for the next time because it is a real situation and it is really happening. You don't just try to imagine what ifs, you actually know what they are.

One of the big challenges for the university has been around the pattern of delivery for this course.....the university traditionally has two semesters. We are not doing that. So we are still teaching now even now the university is sort of finished. So we are still teaching right up until the middle of July. The way we are delivering the units is in blocks. So they do one unit and then they do the next unit, whereas traditionally in university they are doing two or three at the same time. So that is very different. Another difference is that they can take a unit in this university called a Professional Development Unit. So the whole programme, every unit in the programme, is also validated to be studied as a standalone PDU, which is also unique in the university. So students can just register for a unit and then build up the units to complete the programme, or just take the units they want.

So we have a start date for the programme in January, but because of the way the hospital likes to get people, if they want some training they want to access it quite quickly. Students can join at any point in the year, do that unit, do any other units until January and then APEL those units into the programme and continue as registered in the programme. That has not been done in this university before. So it is a great model and I think we should do more of it because it is very responsive to employer's needs. It can be taken in bite-sized chunks if they want it that way.

...we thought originally that we would have different points of entry through the year to the whole programme. What have realized that this is actually very difficult to do in terms of how the university creates

their records and how they monitor that... we are still working on that but it requires new systems to be created.

I do think [what we are doing] is very, very risky. I think for the university it is reputationally risky and in a difficult commercial environment in higher education and in the public sector, which is what health is, it is a risk to try and do something in that field and to do it in a different way, which is absolutely the most likely way to succeed but it also might all fall badly wrong and it is a reputational risk for the university. Trying to do this without a long lead-in time, makes that even more risky.

If you say to yourself 'What is the worst that could happen?' well that wouldn't be so bad, that would be alright. No one is going to die if the programme doesn't succeed so let's just give it a go. And there is always a chance of something quite good coming out of it, you know, even if it is not exactly what you expect some real good things might happen along the way. I suppose I am quite grateful I am not at the beginning of my working life and I feel 'Oh well, not the end of the world if it doesn't work.'

[So we have accomplished a great deal in the last 6 months] and that is all due to the quality of the people who are actually doing it and how much respect and trust they have in each other. It is totally, the people that make it happen. You know... we have got new partners we are now working with. You very quickly know who are the key people that you know you can work well with them, they will make things happen, that is where you are going to make your key point of contact. You get a feel for that very quickly. The challenge will be for us to make sure these things are embedded beyond those individual relationships. Because I think it is still at that level. ...I think that is a challenge for the sort of sustainability of the programme. Any of us could go and who would know what has happened and who would be able to keep it going.

people are willing to put their own time, their own energy and their own ideas in to it because they have got this trusting and valued relationship they go the extra mile. They do things well beyond their contractual obligation as long as we feel this is going to achieve the

aim we want. You know I think because everyone is busy and it is not the only thing that any of us are doing, it is sort of...I want to make use of the good working relationships as long as we are moving towards getting what it is I need from my university or they need for their employees. And while we are moving in that direction we will definitely go the extra mile. There is a huge amount of extra activity. Not just activity, but commitment to it because we have all been through these kinds of things before and realized that is what gives you the energy to make something happen.

I think the key thing is you need to have people in both organizations who have the strategic positions to allow things to happen, to approve things so that they can happen. You need to have them with you and on board. They don't need to know the detail, but they need to trust you to be able to say 'I need this from....', and they will put their weight behind it to enable it to happen. Because otherwise... you just get caught up at this low operational level, 'the computer says no' sort of level of things. Actually the computer doesn't have to say no but someone with influence has to realise and acknowledge this. So you need those people in all sorts of areas. You need them in the clinical area, you need the management of the hospital, you need the quality people here, the strategic leadership here, to say 'Actually if the computer is saying no it needs to say yes.' You need those people on board and you need them to trust you so that when you say you need something that they will use their power to support you. So these are a crucial set of relationships that you have to maintain and develop continuously?

It is not necessarily the obvious people. Yeah, it is people you think 'If I happen to bump into you at a workshop or a meeting or something we were at and you got what I was talking about. If I needed to run things by you, you would be somebody I would come to.' It is that sort of ad hoc stumbling across people that you see 'Yeah, you get where I am coming from and I can sound you out about something and I know you will help and encourage me.'

Being new to the institution and not being in a particularly influential position you know, I am only a PL. I am not really in a strategic position. So I am continually trying to find the people who get it and

then going to them and saying, 'Who do I need to speak to? Who is going to help me with this?' and being a bit of a thorn in their side, really.

For example this morning.... we have the central university and we have got the faculty. Because this is collaborative provision it tends to sit in central services, and yet everything gets approved through the faculty. There has to be communication between the two. Things were getting sort of passed around between people. So I went to somebody who I respect and I said, 'How do I unblock this?' and she has kindly said she will go and see if she can. It is like a circle, I just need some way of breaking into the circle to make this happen. It is about finding the person who can bang heads together and say 'you got to find a way to make that work'.

I find the most effective way to get things accomplished is to constantly believe it is possible to have a sort of can-do attitude and to assume other people have also got a can-do attitude and to treat them as if they have. On the whole I find that I get more productive responses if I do that. But it involves huge amounts of diplomacy and of trying to establish and sustain relationships, really. We want the shared goal, don't we? How do we together make that happen? Sometimes you just want to say 'For goodness sake, get on with it and do it.' Yeah, I think its masses of flexibility, respect, grace and diplomacy.

We are still realizing the implications of the journey we have set out on. It is not just our expectations as a provider but it is actually melding together two lots of different expectations to create something which is quite new. So it seems to me there is a lot of originality in what we are doing.

### *Christine's story*

I'm the course leader for the foundation degree. I'm a qualified social worker and I've worked for 22 years for Health and Social Care. I also worked for 11 years as a team manager..., prior to working here I worked in various fields of social work and in particular I've been integrating working with health staff and social work staff. When I saw this position advertised.....I felt I had a lot of experience working in

building up relationships and so on. I've also been an associated lecturer between 2005 to 2007 so I knew the university....and I was quite keen that this course seemed to be just up my street really....And I felt it would be a really good opportunity to set something new up and use my skills and experience as well. So I applied for the job.

When I started my contract.....it was actually approaching validation... there were obviously some things needed doing before it could go to validation and that was the unit descriptors. So I came in and I had two weeks to get moving on writing some unit descriptors in time for the validation at the end of November.....I hadn't written unit descriptors before so obviously it was a fast learning curve for me.

I have a mentor .... who has been fantastic. So whenever I'm a bit stuck I go and see her and she's been able to help me and advise me and I have a good supporting manager as well.

The next step was to put the course handbook together...by January so that was quite a challenge to get that together. I needed to have all the information for students that they might need to refer to for the course and for the university. Things like understanding the way things are marked, understanding the credits, the units, core units, option units and so on and how that works. Also being aware of what they need to do as well in order to progress their studies. Obviously I was guided by other handbooks which helped and I obviously liaised with my mentor, and health staff .....to ensure that anything that they wanted included into the handbook was included. So there was a lot of talking to other people to make sure everything was there and also checking "Does this sound okay? Are you happy with this?" And sharing just to make sure before we went to print. Obviously since then there's one or two things that we need to update or change but at the time it was complete..

The unit I was teaching was the first unit to go, so January was just mad. I did a lot more than 18.5 hours per week, it was impossible to complete the work... so I more or less worked full time throughout that period. Because it had to be done and I couldn't see any other way of completing it. Since then I've spoken to my manager and I've had some payment in respect of [the extra hours I worked], but at the time

there was no other way of getting things done, and teaching on the course and so on, you know, on the unit that I was teaching.

Then we had to prepare for the students arrival, ensuring that registration and everybody else was aware of them coming and that they were prepared and had everything in place to enrol them. Making sure we had the rooms available, and I think all of those things as well has being prepared to teach was quite a challenge and obviously we had meetings to make sure things were in place so we could tick boxes, but there was a really difficult time. Because there were so many things that needed to be in place at that particular time, that January was really hectic.

[Once the students were registered] The main challenge was the preparation for teaching, because obviously I was developing a lot of content specific knowledge for this programme and I wanted to ensure that I was up to date on reading. I wanted to ensure that I could deliver in a way that the students found interesting and include various types of teaching so that it kept them interested and engaged so that they would go away and want to know more. So those were the areas that were a challenge for me.

I always feel you can do better, and I would want to do better next time. I'm not saying that I had negative response because the feedback was generally good... I mean obviously you get those who say "Oh that was a bit boring" or whatever, but I also had some very positive feedback too. But I do feel that I'd like to work on improving, or trying different things next time.

[Looking back I would say that] some of the challenges have been, because we've kind of run with this from the start is having the right people at the right time to teach on it. If people don't respond, because health want to be involved and sometimes you put something out "Is anybody able...?" and you don't hear anything. So perhaps that's been the challenge, you think "Oh right then I need to obviously address that one."

Other challenges have been to do with trying to do new things with university systems that were not designed to do these things. Because

we are trying to fit it into the university's process and it doesn't fit in. So we have tried to be flexible in some of the areas and it's only when they arrived that we've realised we can't be so flexible... Well perhaps if I was someone who was a course leader before I might have thought about these things, but because I haven't been aware until it's actually happened and realised that "We need to do something here there's a problem."

one student who or extenuating circumstances was unable to take the exam. And this is quite interesting because our health partners felt that, "Oh well they can do it next week instead." They weren't aware of the kind of programmes we have at university, that there's only a certain week that you can resit exams. So we felt that she could resit in the resit week, but as it turns out she can't because of the unit boards and the Progress Boards and so on. So that's another problem we've now got to address because we hadn't got our Progress Board set up, not for this year certainly.

Recently I've been talking to people in registration about enrolment, because people have been saying, "Well you can't do this" or "You can't do that", they've been very good because they've looked for ways around things. Certainly we seem to be addressing some of these issues now but it's just that people have had the pain first, if you understand me students, you know, and it seems that's the way we have to do it because we're not always aware that there's a problem until there is some pain. But I have to say I've been quite impressed with the support that we've had in trying to address things and find ways round problems.

I suppose there have been times when I've felt concerned and worried about things. Because obviously I make mistakes, I'm not anything near perfect, and obviously I do worry that sometimes perhaps things are a risk and that's that. And I have to either take the risk or not. You just have to do it sometimes, and if I don't succeed then I don't feel that I would be shot down or anything like that, I do feel that I am well supported. And fortunately I haven't had to take too many serious risks as such..

But now the course is running well... And it's quite exciting actually that other Health Authorities are now getting more interested and wanting to send more students, so I think that's really quite something and it's quite fulfilling to see the course taking off as it is. So for me achieving that and seeing students are developing, I mean that's been amazing. And being involved with Health, I mean just recently they did presentations at the hospital for the unit that they'd just completed and it was just amazing to watch and listen to the students. The level of presentations, the standard was just very high. That alone in itself you think "Wow!" This makes it all worthwhile.

....initially it was quite difficult in looking at how we would work jointly with our colleagues in Health on this one and that I felt was a bit of a challenge to be quite honest at the beginning. Because obviously everyone's got their different ideas and perspectives on how things are going to develop and there were some underlying assumptions I think as well. ....but I think once everyone's role and processes and systems were made clear and put in place, things became much clearer and much better.

I have been spending half a day at the hospital with the idea that students can access me if they want to access me because I'm their tutor and also to build our relationship with Health and I get to know the people better and their systems and ways of doing things too. So that's been really, really good in developing our relationships and understanding as well, you know, their understanding in what the university processes must include and must have in terms of standards and so on and also our understanding theirs as well.

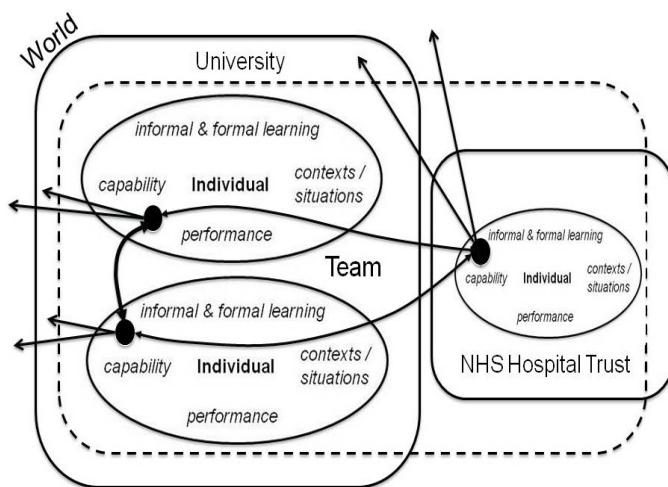
The thing that I found very difficult was learning everything at the same time as implementing the course that was a real challenge. I mean even yesterday I thought "Wow!" now I totally understand that, and that's how it's been all the way through. So it has been a steep learning curve. The biggest thing has been the hours more than anything else, I felt that 18.5 hours just doesn't even begin to address what's needed to implement a new course. So that's been a big problem.

## *Ecological perspectives on learning, developing & achieving*

The first point to make is that the three people involved in these narratives were all experienced professionals. The situation described is more complex than the first case example because it involves three different organisations - a university, an NHS Hospital Trust and a Regional Health Authority. Their collaborative learning project was not only to learn how to change their own practice in line with the goals of their project, it was also to learn how to bring about significant change in the university's systems and practices. In doing so they were making a significant contribution to the university's strategic change programme and changing the context in which they worked.

Figures 4.6 and 4.7 provide useful conceptual aids to help make sense of the dynamics of the work environment and the learning ecologies that were involved in these narratives of workplace learning.

**Figure 4.6** The dynamics of performing and learning through work in the contexts described above adapted from the model provided by Eraut ( )



**Figure 4.7**  
 Diagram  
 summarising the  
 essential features  
 of a learning  
 ecology which can  
 be used as a  
 descriptive  
 framework



The narratives of the three most important people involved in this substantial developmental project, reveal the complex dynamic of learning across and between organisations. They formed a cross-organisational core team although other colleagues from the university and NHS Trust were also involved.

From each individual's descriptions of the work they undertook we can see that it must have involved all of the modes of learning in columns 1 and 2 of Eraut's conceptual framework (Table 4.1) but included many other items (Table 4.5). Furthermore the learning processes listed in column 3 of Table 4.1 are replaced by essentially a self-motivated, self-managed and regulated process that engaged in productive inquiry aimed at finding out what the person needed to know in order to do what they needed to do.

Learning and development was mainly *situated* within the work environment of the university and NHS Hospital Trust, although one of the participants was also actively involved in networking and negotiating with other organisations. At the time of the interviews the project from conception to implementation had lasted about 18 months, although for two of the interviewees (Jane and Christine) the project had lasted only six or seven months.

**Table 4.5** Modes of learning inferred in the narratives above. Adapted from Eraut and Hirsch (2007)

1 Work processes with learning as a by-product	2 Learning activities located within work or learning processes	3 Learning processes at or near the workplace
<ul style="list-style-type: none"> <li>• Participation in group processes - collaboration TEAMWORK</li> <li>• Working alongside others</li> <li>• Relationship development</li> <li>• Consulting -checking</li> <li>• Market research</li> <li>• Meetings and discussions</li> <li>• Immersion in challenging tasks and roles</li> <li>• Designing within existing frameworks</li> <li>• Learning to implement a service in real time</li> <li>• Problem solving / fire fighting</li> <li>• Coping and adapting to insufficient resource</li> <li>• Trying things out</li> <li>• Consolidating, extending /refining skills</li> <li>• Working with clients</li> <li>• Attempting to resolve local contentious practice</li> <li>• Coordinating contributions from many people.</li> <li>• Working across organisations with different cultures</li> </ul>	<ul style="list-style-type: none"> <li>• Asking questions</li> <li>• Getting information</li> <li>• Locating resources eg people</li> <li>• Listening and observing</li> <li>• Reflecting</li> <li>• Learning from mistakes</li> <li>• Giving and receiving feedback</li> <li>• Creation and use of mediating artefacts</li> </ul> <p><i>Also</i></p> <ul style="list-style-type: none"> <li>• Selling ideas</li> <li>• Persuading</li> <li>• Negotiating</li> <li>• Challenging existing practices</li> <li>• Designing new approaches</li> </ul>	<p>Very few of the activities listed by Eraut in Table 11.1</p> <p>Learning is essentially a self-motivated, self-regulated and managed process.</p> <p>One of the people involved had a mentor but all used each other and other colleagues to learn.</p>

One of the distinctive features of this set of learning ecologies was that they were developed in order to learn in real time. For the people involved implementing the course for the first time was the vehicle for learning. There are particular pressures in such learning environments as

entirely new social practices are enacted they become an experiment through which to learn.

In such circumstances the learning space is more constrained and there is limited scope for exploration (unlike the first case study). Rather the focus for learning and achieving is on preparing for the next performance or deadline (immediate goals). In such circumstances learning occurs through the process of 1) preparation (eg preparing a handbook, sorting out registration rooming and timetables, finding content and developing resources to support the teaching) 2) implementation (eg teaching a session). The detail of the course was being developed and implemented in real time. This space was betwixt and between the knowledge and experience the participants had from the past and the new knowledge and understanding that was grown through implementation.

The university provided the key *affordance* through its strategic development programme which set out a strategic vision for change and also provided funding for staff who wanted to contribute to this change. The NHS Hospital Trust also provided affordance in the form of its commitment to the development of its own workforce and its desire to form a strategic partnership with the university while the Health Authority provided the financial affordance that enabled new provision on this scale to be resourced.

By combining their expertise and interests all participants in this developmental project were able to contribute ideas, knowledge and expertise to the process that enabled the course to be designed, implemented and resourced and furthermore attract other potential users of the course. Through this process individuals developed new knowledge and capabilities and enabled the university to do something it had never done before..

All three participants had clear proximal and distal goals that all related to accomplishing the overarching tasks of getting the course up and running, recruiting students and providing them with a good educational experience. These were enacted within the university's strategic goal to bring about the sort of changes that the individuals were

making. All participants were also see what they were doing in terms of their distal goal for career progression.

All the narratives reveal the importance of *relationships* in accomplishing the goals of the project for example - in working together as a team, in gaining support from colleagues, in finding things out, in overcoming the barriers of organisational structures and systems that were unhelpful, in redesigning new systems that were helpful, in securing the involvement of colleagues to teach on the course, in forming the strategic alliance and securing the resources to make it happen.

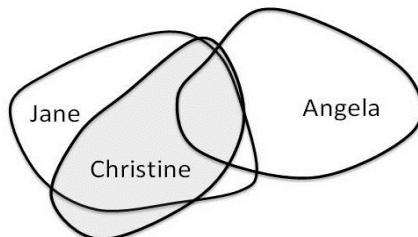
Financial resources to support the course were provided through the university and the Health Authority. The *resources* that the Programme Team were primarily concerned with were knowledge resources in the form of codified procedures, codified text book knowledge for the course and embodied knowledge in the practitioners who contributed to the course. They in turn developed new resources and *mediating artefacts* like the unit descriptors and course handbook.

The narratives reveal the complexity and messiness of bringing about significant change in a university. Problems arose during implementation and there were a significant number of areas where organisational structures and procedures would not permit what the innovators wanted to do. These problems often had to be resolved with the aid of independent brokers with the authority to intervene.

The learning and development of individuals through this developmental project was considerable. If we take Christine's involvement we can see that her development could be mapped across all 8 categories of Eraut and Hirsch's learning trajectory model (Table 4.6)

The scenario also shows how the learning ecologies of three individuals overlapped to varying degrees (Figure 4.7).

**Figure 4.7** Representation of overlapping learning ecologies



**Table 4.6** Summary of Christine's learning trajectories organised into eight categories (Eraut and Hirsch 2007)

Learning trajectory	Christine
<b>Task performance</b>	Accomplishment of complex tasks and resolution of problems never encountered before; development of new skills in design and implementation of a novel course; communication with a wide range of people; collaborative work with people inside and outside the university
<b>Awareness and understanding</b>	Developed significant new situational knowledge and understanding about how the institution worked, its systems and practices and knowledge of colleagues and people in roles they had not encountered before. This was the main learning from this project.
<b>Personal development</b>	She encountered new situations which required her to engage with all the dimensions recognised by Eraut namely: Self evaluation; self-management; handling emotions; building and sustaining relationships; disposition to attend to other perspectives / to consult and work with others / to learn and improve one's practice; accessing relevant knowledge and expertise. Through this experience she learnt much.
<b>Academic knowledge and skills</b>	In preparing the handbook, writing the unit descriptors and preparing resources for teaching she applied and extended her academic knowledge.
<b>Role performance</b>	Performed the tasks required of a programme leader/administrator and taught the first unit of the new course incorporating content that was new to her.
<b>Teamwork</b>	The narratives demonstrate considerable teamwork and coordination of colleagues including clinicians from NHS Hospital Trust.
<b>Decision making and problem solving</b>	The narratives reveal that problems arose as the course was implemented and these had to be solved in real time.
<b>Judgement</b>	The gathering of feedback, unit and programme reviews undertaken informed judgements that were made about the quality and standards of the education and training being provided. As Programme Leader she would be accountable to her manager and to the Programme Team.

## Learning by developing new practices and changing contexts

These narratives reveal how people working in a particular socio-cultural context bring about changes in their own practices and the practices and understandings of the organisation. In building and implementing their ecology for learning and interacting with the learning ecologies of others they change the context for others. For example, as a result of the educational developments described in the narratives the university has created entirely new learning environments and expanded affordance for learning to new social groups. It now has within its organisational capability new and different models of 'how we do things here'.

The stories describe the way people communicate and work with the intention to achieve particular goals which become clearer and more concrete with more detail as the work progresses. They are effectively moving ideas from one state to another previously unexplored state as they think about the problems of turning conceptual thinking into new and effective social practice. They can only accomplish what they set out to do because they are immersed in their context and they can appreciate the affordances and access the opportunities, and identify and resolve issues and problems as they emerge. They are working with uncertainty as they try things out and recognising and exploiting what works as it emerges from the results of their actions in their situated context. It is possible to tell the story of what they did in a de-contextualised way, and draw out certain principles that might be applied in other contexts. But the reality is that the 'devil is in the detail.' These new social practices have been brought into existence by particular people, with particular personalities, capabilities and orientations, developing particular situational understandings, solving particular problems as they emerge in real time in the ways that only they could. As such the recipe for change can never be precisely replicated because other people would have behaved and observed, interpreted and responded to their situation differently. This is what gives a person's learning ecology its unique characteristics.

The innovation of professional practice is a highly situated phenomenon. Only the people involved can see the possibilities and turn their imaginations into new practice that has meaning in and beyond their own interpretation of context. As part of the strategic change research study a questionnaire was developed to identify the factors that people who were involved in the change programme believed were important to accomplishing their innovation (Baker, Jackson and Longmore 2014:303).

All but 1 of the 22 items in the questionnaire scored more than 4.0 and 19 factors scored 4.3 or more on a 5.0pt scale reflecting the level of importance in bringing about change, indicating that nearly all the factors have a significant influence.

Personal characteristics like will, vision and readiness to change feature

- The highest rated factors scoring 4.5 or higher (max = 5.0) were -
- My readiness and willingness to get involved in the opportunity provided by SDP
  - My vision of what I wanted to achieve
  - My will/motivation to succeed with something I cared about
  - Having good communication with the people I needed to talk to
  - The active involvement of others - good teamwork
  - Feeling trusted and being allowed to get on with it without interference
  - Feeling that I made good progress within the time available
  - Feeling that what I was doing was valued by my colleagues

prominently in what is important, together with the way people wanted to be trusted and feel that their contributions would be valued. High value is also placed on communication, the social-cultural dimension of the work environment - more specifically their particular context and the need to make progress within the time that was available. The large number of factors innovators believe are involved in enabling innovation to be accomplished is striking and accounts for some of the complexity involved bringing about innovative change. The factors also reveal the importance of how people feel about their environment and how supportive it is in enabling them to accomplish their tasks and implicitly to learn and develop. Taken together, perceptions of what is important in bringing about complex changes in social practices also provide an indication of

what is important in the ecologies for learning, developing and achieving in the people who are trying to accomplish such change.

Returning to the perpetual challenge of how do we enable students to prepare for futures they do not know? These stories illustrate that one of the answers to this question is we are helping them to prepare for these sorts of collaborative learning and development projects that bring new social practices into existence and change the contexts in which they work.

# CHAPTER 5

## Ecology of Disruption and Inflection

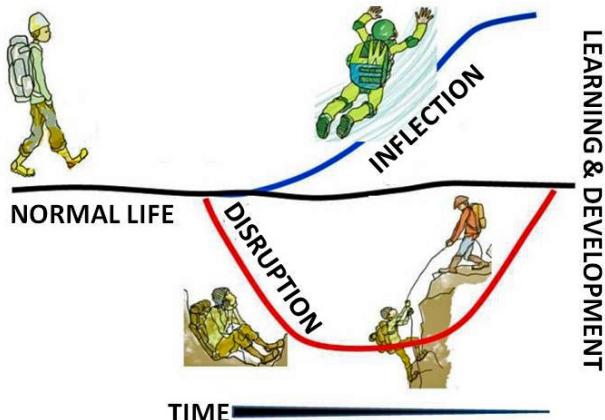
### Pathways Through Life

Our life contains affordance for many different pathways and the decisions we take to move along a particular pathway emerge through the circumstances of our life. From time to time these circumstances, and our responses to them, nudge or propel us along entirely new pathway. As we look back on our life and try to make sense of events, and reflect on the decisions we have made about our direction of travel, and the pathways we have taken, we begin to appreciate that our life would have been very different if we had made a different decision and taken a completely different pathway. Deciding to study a particular subject at a particular university, marrying the person we chose to be our partner in life, and choosing to take on an entirely new role with a new employer, are some examples.

The idea that our life is full of circumstances and decision making points that have the potential to take our lives in entirely new directions was brought home to me when I came across an article by Habermas and Köber (2014) that described an interview-based study in which participants had been asked to identify seven significant events in their life and then construct a narrative using these events as a structure. Inevitably, events that were chosen were times of significant change. I used the same approach on my own life and came up with eighteen events over my lifetime that either caused me to create a new or modified pathway though life and/or changed my behaviour in a significant way which meant I changed my attitude and approach to life and therefore lived it differently. Through this process I identified two different types of life changing event which I'm calling inflections and disruptions. From an ecological perspective, the significance of these points is that they are the

departure points for entirely new trajectories through life that lead to entirely new learning ecologies.

**Figure 5.1**  
Representation of learning and development patterns associated with disruption and inflection



## Inflections

Inflections in life, are points where events and decisions take you in a different direction, altering the course of at least one aspect of your life - like education or a job. 'inflection points are infrequent events that result in a significant change in the current developmental course of a person, company, or even an industry' (Tobin 2014)

Characteristically inflection points engender positive feelings of hope, adventure and opportunity as you are propelled into and along a new trajectory. They require us to go through a transition which may or may not be easy to make but the transition is generally not accompanied by a deep sense of loss for what has been before. Applying for, securing and settling into a new job are important inflection points in so far as they provide important new contexts for social interaction, problem solving and challenges and require transition which impacts on identity, confidence and capability, and the way we think.

Inflection points change the way we think about things. They present an opportunity that only occurs periodically. And they possess a kind of latent motivational energy, which, when recognized and harnessed, can unleash potential that one wouldn't seize otherwise. (Quotation by Professor Howard Stevenson, provided by Sinoway 2012)

Very few people see inflection points as the opportunities they often are: catalysts for changing their lives; moments when a person can modify the trajectory he or she is on and redirect it in a more desirable direction. Whether it's a new job, a change in a relationship, or something else, an inflection point is one of those periodic windows of opportunity when a person can pause, reflect, and ask: '... do I want to continue on this path or is now the moment to change direction? (Quotation by Professor Howard Stevenson, provided by Sinoway 2012)

## Disruptions

Disruptions are events that are thrust upon us by circumstances beyond our control - like serious illness or injury, or suddenly losing your job or a husband, wife or partner. But we can also disrupt our own lives by for example ending one career and starting another, or deciding to retire at an early age, or leaving one way of life for an entirely different life. We can also put ourselves into what we believe will be an inflection point (like a career change) and encounter a set of circumstances that are seriously disruptive. Alternatively, we can suffer a serious disruption and discover that it has been an important inflection point in our life. How we view such a significant change in our life is often a matter of perception and how we then respond to changed circumstances.

Disruptions require us to go through a significant transition and transformation process and they often cause us to feel a deep sense of loss as we leave something of ourself behind as we try to adjust to new unfamiliar situations and an uncertain future. Disruptions are psychologically more disturbing because emotions are more negatively

charged. They often pose significant challenge to one's wellbeing and so are likely to require considerable resilience to overcome them.

Regardless of the era we inhabit, people have always been challenged by disruptive life changes: changes that disrupt the patterns, routines and relationships of everyday life and cause us to adapt our life or create an entirely new life for ourselves and perhaps reinvent ourselves in the process. These profound changes may be forced upon us or they might be chosen because our circumstances dictate that change has to be made.

Such life-changing disruptions upset routines and may, in some cases, erode or even destroy our identity, our family, our economic viability, our mental and physical wellbeing, our enjoyment and enthusiasm for life. In extreme cases they can make us want to give up on life altogether. Such disruptions breed uncertainty and anxiety and affect our relationships with people who are close to us. They are a test of our character, fortitude and resilience - our ability and will to fight back, and move through and beyond a transition to progress into a different but more stable and sustainable existence.

Learning to cope with, move forward or 'bounce' back from disruption is a lifelong - lifewide challenge: a challenge that is becoming more common in the Social Age as the speed of technological change forces people to change their career/work pathways more frequently.

Disruptions to our lives can occur at any time and can originate from many sources and an infinite number of personal circumstances. Significant life disruptions can be health related - serious illness including mental illness and loss of memory, and serious accidental injury, or the birth of a child with a disability, all of which can affect self or family members that impact on you. They can be related to the loss or disintegration of significant relationships - like the loss of a child, sibling, partner, parent, or close friend, and the splitting up and separation of partners and their families. Or from a child's perspective, the loss of a parent or sibling, or being taken into care.

Disruption is often the consequence of several factors coalescing (Gajeel and Chandler 2014). For example the loss of a job, or serious

stress within a job that causes someone to become unable to do their job, can lead to financial hardship which could spawn many more problems including going into debt or even the loss of a home and marital problems arising this set of circumstances and the effect it has had on the relationship.

Sometimes it is possible to resume our life after a serious disruption but there are situations and circumstances where this is not possible to do. Gajeel and Chandler (2014) call this 'forced life change'.

The deeper meaning of forced life change is that resuming ones normal life after a broken life situation is not an option - or, the option is so problematic that one chooses not to take this direction. In fact realising that one cannot resume one's previous normal life is a realisation that often grows out of trying to do this. Instinctively, when confronted with disruptive change, we try to recover and resume what is well-known and familiar to us, we using metaphors like 'picking up the pieces'...forced life change occurs when it is not possible or recommendable to resume or try to resume one's previous life direction. (Gajeel and Chandler 2014:55)

Because of changes in European society, an increasing number of people, especially people in mature ages such as 40 to 60, find themselves in broken life situations where resuming one's normal life is not possible. They reach a point where changing one thing in their lives is not enough....They will need to find new directions that might include working life, social life and personal life altogether (Gajeel and Chandler 2014:ibid)

## Example Life Narrative

It is likely that most people who reach the middle part of their life will be able to create a life narrative that involves disruptions and inflections which have changed or affected their pathways through

'Life can only be understood backwards [after it has been] lived forwards'  
Soren Kierkegaard

life. Our stories are unique and in Table 5.1 I have tried to map the inflection and disruption points in my life (see Figure 3.1 for a graphical representation).

**Table 5.1** Important inflections (I) and disruptions (D) in my life

- I1 1963 Moving from a Secondary Modern School to a Grammar School
- I2 1967 Being allowed into the 6th form and discovering I liked geology
- I3 1967 Meeting a girl who I later married
- I4 1969 Circumstances determined I went to Kings College London rather than the university I had planned to go to
- I5 1971 I secured my first job as a geologist working in a tin mine which 1 year later opened gave me the chance to start a PhD
- I6 1976 Chance meeting paved the way for my first professional role as a teacher in Saudi Arabia
- I7 1979, 81 and 84 birth of my three children
- I8 1995 New job/role and transition to Higher Education Quality Council
- I9 1997 New job/role and transition to Quality Assurance Agency
- I10 2000 New job/role and transition to Learning Teaching Support Network
- I11 2003 My marriage to my second wife and becoming step dad to three children aged 4-12 I12 2006 New job/role and transition to SCEPTrE Director University of Surrey
- I14 2012 Birth of twins to my daughter one of whom is disabled - I became their carer for 1 and sometimes 2 days a week
- I/D1 1985 Returning from Saudi Arabia - giving up a professional role, a job I enjoyed and found fulfilling, an identity and friends to return to the UK without a job with much uncertainty for 6 months.
- I/D2 1990 Giving up my career as a geology teacher/researcher for a Civil Service role in HM Inspectorate of education. The year long transition challenged and changed me and required great resilience to cope with it and survive.
- D3 1993 Being made redundant by HMI and having to take on a job in Plymouth that required me to live away from home Monday-Friday. Again significant challenge and invention of new role while losing my old identity. Looking back I eventually saw how I improved my potential for an entirely different career pathway as a result of this disruption.
- D4 1998/99 Illness and death of my first wife through cancer - loss of my best friend and partner in life
- D5 Being made redundant in 2011

My first inflection point involved me making a decision which meant I changed schools at 12. I realised at the time that I was at a crossroads and that the decision I was making would change my life. I could see that there were opportunities for me to take although I could only appreciate the potential in the change I made when I looked back. Inflection points occurred on two other occasions during my secondary schooling and on each occasion there was a circumstance in which a teacher believed in me sufficiently to give me a second chance and help create opportunity for me which took me on a new pathway without feeling any sense of loss for the past. Inflection points in my life also determined my pathway to a PhD and to my first professional role and 8 years of living in Saudi Arabia. Inflection points occurred when I met (at 17) the girl who I decided to marry, and also, after her untimely death from cancer, when I met the second girl I decided to marry (at 51) and in the process entered a new family.

Turning to the disruptions in my life I have experienced several of my own making. The first occurred when my family and I left Saudi Arabia and I gave up a job I enjoyed, many good friends and a life we liked. The second when I was 40, and had reached a point in my career when I felt I needed a change. An opportunity presented itself but the transition was very difficult and seriously disrupted my life (I describe it in more detail below). A few years later in 1992 I was made redundant as the HMI role was abolished - this was a disruption but more significantly the next job I took meant I had to work away from home in Plymouth - it caused me a lot of angst for the two years I commuted weekly and was unable to be with my family.

But the biggest disruption I have so far encountered was the loss of my first wife to cancer. When she died, a significant part of me died with her and I know that I became a different person to the person I was when she was alive. While outwardly it might have looked as if I had coped well with my loss, I kept much of how I felt to myself. This was one disruption that forced me to change my life. I lost my enthusiasm for my work and within a few months I moved on to another job in another organisation - I think, in part, to escape the immediate past.

Looking back, I can now see how all these inflection points and disruptions were the triggers for new pathways and experiences through life. Many of these points required me to go through a transition that was neither enjoyable or comfortable, which changed me to varying degrees and in various ways. All required me to learn and develop as a person. Many required me to develop myself professionally for new roles. Some required me to relinquish an identity and begin to develop a new identity for a different context. For these reasons, I conclude that the points of inflection and disruption in my life have a profoundly shaped the contexts and opportunities through which I have learnt and developed.

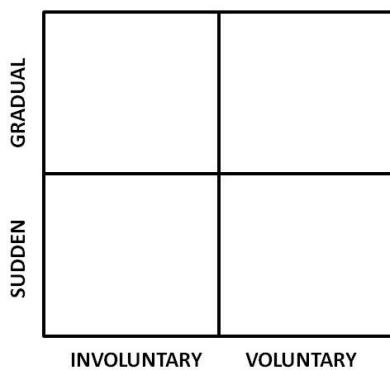
The fact that these points in life are catalysts for learning and personal and/or professional development means that they are also catalysts for entirely new learning ecologies. Often these will involve new purposes, contexts, people and resources although they may draw upon past histories and the resources, relationships and experiences gained through and from previous learning ecologies. They may also involve new identities and ways of behaving.

## Transitional Learning Ecologies

The routines of everyday life involve us in relatively little change especially if we do not move out of our comfort zone. Most situations we experience, we have encountered before in contexts that are familiar, with people we know, doing things that we understand and can respond to because we have done so many times before in similar situations. But significant disruption and inflection points in our life force us to encounter contexts and situations with which we are not familiar. We might use the expression, 'out of our comfort zone', to describe such situations, because of the negative emotional states such unfamiliar and uncertain situations engender. When we encounter such situations we move through a transition. To regain our sense of familiarity and certainty we need to go on a journey which takes us from one sort of life to another: a journey that involves becoming different. These transitional points lead to the formation of entirely new ecologies for learning and developing.

Ecologies that involve new contexts, people and resources and require us to develop new understandings and capability.

Transitions are often complex experiences (Hulme 2012) that affect different people in different ways, at different times, and for different reasons. Multiple interrelated transitions may also occur concurrently or in succession. Some transitions are very common. Most result from unforeseen or unintended/unforeseen events and are relatively recoverable; but others are associated with a longer term negative pattern or cycle which Hulme (*ibid*) called revolving transitions.



**Figure 5.2** Conceptual framework developed by Hulme 2012) to explain the dynamics of transitions.

Transitions can be organised along two dimensions (Hulme 2012): voluntary vs. involuntary and gradual vs. sudden (Figure 5.2). For example, being the victim of a crime is usually involuntary and sudden, and moving house may be voluntary and gradual. While the same could

occupy different categories for different people or contexts, this framework is useful in thinking about how to change how individuals experience a given transition. We tend to think of disruption as being sudden and the effects as being traumatic but disruption can also be a more gradual process with effects progressively accumulating and coalescing.

A significant life disruption might be the result of a single event like birth, a stroke or a serious accident or it might result from a process in which events and circumstances coalesce - like stress at work leading to poor performance and the loss of a job leading to financial hardship, serious debt and the eventual loss of a home, relationship problems and the splitting up of a family. These might seem like extreme scenarios but

they illustrate how one sort of disruption or circumstance can grow into another and another.

### Transition and transformation

All significant life disruptions and inflections are likely to affect the whole of a person's life. They may affect relationships, work, hobbies and interests and physical activities. Serious disruptions affect our functioning and may even leave us disabled in some way.

Significant life disruptions and inflections may result in loss of some aspects of our self which may cause manifestations of grief and the eventual rehabilitation and alteration of self. In extreme cases - like hospitalisation through serious illness or injury, they reduce the identities we hold in different parts of our lives to a single identity and experience. In situations like this the person is required to go through a process through which a new self is created: a process that also requires the giving up of a former self. We define ourselves in terms of the relationships we have and serious disruptions and significant inflections will affect these so our loss of identity is compounded by the loss of the relationships that gave our life meaning.

Transition psychology - the psychological process people go through to come to terms with a new situation, originated from work on bereavement (Kubler-Ross 1969), family crisis and depression. Transition theory formed a key aspect of life role, life-span development and life stage theories promoted by Super (1976), Levinson et al (1978), and Sugarman (1978). Transition theory has been applied to counselling (Schlossberg 1981), career education (Hopson and Adams 1976) and to changing roles in an organisation (Parker and Lewis 1981).

Hopson and Adams (1976) suggest that any transition, regardless of the cause of triggers a psychological process that affects self-esteem and related feelings of competence. Their model suggested that adjustment to significant change requires a journey through several stages the main features of each stage are:

- *Immobilisation.* The sense of being overwhelmed, unable to act. Unfamiliar transitions particularly if we anticipate negative

expectations, tend to intensify this stage and they trigger anxiety and confusion.

- *Minimisation*. As a way of coping with the change it is common to deny that it is happening. This is a frequent reaction to a crisis which is too difficult to face.
- *Depression*. People often get depressed when they face up to the implications of change.
- *Accepting reality*. At this point in the change process the person begins to let go of their old state of being, accepting the reality of what is happening to them.
- *Testing*. Having begun to accept the situation, then it becomes possible to try out new behaviours to see if they are effective in the new situation.
- *Seeking meanings*. As new understandings are gained through experiences of coping with the situation, the person can reflect on and gain deeper understandings.
- *Internalisation and integration*. The person eventually comes to terms with and understands the situation. New meanings become internalised and accepted and they then become part of the person's behaviour and identity.

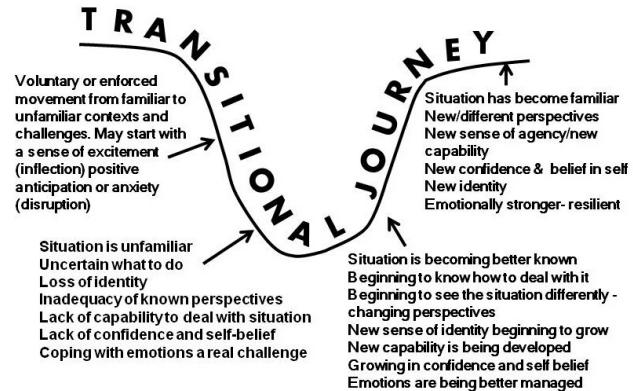
In a study of 35 participants who had been promoted into managerial positions in the Hotel and Catering Industry, Parker and Lewis (1981) confirmed this broad pattern and suggested that it typically took people in their study 18 to 30 months to fully adjust following a significant change.

Making a significant transition necessitates deep structural change either by changing internally, and / or by changing the environment. Situations that require us to make a transition create the need for change, but we must choose to break the existing ways of being in order to create a new way of being (Gerswick 1991). A lot of transition research is focused on life-span milestones, such as school to work, or transition to parenthood (Landmark et al. 2010; Motulsky 2010). In a study of immersive experiences, Campbell and Jackson (2011) showed that there are many other transitional situations that can provide the source for significant personal change.

Transitions involve inter-dependent processes of identity change and repositioning, skills development/learning and the role of strong emotions for meaning making and elaboration (Hale and de Abreu 2010). The ability to understand, make sense of and manage our own and others' emotions is termed emotional intelligence, and transitional processes require these emotional competencies and self-management skills (Goleman 1995; Mayer et al. 2004, 2008). The motivation and agency of the individual is vital to coping with significant change processes and for transformation to occur. The capabilities developed in coping with and managing transition processes are common across different situations (Gersick 1991) and research suggests that the confidence, insights, dispositions and capabilities that emerge through successfully coping with transitional experiences can be generalised and transferred to other areas of work and life and drawn upon in future situations (Ng et al. 2009).

Transitions from the known to the unknown and uncertain engender a sense of journey. In their study of immersive learning experiences amongst university students and academics (Campbell and Jackson 2011), many of which were associated with disruption or inflection points in the person's life, they identified 'a sense of journey' as the overarching narrative theme (Figure 5.3).

**Figure 5.3** The transformative journey depicted in stories of immersive experience: either disruptions, inflections and other types of experience (Campbell and Jackson 2011:204)



The general pattern of responses described by participants was very similar to that identified by Hopson and Adams (1975). In the initial part of the transitional experience individuals experienced a sense of excitement and positive expectations (inflection) or anxiety and apprehension if the situation was not of their making (disruption). During the middle stage of an immersive experience participants felt overwhelmed and questioned the choices they had made and that were available to them, and their involvement in the experience. During this stage negative emotional states predominated regardless of whether the experience was the result of disruption or inflection. During the final stage of the experience participants accepted and embraced the experience, having gained understanding and control. The final stage of the transitional journey is characterised by deep positivity - significantly more positive than at any point in the experience as a result of surviving and/or mastering the situation. At this stage participants felt they had regained control and had learnt strategies to cope with the challenges of the experience (Campbell and Jackson 2011:205-06).

The development of coping strategies are another feature of the process. Most stories inferred that people felt they had the necessary knowledge, cognitive and affective skills at the beginning of their transitional experiences to cope with the challenges. But this often gave way to realisations that they did not have the necessary skills/knowledge or strategies to handle the situation and lost confidence in their own capability to do so. They had not appreciated how difficult or lonely the transition would be. This realisation forced people to change, adapt and acquire new strategies and knowledge

being immersed means getting lost in something that you value, to the point where you lose all other focus. The emotions are endless; you go through stress, a feeling of being uncomfortable and not in control when things get difficult. At the same time, any positive success or accomplishment brings pride, self belief and a feeling of empowerment. It affects you emotionally, physically (draining and tiring) and intellectually.

*Student writing about a significant disruption in her life*

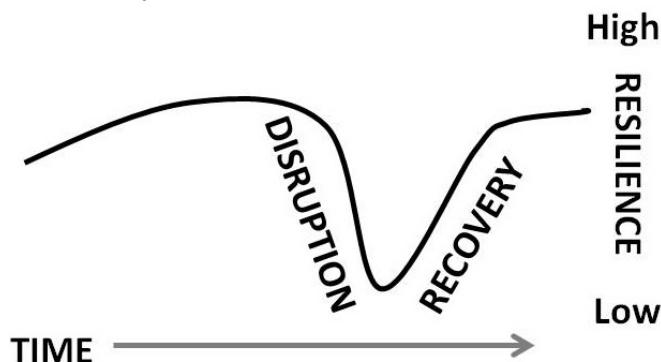
in order to cope with the challenges in their experience. Developing these enabled participants to progress to the final stage of the transition when participants developed a sense that they had mastered or gained enough experience and confidence to feel a sense of control. The sense of personal change, fulfillment and transformation that people gain through making a significant transition brought about by disruption or inflection point all contribute to the sense of a journey so keenly felt by many participants.

### New affordances for resilience

The U shaped curve used by many authors to represent the journey through a significant transition, reflects also the idea of resilience or 'bouncing back' from a difficult psychological position.

According to American Psychological Association web Guide 'The Road to Resilience', resilience is the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress [and disruption] – such as family and relationship problems, serious health problems or workplace and financial stressors. Being resilient means that you have and demonstrate the ability to "bounce back" from difficult experiences.

**Figure 5.4** Disruption, the home of resilience



You cannot talk about significant disruption in a person's life or their embarking on a radically new pathway giving up a life that was known and 'comfortable', without talking about resilience. Disruption, inflection and resilience are partners in life and where resilience is absent, weak or compromised people end up despairing their circumstances and spiraling down into anxiety and depression. The ecologies we create in order to make the transitions through the major uncertainties of our life are the ecologies which provide us with affordances to develop and demonstrate our resilience and related qualities like fortitude and persistence.

A combination of factors contribute to a person's resilience. Studies show that the primary factor in resilience is having caring and supportive relationships within and outside the family. Relationships that create love and trust, provide role models and offer encouragement and reassurance help bolster a person's resilience. Several characteristics are associated with resilience, including: 1) the capacity to make realistic plans and take steps to carry them out, 2) positive view of yourself and confidence in your strengths and abilities, 3) skills in communication and problem solving and 4) the capacity to manage strong feelings and impulses. These features of character are developed through coping with and learning to deal with complex and uncertain situations such as those encountered when life is disrupted or a person embarks on an entirely new life trajectory.

According to Coutu (2002) resilient people possess three essential characteristics: a staunch acceptance of reality; a deep belief, often buttressed by strongly held values, that life is meaningful; and an uncanny ability to improvise. Coutu maintains that you can bounce back from hardship with just one or two of these qualities, but you will only be truly resilient with all three.

### Facing up to reality

A common belief about resilience is that it stems from an optimistic nature. That's true, but only as long as such optimism doesn't distort your sense of reality. In extremely adverse situations, seeing the situation too optimistically can spell disaster. The fact is, when we truly stare down

reality, we prepare ourselves to act in ways that allow us to endure and survive extraordinary hardship. We train ourselves how to survive before the fact (Coutu *ibid*)

### Searching and finding new meaning and purpose

The ability to see reality is closely linked to the second building block of resilience, the propensity to make meaning of terrible times (Coutu *ibid*). People who, under duress, throw up their hands and cry, “How can this be happening to me?” see themselves as victims, and living through hardship carries no lessons for them. But resilient people devise constructs about their suffering to create some sort of meaning for themselves and others. This process of creating meaning from their difficult situations is the way resilient people build bridges from present-day hardships to a fuller, better constructed future. Those bridges make the present manageable, for lack of a better word, removing the sense that the present is overwhelming. Resilience is neither ethically good nor bad. It is merely the skill and the capacity to be robust under conditions of enormous stress and change. Values, positive or negative, are very important for resilience. Resilient people will give up doing something that threatens to compromise their values.

### Ingenuity or resourcefulness

The third building block of resilience identified by Coutu (*ibid*) is the ability to make do with whatever is at hand. Psychologists follow the lead of French anthropologist Claude Levi-Strauss in calling this skill bricolage [rather than resourcefulness]. Intriguingly, the roots of that word are closely tied to the concept of resilience, which literally means “bouncing back.” Says Levi-Strauss: “In its old sense, the verb *bricoler*...was always used with reference to some extraneous movement: a ball rebounding, a dog straying, or a horse swerving from its direct course to avoid an obstacle.” Bricolage in the modern sense can be defined as a kind of inventiveness, an ability to improvise a solution to a problem without proper or obvious tools or materials. When situations unravel, bricoleurs muddle through, imagining possibilities where others are confounded.

Obviously, luck does have a lot to do with surviving. But resilient people face reality with staunchness, draw meaning from hardship instead of crying out in despair, and improvise solutions from thin air. Others do not. This is the nature of resilience, and we will never completely understand it (Coutu *ibid*).

## Character

Significant change points in our life test our character. Patterson, Tyler and Lexmond (2014:11) described character and resilience, as 'an umbrella term for a range of 'attributes that enable individuals to make the most of opportunities that present themselves, to stick with things when the going gets tough, to bounce back from adversity and to forge and maintain meaningful relationships'.

In 2011, a panel of experts from developmental psychology, neuroscience, child psychiatry, and youth development brought together in Demos' Character Inquiry (Lexmond and Grist 2011:14) identified the following key 'character capabilities':

- Application - the ability to stick with tasks and see things through.
- Self-direction - the ability to see one's life as under one's control and to effectively shape its future course; the ability to understand one's strengths and weaknesses accurately; the ability to recognise one's responsibilities towards others.
- Self-control - the ability to monitor and regulate one's emotions appropriately.
- Empathy - the ability to put oneself in other people's shoes and be sensitive to their needs and views.

Other studies have expanded this to highlight the importance of further overlapping attributes including conscientiousness, perseverance, commitment, the ability to collaborate, self-efficacy, self-control, the ability to defer gratification and the concepts of 'mental toughness' and 'grit' (Gutman and Schoon, 2013).

## Examples of Disruption

In chapters 3 and 2 the idea of learning ecologies was explored through a selection of personal narratives. The same technique is employed in this chapter.

### Adapting to survive

The first narrative provides an example of disruption in which the participant is plunged into a new and challenging context with little support. It's a swim or sink situation in which the person has to adapt quickly to survive.

#### *Jane's story*

I went to Mosby Middle School (now renamed Martin Luther King, Jr. Middle School) in Richmond, Virginia during the 1970's when I was 11-13 years old. At that time [1972] schools in Richmond, Virginia were required by the Federal Courts to 'desegregate' to ensure fair access by race.

I do not like the terms, but in the American South at that time, the terms 'white' and 'black' were used for racial designation. My designation was 'white' and I was 'middle' middle class (the USA has a much bigger middle class than the UK). After desegregation, the first year (grade 5) I attended the neighbourhood primary that I had previously attended. The next two years (6th & 7th grades) I was bussed to a more urban traditionally 'black' school Middle school located on the other side of the city. Finally, for high school I was once again in the local school.

Going to Mosby required that I become immersed in the African-American and urban culture as I never had before. By this time, many 'whites' had left the Richmond educational system, leaving very few to balance the ethnicity of the school; the school was mainly African American. Funnily enough, one person who continued to attend was my best friend, who was Japanese-American. Often, I was the only 'white' in the classroom. Many of my classmates came from socially disadvantaged households (the 'whites' were bussed but many of the

others at the school attended from the nearby housing estates). Many of the 'black' students had never attended school with 'white' students'; sometimes there was bullying, sometimes students would go out of their way to help by providing protection, advice, and friendship.

To adapt to the school, I needed to take a crash course in understanding what it was like to be different. I wore an army coat and canvass tennis shoes as an urban uniform. I listened to radio programmes and television that were popular to the African-American community, i.e. Soul Train; much of the vernacular and spoken word were different to me. I altered the way I behaved: I learned to adopt an unprovocative demeanour and not look up into people's eyes because this was seen as aggressive. I tried to find friends to advise me on protocol; several friends were half African-American and half Indian and were also considered different by their classmates. I hid out whenever possible, spending most of the lunch hours in the library. I was essentially in a social learning situation.

Being put into an alien environment, like my Mosby experience, compels individuals to adapt and change in a dramatic way. I am not the same person as I would have been had I gone to a suburban all 'white' school. This 'change' does not perhaps present itself in a physical sense. I left with the impression that race and culture are complex issues and narratives depend on who is telling the story. I also developed skills for embracing differences, and even today refer to these experiences when working in higher education, especially in London.

Jane's story provides an example of profound disruption when a person has no choice but leave behind what they have known and start again in a *context* that is totally unfamiliar. But the *affordance* to learn to adapt is in the new environment and Jane recognises that the key to her survival (her proximal goal) is to adapt quickly to the social/cultural norms of the new environment. 'The experience was consuming, intense, life changing and complex and it keyed into my survival instincts'. Her process seems to have been one of copying the behaviours of her peers and trying to avoid being with them when she could. The things that

needed to be learnt could only be learned within this cultural setting. Emerging from this process of immersion in a social-cultural setting so radically different to anything experienced before was new awareness of race and culture and a willingness to embrace difference and implicitly, confidence in dealing with such complex and uncertain situations.



## Rebuilding shattered lives

In the next two narratives, two women share their stories of serious disruption in their life.

### *Carol's story*

In 2006 after the breakdown of my marriage, I found myself homeless. I was referred to a St Mungo's project in Notting Hill, where I spent some time recovering for a few years. Unfortunately, things went wrong for me while I was there. I got involved in the wrong company and one thing lead to another. I found myself going down the wrong road. I got in trouble with the police and went to prison for two and a half years. I served 15 months, then I got referred to St Mungo's again, this time in Earls Court.

That's when I really got my act together. I started thinking about what I could do with my life. I weighed up the pros and cons. I was determined not to go back to prison.

During my first session, my keyworker pointed out some of the workshops that were on offer there. I took advantage of most of these workshops just to keep my mind focused on moving forward and doing something meaningful with my time. I surprised myself by how much I really enjoyed meeting new friends and learning new skills. I

developed the confidence to talk to people who were in the same boat as I was and to share my learning with them. It felt good.

I really wanted to better myself; I started cookery classes, then Indian head massage (which was so relaxing it helped me think straight) then I thought of doing the computer course. I couldn't stand computers at first. I thought my brain couldn't handle it so I forced myself to just get on and do it. After the first few classes I found myself really getting into it. Roger the tutor has so much patience; he helped me to understand how easy it was to learn how to use a computer. So much so, now I won't miss a session or a chance to use a computer. For someone who used to hate computers, now I love them.

After a few months of living at St Mungo's I was nominated to get my own flat. I snapped it up straight away. It's been over a year now. I've done it up so it looks great. I bought my sofa bed online, did some other shopping online and regularly check my email for notices as well as news from family and friends.

My life is beginning to feel complete. I've come so far from where I was to where I'm at now. Everybody tells me how I look so much better and happier now. I am so proud of myself for just getting down to doing something educational and keeping busy while staying away from the old company. I wouldn't want to go back to that lifestyle again. I love my life as I am now. I've truly found myself again.  
(Information source <http://rebuildingshatteredlives.org/> )

### *Shawn's story*

I was just 16 when my mum threw me out - it felt like it came out the blue, but things had been rocky for a while." Shawn was struggling with dyslexia and bullying, as well as trying to cope with the breakdown of the relationship with his mother. He admits he had no confidence. Shawn started sofa surfing, not staying in one place for any length of time. "Sofa surfing is bad because you are never secure. You also feel like you owe people something. Inevitably crime comes into it.

It was when in prison in early 2012 that things started to turn round for Shawn. "This time, I'd just had enough and I wanted to do

something more worthwhile." After leaving prison, Shawn began a 12 week peer mentoring course with an organisation that helps people to learn to drive in exchange for volunteer hours and moved into a St Mungo's Broadway hostel in Earls Court.

I was always told I'd never be able to get a job. People were very negative about my dyslexia and I was bullied, I had no confidence but St Mungo's Broadway helped me build my confidence." Shawn applied and was accepted onto an apprenticeship scheme, which involves studying towards a health and social care qualification while working in a hostel. "It was great to be told I would be on the apprenticeship scheme. I really thought it would do wonders for my confidence and that was true. I can relate to clients as I have been homeless myself. Doing the nine to five, I haven't been late once. The apprenticeship has given me a future and I owe my life to St Mungo's Broadway." Shawn now has his own place go's Broadway." Shawn now has his own place and a job in a Westminster hostel as a project worker (Information source <http://rebuildingshatteredlives.org/>)

Both of these stories reveal the horrendous challenges that some people face as close family ties are broken, homes are lost and they become involved in new relationships that eventually lead to crime and prison. These are not the sort of circumstances that most people have to deal with and it is testament to the resilience and fortitude of these women that, with the help of key workers and organisations that care about them, they were able to rebuild their lives and create new ecologies for learning and developing themselves so that they can lead an independent life (*proximal goal*). When people's lives are so badly shattered they need help to create entirely new *contexts* for themselves and so the involvement of significant others who can help them achieve this is



essential. The *affordance* for a better life lies in the new *context*, new *relationships* and *new resources*. Through these Carol and Shawn were able to create entirely new ecologies for learning which enabled them to rebuild their confidence and belief in themselves, and develop the skills and capability to lead a new and better life.

### Rebuilding a professional life

Robert began his professional career as a school teacher in Yorkshire before going to the Middle East to work as a teacher and eventually becoming head of a big international school. His story is one of disrupting his career to return to the UK and rebuild a very different life.

#### *Robert's story*

I should state at the outset that what follows deals with events and processes largely due to my own instigation when I, with my family's support, decided to resign from my role as a head teacher at a large international school in Saudi Arabia, and give up the rich and fulfilling expatriate life we had chosen to live... to return to the UK and start a new life. This was undoubtedly an act of self-disruption for me and my family, since no one, or no circumstance, forced me/us to do this and we could have continued in this situation until I chose to retire. The article describes something of the process I went through, and how I learned to change and adapt to a new professional life.

Both my wife and I qualified as school teachers and after a few years of teaching in the north of England, we decided to go on an overseas adventure. We got teaching jobs in Tehran, with a two year contract. Sadly, our entry to Iran in 1978 coincided with the revolution and our school closed down less than six months after we arrived, with most of the pupils and staff having left the country. My wife and I accepted the offer of an airlift by the RAF to Cyprus, and proceeded home. Being jobless, we found it hard to get rented accommodation at first, but eventually we readjusted our lives and obtained temporary posts for the rest of the school year, before embarking on phase two of our overseas adventure in 1979 to work in Jeddah, Saudi Arabia.

Life there was full of contrasts and contradictions. When we'd completed our first year at one school, we moved to another that was

just getting under way, which catered for expatriate children from many countries.....This was intended to be a short-term period of life overseas; but apart from a year back in England studying for an MEd in the early 1990's, moving house and having our second child, we ended up spending more than two decades living and working in Jeddah [a significant part of which I was the Head of the International School].

We experienced huge, life-changing events during our time in Jeddah. Our three children were born and enjoyed a wonderful school and home environment, with loads of other children and opportunities in the core and wider curriculum, as well as interesting travels and adventures near and far. The climate was roasting most of the time, but conducive to outdoor activities, especially swimming, in the pool or the sea. As adults we went exploring, as well as indulging in a great range of expat activities. It was fulfilling, as teachers and school leaders, to be able to craft and develop the extended impact of school life and values on a growing population of international children, including, eventually, some Saudis...

We always planned to eventually return to the UK, two of our children had already done so for their sixth form and university education, having found life in Saudi too restrictive by this time. We missed them, and my parents were getting quite elderly. So for these personal reasons we decided to leave.

The transition from Saudi to the UK was not a sudden crisis, requiring rapid accommodation mentally and practically...Both my wife and I were too young to give up work and we were not wealthy enough to do so anyway. So we both set about finding jobs - quite a challenge given I had not had to do this for over twenty years.

Emotionally, this was a time of very mixed feelings: fear, excitement, worry, pleasurable expectation, relief, anticipation, confidence, pride and self-doubt. There was uncertainty and anxiety, balanced by some anticipation of relief in relinquishing the burden of responsibility for such a large community of families.... I was looking at the prospect of giving up a whole set of routines, human interactions, and fulfilling experiences across the whole of my life.

Rebuilding [my professional life was] a process, and it took me a couple of years to fully come to terms with my new situation... I hadn't got a plan to take on a headship in the UK, and actually was quite vague about the next steps. Looking back at emails from that time, I notice that I'd considered a variety of options: consultancy, supply teaching, teaching English as a foreign language, to name three likely possibilities. I needed to discover some specific pathways.

I had taken the precaution of studying for the England-based National Professional Qualification for Head teachers (NPQH). This was useful in acting as an endorsement of much of the work I'd been doing anyway. It also opened up some links that were to prove crucial to my future, and for which I remain grateful to this day. I attended training sessions online, joined an online group of people tutored by a facilitator from the Institute of Education in London, and began to satisfy the requirements of professional exchanges and the collation of documentary evidence for assessment. I travelled to Bahrain for one of the final interviews, and went to London for a day of face-to-face assessments. Having satisfied the requirements for this qualification I attended a residential experience with other graduates at the National College for School Leadership in Nottingham. Other participants kept asking me for practical guidance, thinking that I was one of the tutors, being older than most, and more formally dressed. This gave me the idea that I could perhaps work as a tutor for the programme. But [I had serious] self-doubt about my credibility and currency, and I needed to find ways of reassuring myself and possibly others, as I approached the team at the Institute of Education at the University of London. (This boldness had been encouraged by my NPQH tutor who had been a head teacher overseas herself.)

I've mentioned some key people who helped in the process of coping with disruption. On the emotional and practical fronts, it was massively important to have the backing of my wife. Among other things, she began supply teaching, and we were able to deal with the business of engaging with our children's UK-based education in an active, challenging but fulfilling way, forming a great team. The children and old and new friends helped, by giving a new context of belonging and purpose. In other ways, I found myself being helped and encouraged to expand and develop my thinking about educational

and social values, and to put pen to paper - or fingertip to keyboard. This process had started before leaving the Middle East, and those responsible will recognise this reminiscence of mine.

Contrary to my expectations, the programme director for the NPQH at the IoE, was pleased to be able to add a new ingredient to the team of consultants! She encouraged me to do an additional qualification, which wins the prize for the the longest title of any I've known: The Graduate Certificate in Education Leadership and Development Consultancy. This served to equip me with a range of current thinking, terminology, practices and concepts, as well as placing me a step closer to a role of responsibility involving interesting people. Then, gradually, by working alongside an excellent range of new colleagues, and by demonstrating my competence in assessing, tutoring and supporting those on the programme, I began to renew my confidence in my own capability. I had to do some revision as well as new learning to achieve this.

I had to adapt back into UK society: society had moved on, and so had I and re-anchor myself. This was predominantly going on at a family level, with children's transitions to new schools and social circles, and my wife also teaching. Meanwhile, we all had the chance to return to friendships that had been more intermittently engaged in during our time away. It was a time for comparing and contrasting the near and the far, the new and the past, and finding some stability and equilibrium in terms of values, attitudes and behaviours.

Based on my experience of rebuilding my professional life I can draw a number of conclusions about the process I went through to re-create myself and rebuild my professional life. I deliberately choose the word re-creation because it involves bringing many new aspects of myself into existence.

- New purposes: What do I get up for in the morning?
- New ways of spending and organising one's time: What are my priorities, in work and play and obligation?
- New roles and identities: Today, am I an ex-headteacher, a coach, a facilitator in a training session, an assessor, a parent, a school governor, or all of these?
- New knowledge - particularly relating to regulation and quality

assurance in educational establishments

- New biographical narratives for the “back story” of one’s life:...[in effect] the creation of a real, authentic, but essentially new identity.

Robert was in control of his own disruption. He was able to make the decision on when to disrupt his life and the life of his family to give up one life and start another knowing that he could not go back to the life he relinquished. He shifted himself out of one *context*

and into another *context*. The *affordance* for learning and developing lay in the particular relationships he had begun to develop with the team that offered the NPQH in London (ie he began building a new ecology before he left the earlier context. His *distal goal* was to settle his family back into the UK and rebuild his career and his *proximal goals* were formed around the activities he undertook to achieve these goals. Collectively, these activities constituted his *process* for learning and professional development. To achieve his goals he drew on new knowledge *resources*, his own past experiential knowledge and formed many new *relationships* with people and organisations who helped him. The process was slow and required resilience as he rebuilt his professional identity - recreating many aspects of himself in the process. Robert's story is one of turning a significant disruption into an inflection that changed the course of his life.



## Examples of Inflection

Inflection points involve people seeing the affordance to learn and/or achieve something in a new and unfamiliar context and putting themselves into that context in order to take advantage of it. Such a

profound change of circumstances is generally associated with feelings of hope and optimism as the individual begins their journey towards what they believe will be a different and better future. Consequently they generally do not feel a significant sense of loss for what they leave behind. That does not mean to say that inflection points do not require a journey to be made that can be difficult and challenging as the person learns to adapt to their new circumstances and in some cases inflection can lead to the same psychological effects as disruption.

The narratives in this section are mainly from people who have put themselves into challenging situations in order to develop themselves into the people they want to become.

### Gap year experiences

Gap years are often used by students before they go to university or between undergraduate and postgraduate courses, as a way of challenging themselves to do something interesting, useful and sometimes exceptional. The first two narratives show how effective and challenging gap years can be in creating an inflection point in a person's life.

#### *Lisa's story*

Looking back, I don't think I ever completely grasped exactly how big a step I was taking by going to live and work in a completely unknown country.... In Quito, I lived with a family [a mother and daughter - Francesca] in an apartment overlooking Parque La Carolina, in the rich district. .... I walked to Spanish lessons in the morning, dashing across busy roads full of aggressive drivers with little regard for traffic lights. After Spanish, I ventured out to explore the city....I walked the streets with only my Lonely Planet Guide for comfort. I visited an observatory where there were no English-speaking guides, I climbed the cathedral bell-tower and was absorbed by the enormity of the city I found myself in, and I clutched onto my bag on the cities trams on which I was the only visible foreigner. On my first weekend I went out to a club with Francesca and her friends. I hadn't brought any dancing clothes with me, I couldn't speak Spanish, and I couldn't dance the salsa and merengue that everyone was

dancing. I couldn't even order anything at the bar as the barman didn't understand me, and there was a pay-by-card system that no one had told me about....This was when I realised just how out of my depth I was in a foreign country with a foreign culture, and feeling very alone.

After a month of Spanish lessons, I had two months of work. I chose to split my time between teaching English to children in a pre-school in Las Casas, a poor district of Quito, and working in Albergue La Dolorosa, a shelter for children whose families are unable to care for them. Having never done anything like this before, I didn't know exactly what I was expected to do. I was teaching with an English girl, and we tried to plan lessons as best as we could, but it was often in vain in a class of very young children with a poor attention span and little desire to learn anything. In the children's shelter.

My poor Spanish was constantly a barrier between who I was, and who I wanted to be. It didn't help that I kept being sick, which made me very miserable. Things were going on back at home that I was missing, and I think it all became too much and there were a few days when all I could do was cry. I know my host family were concerned for me and Francesca came to talk to me to see what was wrong and I tried to explain it all to her. She told me that for a job to be satisfying, all you have to do is do it with love. That really changed my outlook on being a volunteer. I needed to stop worrying about what I was supposed to be doing, and just try and put as much of myself into what I was doing. She also told me that when something's wrong, you should put your energy into changing it, rather than letting it get you down. These are really simple words, but I needed to be told and it is advice that I will always remember.

This was a turning point. In the school I picked a sea-life theme, and painted murals of sea creatures on blue walls. When the children got back from school, they helped me out, often getting more paint on their clothes and feet than on the walls. There was paint on the carpet, huge drips on the walls, and one girl stood on a tube of paint that squirted all over the place. It really was a mess, and I had to reign in the perfectionist tendencies I sometimes have and try not to mind. It was really great working with the children, and they enjoyed it too.

Francesca's mother was a very strong woman.....She was sharp and I was quite scared of her. In my first weeks, I'd come home from Spanish lessons and she would ask me about my day, my life at home, etc. She was trying to help me, but I'd never spoken another language before and I was struggling with it. She would get frustrated whenever I didn't understand her, and attempt to say it in English in a really loud voice that always felt like she was shouting at me. I would generally let something like that wash over me, but in Ecuador I was very vulnerable and sensitive, and I was often close to tears whilst attempting to speak to her. I dealt with this by basically retreating from her, and trying not to care. I didn't see her as my friend or her apartment as my home. One day I got very upset and it all came out.... I am still ashamed about it all, but I had to learn the hard way how important it is to talk about things, as just letting thoughts build up in your head distorts them and only makes the situation.

But the air was cleared, my Spanish was at its best and the playroom was nearly finished. After nearly three months the city was beginning to feel like home. I loved my journey to work in the morning when I could buy fruit on the street, converse with people in Spanish, jump on moving buses (something that I had put off doing for many weeks), and run across the manic roads. One really memorable thing for me was buying curtains for the playroom. As I was dealing with the shop assistant in the drapery store, various customers would come over and try and help us figure out exactly what I wanted. When I had bought the material, the shop assistant took me down the street to a dressmaker, where another conversation of what exactly I was looking for ensued, again with the input of the other customers in the queue, and some pen and paper. Eventually, we worked out what I needed. It really was such a buzz being able to get by in a country in a way that I had never envisaged when I first arrived.

On the surface I don't think I've changed, but perhaps at a subconscious level I have developed the mechanisms to deal with being in a new place, in a new situation, with new people.

In this narrative Lisa realises that by immersing herself in a Spanish speaking culture *afforded* her the best opportunity for leaning. She bravely puts herself into an entirely new and unfamiliar context in order to

challenge herself and develop her independence (*proximal goal*) while learning Spanish (*distal goal*). The narrative reveals it was a stressful experience involving the complex interplay of *contexts* (new cultural context and the micro contexts of living in someone else's home, work, study, night club and city streets), processes (for learning Spanish and for getting to know the environment in which she lived), *relationships* (with her host family and the people she worked with) and *resources* in order to deal with significant new learning and development needs. Her self-created process involved her in some formalised language tuition but for the most part the learning of language, culture and how to fulfill a productive role at work, was through the day to day experience of interacting with the world and her relationships and situations in family, work and other social settings. In such a situation the whole of life becomes an ecology for learning and developing.



In this second story a graduate from a Canadian university decided to challenge herself by taking up a teaching appointment in Spain in the belief that it would *afford* her rich opportunities for personal development.

### *Azinda's story*

It was my first day teaching English as a Second Language in Madrid, Spain and you need to understand is exactly how terrified I was at that moment. I had just moved to Spain from my hometown in Canada. I had never lived on my own, I had never visited Spain, I moved by myself, and I didn't speak a word of Spanish. I was as overwhelmed as a person could be. On top of that, I was beginning a new career as an English teacher in a successful architectural company - teaching lawyers, engineers, and managers. And now,

after introducing myself to my first class, my students' response - in Spanish - was 'I don't understand'. I was seized with panic.

Somehow, I managed to get my class through our two hours together, and when I left I knew I had to come up with a new plan - and fast. But how? There I was: unsure, afraid, and naive. By the next class, I had a new lesson plan; I was going to start at the very beginning with the alphabet. This seemed to me to be a good plan; however, I was met with icy acceptance in our second class. The students - all native Spaniards - participated minimally. I left feeling completely intimidated and defeated.

The next day I went to my boss and asked for help. I was intimidated by my students who were all much older than I was and very successful business-people. And as I found in all aspects of my life at that point, I was having trouble communicating even the simplest of concepts. What my boss told me was one of those pieces of advice I will never forget. He said, "Don't be intimidated. Remember, you are there to teach these people something you know and they don't." After our talk, I left his office with a slightly renewed sense of composure.

By the next class, I had purchased a Spanish-English dictionary, which I told my students they all had to buy before our next meeting. Looking up almost every word was a slow and tedious process - but it was necessary for making any kind of headway. I was by no means very confident yet, but I was starting to feel a little more comfortable in front of the class. My students and I continued, making slow strained progress, for a couple months.

Then one day, my boss told me I was to give my students a performance evaluation. This made me very uncomfortable as I still wasn't completely confident teaching them - and here I was to evaluate their progress. After much thought and consideration, I came to the decision that in turn for my evaluations of the students; I would ask the students to evaluate my performance. I went to class that day, evaluations in hand, and attempted to relay my comments to each student. As their grasp of English was still basic, it was challenging. What happened next though permanently changed my experience living and working in Madrid. When I asked for feedback

from my students, I received performance recommendations and more. The students appeared genuinely appreciative of the reciprocal offer for evaluation. Not only did they initiate conversation, they were more attentive when I spoke as well. It was as if by opening myself up to the students, they in turn, offered more of themselves. For the first time in months we all were really hearing what each other had to say and it created a wonderfully positive atmosphere.

After that day, things in class started falling into place. My students' attendance was up, they were asking for and completing homework and I started feeling confident and comfortable in the classroom. As their English improved, my Spanish did as well - it was as if we were teaching each other and enjoying each moment. My students had constant questions about life in Canada and were equally as enthusiastic about sharing information about the Spanish lifestyle. As they learned about me, I learned about their culture - and the benefits reached all aspects of my life in Madrid. I was gaining understanding, appreciation, and confidence in my daily life, as well as in the classroom. The end result was my students went from a level of no English to an intermediate level in the span of six months. The benefit for me - I believe - was far greater.

In hindsight, completely immersing myself in Spanish culture was a drastic and valuable decision. While those first few months in Madrid were the hardest I've ever survived, I realize now that I was my biggest barrier in integrating into Spanish society. I was so caught up with trying to conduct my life as I knew how to (from a Canadian perspective) I didn't even consider those around me. What I mean to say is that I didn't consider how my presence affected my students. Over those first two months, I learned that the Spanish people resent foreigners (especially Americans) and they associated me with those preconceptions. Second, I learned that the Spanish people appreciate foreigners who make an effort to "live life the Spanish way". By opening myself up to the students and the way they lived, they began to trust me. It demonstrated I was willing to understand and see the world from their perspective and it opened the door for our relationship to grow.

While I wanted to give up in those first few months, I didn't want to let my parents down. I didn't want to let myself down. I had moved to a new country for a new adventure and I knew it would be hard. I had no idea it would be as hard as it was, however I became the person I am because of that experience. I learned to appreciate a new culture and to be wholly open to it. By the end of my time in Spain, I made countless friendships and was invited into the lives of my students (many of which I still keep in touch with today). Most of all, I gained confidence. I feel confident I can handle whatever obstacles may come my way because I knew I'd survived and benefitted from my past experiences. Now I look back on my time in Madrid with nothing but joy, satisfaction, and pride. I am so grateful I persevered, as it made me the confident, open, and appreciative person I am today

Azinda's story again reveals the disorienting power of a new and unfamiliar cultural context without the ability to communicate in Spanish, compounded by first time experience of living by herself and starting a new job that she was not prepared for. The set of circumstances combine to create an entirely novel and disruptive ecology involving both unfamiliar contexts and challenges. Drawing on her own resources and supported by a manager, she began to gain some control over the situation. By immersing herself in the local culture she acquired the language and cultural skills to feel comfortable and effective in her role. Her resilience paid off and she recognises the significant ways in which she developed as a person.



## Internship experiences

It is an interesting observation that amongst the most challenging experiences that students have while at university are often associated with internships or work placements. For the student, putting themselves

into a professional work environment, sometimes for the first time, constitutes the first major inflection point in their life. In this narrative a final year undergraduate student on a business course describes an inflection point during his work placement.

### *Philip's story*

I had been a student at the University for two years and had used my time searching, questioning and understanding education, but not myself, as I never truly had the opportunity to find out more about myself as a person rather than merely me as a student. This opportunity came as part of my degree programme which included participation in a placement year.

My placement year was with a company providing marketing and sales services to well-known companies such as IBM. It was not until a few months of the placement had passed by, that I realised my identity as a student was no longer prominent in defining my contribution. I was an individual, working within a firm, whose actions defined every success or failure that was to come.

After a few months I was fortunate to be selected to take part in the, [company's] 'Future Stars Leadership Programme'. I saw it as an opportunity to challenge myself and get more from my placement year.

The programme was an 11 week, off the job course, with the primary aim of putting learnt theory into practice in the workplace. The set up of the course included weekly board room meetings, with the 14 participants and the company's Business Excellence Team. We were informed that through discussions, reports, and group work (that would take place at every session), our effort, and achievements would be scored. The person with the highest score at the end of the course would win a company weekend trip.

The first week started and with all the excitement, I remember going into the board room wondering what I had let myself in for. As the weeks progressed, the work got more demanding and time consuming. Our weekly assignments meant that a lot of preparation had to be done outside working hours to develop our own initiative. I have been told at times, that I embrace a very competitive soul, that it

takes a mind of its own when I am in a competitive environment. I had, therefore, decided prior to accepting a place, that this programme would have to mean more than just winning in terms of scores, I had to accomplish something else, like; my presentation skills, working with strong personalities and so on.

Although I knew what I had decided, the programme started and things remained the same. Every one of us was encouraged to bring the best that we could to the table, to fight for the scores, to show we had it. Before I knew it, my entire focus was on just those scores, until I sat with my team leader to understand why this learning felt so empty. It was like every week I was taking on board new knowledge, a way of implementing it practically and yet it didn't feel important or of value. I guess the answer was pretty obvious; I had not opened up completely to what this experience could do for me. My conversation with my team leader, made at least one thing clear to me, this programme now had a different direction and a different goal that I needed to achieve. Moreover, it would be for personal reasons, for self identification. My goal was no longer to reach the maximum scores, but to take that something away from each session that I knew made me better in one way or another.

From then onwards, I felt as if with every step I took, I was able to better understand myself, my motives and what really affected me in life. My work was the centre of what I did nothing else mattered. The experience of being so involved in a situation, where the concept of time and effort were no longer quantifiable aspects, made me feel happy yet left me slightly confused. It's like a rush of some sort, where you don't have enough time to stand and reflect on what is happening or what you are going to do. On the other hand, you have to be calm and collected, if you are going to remain focused. One could say it's like a marathon, a slow marathon, where there is a clear finish point, a struggle in the journey and a phase where you cut off from everything else except the race that you are in.

I guess if you do compare it to a marathon, then there are always seconds in the minds of those who participate, wondering if they truly have what it takes to succeed. I went through that too, times when I didn't want to be a part of the programme anymore, when it got a bit

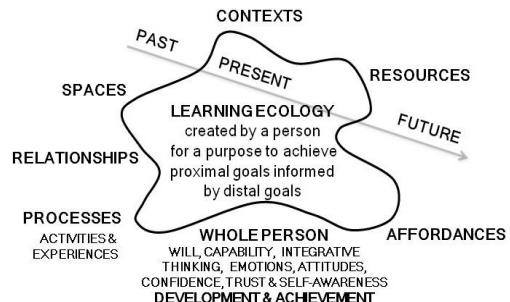
too much to handle. However, what astonished me was how this experience was making me feel. As much as I wanted to stop, like the person running, I couldn't. I just couldn't quit, I couldn't disengage myself and leave. I don't think that I still know why I just couldn't do that, maybe a sub-conscious belief system or maybe the feeling that you get so involved in something, that the way out is just not an option. Instead, your mind keeps thinking, how to make things better, how to reach your goal successfully, and then when you do, there is this strong positive feeling that you get.

An example of this is times when I was leaving the office at 11pm at night, and yet, instead of feeling tired, I had a sense of self power. I had never been so involved in an aspect of work, that I lost all perspective of everything else. My focus, determination, and engagement with the work were as such that my actions and my being were to ensure that I reached my goals, without giving up. This is when I realised something that I didn't know before, I realised how much any work I took part in, meant to me. A disappointment or failure at work affected me on an emotional level as well; it would knock my self confidence down and increase any doubts I had in terms of my abilities to succeed.

The experience showed me that you can get lost in something that you value, to the point where you lose all other focus. The emotions are endless; you go through stress, a feeling of being uncomfortable and not in control when things get difficult. At the same time, any positive success or accomplishment brings pride, self belief and a feeling of empowerment. It affects you emotionally, physically (draining and tiring) and intellectually and leads to you becoming a different person. The challenge helped me to not only grow in terms of developing myself professionally but on a personal level. Having been through this experience, I have a clearer perspective on differentiating between such things as: criticism of work versus criticism of myself, what winning is or can mean to different people and the best lesson of all, self improvement happens when you engage deeply with something you care about.

Philip is trying to enhance his employability and complete his placement year (his distal goals) but he wanted to make the most of his

placement opportunity in a challenging work context. He joined a programme for the most talented employees. He was highly motivated and we see him working hard but becoming disillusioned with the value he was gaining from the experience until he was coached by his team leader to develop a different attitude so that he could draw deeper meaning from the process. This reorientation proved to be a turning point and we see him gaining insights that will stay with him throughout his life.



As we saw in the earlier narratives cultural dissonance provides a particularly challenging context. In the next narrative a third year English university student challenges himself by taking on an internship with a Japanese Chemical Company.

### *Jake's story*

My university course offered me the chance to undertake a placement after my second year. I undertook the challenge of a placement at one of the leading chemical companies in Japan.....With more to prove than merely a qualification, I was determined to show others that I was capable of such a feat.

Past experience of traveling did not prepare me for the wholly different lifestyle I encountered. I landed in Japan struck with awe and fascination - marveling at the staggering uniqueness of the culture I was now immersed in. Comparing, absorbing plundering the streets while using the rudiments of Japanese I picked up before I went.

I was promptly chaperoned around the company on my arrival, having to deal with endless formalities while still in a jet-lagged, home-sick stupor. I was speedily, drilled with agreements, dressed, orientated as well as 'orientalised', disciplined, taught and made to produce results at my fingertips. The towering scale of the chemical

plant made me seem like an insignificant and diminutive figure among the working machines. Japanese people work differently, the work is taken very seriously and the professionalism is concrete set centuries ago. Adaptation was imperative, and my giddy feelings had to be suppressed to make a positive impression.

The experience was quite intense since I had to acquire the cultural as well as professional customs in a short period of time. The work was challenging but my surroundings in rural Japan seemed dreary, and I tried my utmost to keep my mind occupied. The time away from western civilization and the silence provided plentiful opportunities for reflection and wishful thinking. Spare time was eagerly consumed by learning Japanese and quests for some refreshing past-times including swimming which was incredibly therapeutic in the intolerable sticky-summer heat. As the only foreigner in the company, it was important to keep my mind and body ticking like clockwork, to avoid a distressing despondency that I became accustomed to quite frequently. The food was not to my taste but I learned to really enjoy it, although dormitory food was an obligation, I soon felt slight infringements on my civil liberties among other things as I felt increasingly institutionalized.

In the early stages of my placement I made a number of pleas to my tutors for a transfer to another placement, due to feelings of despair and alienation I experienced in the first few months. Fortunately, I quickly realized that the atmosphere was not as sinister as it seemed, and my team was extremely friendly. I was hugely impressed by the sheer devotion of my colleagues, their long hours, their cooperation, their loyalty: two of my team having been in the same position for over 40 years. Having completed almost half the placement, and despite being embattled with the masters distance learning coursework I also had to complete, I am pleased that I was so adamant about continuing my placement in Japan. Having now overcome the challenges of the work and making unprecedented progress in the fuel cell team, it has become ever more rewarding working at the forefront of fuel cell technology.

Living in solitude is the ultimate contrast to twenty-four-seven-hustle-bustle of University life. There have been times when I thought I

was going mad, chewing over my life in quiet trains, labs and offices, at times swallowed by gloom and melancholy....I had to lift my own spirits - well not entirely by myself; my girlfriend in Florida gave me immense emotional support over the phone. But anyhow, I soon found solace in this little retreat. And from time to time, I'd embark on an adventure. My travels led me to the Golden Temple in Kyoto where I experienced its splendour and its ancient glow warming my face. I ducked and dived through the torii gates dotted around the mountainous country. I climbed the hills of Nikko and breathed the arctic air which awakened my senses; saw the sunrise like an apparition from the mist as spectrum of hope. I envisioned feudal Japan; the clang of swords and the ever-present valour of the Samaraι resonated through the hills. I scaled Mount Fuji ill prepared for the foreboding tempest and had to scuttle down the volcanic ash like a demented goat accursed for his foolishness. I try to relish in the good memories and they came intermittently like buckets of ecstasy from a storm. But one must sacrifice to experience anything worthwhile these days.

Jake is trying to become an industrial chemist (his distal goal) and he wanted to make the most of his placement opportunity and was willing to put himself not only into a professional work environment but try to live and work in a culture that was radically different to his own. His proximal goal is not only to pass his placement year but to cope with and perform well in the particular context he chose for himself. Initial anticipation and excitement gave way to anxiety as he began to realise the challenging situation he had put himself into. But he was fortunate in having good support from his colleagues and girlfriend and he developed strategies to 'lift his own spirits'. These relationships enabled him to survive and we see him



emerging from the experience with confidence, the assurance from realising the progress he had made in his professional work.

### Changing jobs

Perhaps the commonest type of self determined inflection is when we decide to cease to work for one employer and to take on another role with another employer. In this example Watling (2016) describes the sequence of processes she went through as she embarked on a new role in a new institution.

#### *Sue's story*

In July 2015, there was a familiar 'ping' and before I even finished reading the email I knew two things. I was going to apply for a new job and it would involve a significant shift in lifestyle. I'd been with the same university for over 15 years...[But] ...I'd been through a number of restructures [and] the most recent one had changed my job role. I was no longer using my experience and expertise in technology enhanced learning but working with the non-digital aspects education development instead. The job I was now reading about was a re-advertisement of a post which called for the pedagogical application of technology to learning and teaching. I'd seen it three months earlier and been tempted then, but told myself to give the new routine a year to settle down. This time there was no hesitation. I knew I wanted a new challenge and this job was closer to my interests and ambitions. So this set of circumstances provided the context for my decision and the motivation to propel me through this difficult transition.

A job advert opens new affordances or new possibilities for action, new spaces to explore and develop in but to realise the affordance requires certain actions to be undertaken. One these actions is to take stock of your own interests and capabilities and evaluate how they match up to the requirements of the job, and all the motivating factors in your life that give your life purpose and meaning. While preparing firstly for the application and then for the interview, I took a long hard look at my CPD. It's something we don't do often enough and pushing yourself into the spotlight offers a brilliant opportunity to revisit goals and ambitions. ....I reflected on the major challenges in my working life, how they were overcome and the

lessons I learned.....Having taken stock of myself it was then relatively easy for me to apply for the job demonstrating how my interests, capabilities and achievements met the requirements for the job.

Getting the job was a huge boost to my confidence but giving notice and beginning the process of detachment bought home the enormity of the decision. The physical emptying of desk drawers, choosing what to take away or leave behind and the reality of leaving colleagues who have become friends was hard. Our paths were dividing and working your notice can be difficult in these circumstances when your future does not coincide with the future your colleagues are imagining..... While you are embarking on a major life change, you are taking apart the life of your work team as well: it's a difficult psychological process for them as well.

To offset these uncomfortable feelings, and to begin preparing myself for my new role...I made sure my own online profiles were up to date and set about searching for my new team members, contacting them via Twitter. A profile which mentioned keeping an allotment offered the comfort of shared interests. We were in touch virtually before we physically met up. The interactions reinforced the value of an effective online presence and how interacting with people online to build new relationships is a useful CPD activity in itself. This process enabled me to start detaching myself from my past and reorient myself to my future.

[When I started the job] I felt like a kid on the first day at school. I wore new shoes, smiled at new faces, shook strange hands and sat in my new place of work. I was now in a totally new and unfamiliar physical and mental space. Any team has established habits and ways of working. I knew I needed to sit back, observe and take time to fit in to a new culture. Through this process I was developing new contextual knowledge and new relationships to enable me to function effectively. At the same time, as an experienced professional, I was expected to perform the job I had been employed for. I expected a transition period but underestimated the time it would take I knew everything would be different but misjudged how intensive the difference would be. Nothing was the same. I was used to MS Office

2007 and was now using Office 2013. My user id was a number. I border on Dyscalculia and continually locked myself out of the network convinced I was using the correct sequence. The internal staff contact list was clunky and gave little away. It took time to discover it wasn't broken but required the surname (spelt correctly) with initial capital. PDF documents refused to print from Chrome but were fine using IE. My screen was littered with post-it note reminders. The small printer didn't have A3 or copy functions. It was push only, located down the stairs and along the corridor so you couldn't risk printing anything sensitive. The nearest full-size printers were in the library. They were activated by the barcode on your staff card but there were no instructions saying this. Coming from a place where everything is familiar, it's a shock to realise how much you don't know about ways of working you previously took for granted.

I made lists of people to see, knocked on doors and introduced myself over and over again. I seemed to be talking about myself constantly. What I did, why I left, how I was finding it, what my remit was. There were times when the adjustment was hard. I practiced mindfulness, breathing through difficult moments, separating myself from negative experiences. I knew these were coloured by my own perceptions and anxiety to impress rather than anything intrinsically lacking. I continually reminded myself where I came from and how I'd got to where I was. The university was structured into Faculties which had a higher degree of autonomy than I was used to. Everyone had their own ways of working and while I was broadly welcomed, it took longer than I expected to appreciate the different ways of doing things here. There were some unexpected surprises. The shift from academic to professional services meant I no longer qualified for funding for my PhD so have to pay the fees myself. But in return I get a different approach to research and new ways of managing the research process. Everything in life is a duality of opposite forces. The skill is in finding the balance between them. This whole period of settling in has lasted several months and my learning and development have been fundamentally connected to trying to understand and adapt to the institutional culture.

....Four months after I started my new job I'm still learning and discovering but I can now look back and see how far I've

come.....For the past four months I've been in transition and it has made a difference to how I feel and how I function but overall it's bestowed the confidence to stand up and be counted for my beliefs and the rationale for owning them. I have better sense of myself and a new confidence to engage with and manage change. In terms of continuing professional development I was getting stuck, it felt like going round and round a roundabout, unable to find the correct exit. Now I've successfully made the move I am well on my way to a new pathway for my own development with no regrets and looking forward with optimism to my future.

Sue had reached a point in her career where she felt she needed a new challenge (*new proximal goal*), that was more in tune with her interests and ambitions (*distal goal*). She was dissatisfied with her current situation so when the *affordance* to move was provided she was able to decide quickly. Her story is particularly interesting because it articulates the stages she went through in her *process* of leaving (detaching herself) from one professional role and migrating to another. All the stages she described were important in enabling her to transit from one professional *context* to another. Her story illustrates well the different *knowledge resources* that are used in making such a transition eg knowledge of self and how your experiences and capabilities match the requirements of the new job, and new contextual knowledge that can only be gained in the new context. Sue also uses various on-line tools to help her achieve the transition and the way she put effort into forming *relationships* with the people she would be working with.



### *My story of inflection and disruption*

I was nearing 40 and I had been a higher education teacher at a UK polytechnic for four and half years, I felt I needed a change. I updated my CV and applied for a job in Australia that I did not get. Then my head of

department mentioned that 'they' were looking for an HMI (Her Majesty's Inspector) for geoscience education: a role that involved visiting all geoscience departments and making judgements about the quality and standards of education. Without knowing very much about the role I decided to apply for the job. I was successful and started my new job on my 40th birthday.

I started my new role excited by the prospects of doing entirely new things but my probationary year as an HMI was the hardest year of my whole professional life. I had to give up what I loved doing (being a geology teacher) to become something I wasn't sure I wanted to be. HMI was a highly professional organisation with a strong commitment to training and development and, although I was expected to fulfill a responsible role more or less from day 1, I was helped and supported to make the transition through an extremely good mentor and a year-long probationary programme in which I was helped by many different colleagues.

The probationary year was one of continuous challenge - almost every day was different and often radically different. I travelled continuously. Spent many days away from home and the comforts and support of my family. While I was comfortable and familiar with my primary role - geoscience inspector during my first year I was expected to experience and contribute to inspection of many different aspects of our education system. One day I was in a primary school, the next an FE college, perhaps a specialist agricultural college, a youth programme, a prison, a school for the severely disabled....you name it I had to go in and act as if I was an experienced inspector. I continuously found myself in new unfamiliar environments with people I had never met before... and continually felt out of my comfort zone and often out of my depth. There was heaps of travelling and logistics to get to places. For day trips I used to set off at the crack of dawn to make sure I was there on time. Just getting there added to the anxiety and stress of work. There was a strong performance element to the role..and the feedback to the responsible authority at the end of the visit was the most focusing of motivations anyone could ask for. There was a huge report writing dimension to the

work..even when I wasn't inspecting I was generally writing..sometimes 10hrs a day.

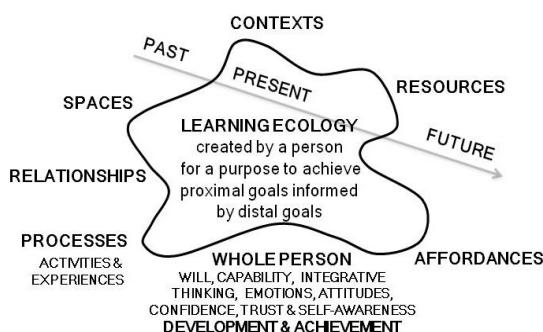
I was physically, intellectually and emotionally challenged and seriously engaged most days from the moment I got up (often at 5am) to the moment I went to bed. The job was always in my mind. I had to learn so many new things - factual stuff, relationship stuff, process stuff, organisational and procedural stuff, and much of it had to be gleaned from colleagues.. because it was stuff that was never written down..I had to make my own sense of this knowledge and apply it in real, live contexts.

I would not have got through this immersive experience without the support and encouragement of colleagues, my two line managers and my mentor. The support system and organisational culture provided an excellent model for on-the-job professional learning and training. My mentor and colleagues in my division were expected to take me on a visit, brief me, support me and give me constructive feedback to aid my development. The time set aside with my dedicated mentor for conversation, reflection and the identification of opportunities for further development, was a key factor in my survival, progressive development and eventual transition to the role.

The experiences I had were often challenging and sometimes frightening, but continuously interesting and exciting. At times I was overwhelmed with the demands and my interpretation of them. It required huge self-discipline, effort and physical and emotional stamina. I was frequently deeply tired. It was stressful and I experienced a lot of anxiety which I tried to contain through preparation and organisation. About 10 weeks into the job, during my first major institutional inspection, I reached a low point and felt I just could not do what was required of me and I was frightened of failing in public. Fortunately, a couple of colleagues on the team helped me get through but I remember thinking that I had made the wrong decision and I needed to work out how to leave the inspectorate. But, I got over it and persisted and over the next few months I began to gain confidence and develop my capability and interest

The experience was certainly transformational. Although I was still me it was a different sort of me. The unsung heroes were my family and the support, understanding and encouragement I received from my wife was essential to me being able to survive and make the transition. We should not underestimate the role of friends and family in helping and sustaining us through major professionally disruptive experiences. I reformed my professional identity during that year and became a very different person in terms of my interests. I began to develop a passion for higher education as a field of study.. it took me longer to give up my identity as a geologist and there was definitely a sense of loss for several years as I gradually lost this identity. Although there were times when I thought I would go under I didn't. I persisted and with that persistence and my accumulated experiences my confidence grew so that at the end of the process the thought of radical change didn't frighten me anymore and I made many more significant career changes in the next 20 years. 7

I now realise that I was trying to create an inflection point so I could move along a different career pathway. I can see that I disrupted my comfortable professional life by putting myself into a radically different context with unfamiliar



challenges and little knowledge and know how of how to cope with the role. I knew before I started that it would be challenging but it was only when I was immersed in the role that I could appreciate what it really entailed. For a time the inflection turned into a disruption as I struggled to come to terms with my new circumstances. Nearly every day was different (very different) and I was continually inventing my own processes to learn or participating in other people's processes (my learning ecologies were radically different to anything I had experienced as a geologist or a teacher). I most certainly could not have gotten

through the experience of my first year with the support of my mentor, other colleagues and most importantly my family. These supportive relationships were crucial to me making this transition.

Each visit to an institution required me to create a new ecology for learning and to achieve the particular purposes of the inspection which were embedded in the mediating tools I used - the sets of questions that formed my inquiry. My ecology involved the particular institutional / departmental context and physical environment, the people in the environment, my processes to learn what I had to learn and the resources made available to me in that environment. I had to learn to see and take advantages of affordances in that environment.

Over the course of the 12 months of my probation I developed myself to fulfill my role and gradually changed my professional identity from being a geology teacher and researcher, to something that was more akin to an organisational evaluator and reporter. I changed from being a novice with no idea what I was supposed to do to someone who could perform the professional role, manage a team of peers or coordinate a system-wide thematic review using HMI resources. I developed extensive knowledge of our education system and felt humbled through the experience of meeting and observing the hundreds of professionals I came into contact with. I learnt to gather, synthesise, interpret and make judgements about complex evidence and experiences and combined with the knowledge I gained about higher education, this laid the foundation for other roles with several national bodies. In this way it changed the direction of my professional life.

## Discussion

These stories show how some people are willing to disrupt their own lives and create an inflection point in order to encounter novel experiences through which they might learn and develop. The narratives illustrate well the journeys that each person made: journeys that often follow the same general pattern portrayed in Figure 5.3. These journeys began with an initial sense of excitement and positive expectations,

perhaps tinged with anxiety about what lies ahead, but were quickly followed by deeper feelings of anxiety, of being overwhelmed, and sometimes, feelings of inadequacy, incompetency, loneliness or emptiness. In some cases the desire to escape the situation also emerges. At these low points the intervention, help and support of significant others eg girl friend/wife, team mates, colleagues, manager or mentor are crucial. Without their help, encouragement and emotional support the participants might have given up. But they also did things to motivate themselves 'I had to lift my own spirits': they also created new strategies for themselves to improve their situation. Through their own efforts and the support they received they began to change their perspectives and see the situations they were in differently. Their confidence grew as the situation became more familiar and finally confidence, pride and a sense of achievement emerges as they realised that they had come to terms with and/or mastered the situations they were in.

The motivations for developing such inflection points seems to be overwhelmingly associated with the desire for change and personal growth - the personal development, intrinsic self-esteem and self-actualising dimensions of Alderfer's (1980) Existence-Relatedness-Growth (ERG) theory. This links strongly to self-determination theory (SDT) (Deci and Ryan 2000; Ryan and Deci 2000). SDT proposes that people have an innate psychological need for autonomy, relatedness and competence, and these influence (through satisfaction of these needs) individuals' intrinsic goal focus and motivation, and determine their sense of well-being. Individual agency, motivation to learn and novel skill mastery are all outcomes of satisfying these needs. Intrinsic motivation emerges in these narratives in some cases, to deal with an unknown situation (survival instinct), but more generally the it is revealed in the motivation to continue and not give up in spite of the challenges and difficulties experienced. Self-determination is important for persisting through a complex transition in order to attain personal goals (Hale and Abreu 2010) and these demonstrate that the ecologies people create to enable them to journey through a demanding transition provide them with

the opportunity to test, develop and demonstrate their will to accomplish the complex set of achievements required of them.

### Losing and rediscovering self

In 'A Field Guide to Getting Lost' (Solnit 2006) Maria tells a story in which a student came into a workshop with a quote from what she said was the pre-Socratic philosopher Meno. It read, "How will you go about finding that thing the nature of which is totally unknown to you?" The idea of using disruptions and inflection points in life to discover how to 'go about finding that thing, the nature of which is totally unknown to you', seems highly relevant to this idea.

'To be lost is to be fully present, and to be fully present is to be capable of being in uncertainty and mystery. And one does not get lost but loses oneself, with the implication that it is a conscious choice, a chosen surrender, a psychic state achievable through geography. That thing the nature of which is totally unknown to you is usually what you need to find, and finding it is a matter of getting lost.' (Solnit 2006:xx)

'The experience showed me that you can get lost in something that you value, to the point where you lose all other focus. The emotions are endless; you go through stress, a feeling of being uncomfortable and not in control when things get difficult. At the same time, any positive success or accomplishment brings pride, self belief and a feeling of empowerment'

*Anonymous student*

This beautifully expressed way of seeing the process of embarking on a new trajectory through life, seems to offer a deeper insight into the psychological process of life inflections and self-disruptions, by revealing one of the motivations for why we might choose to do it. By changing the direction of our life. By voluntarily putting ourselves into new situations that will take us on a different path and immerse us in entirely unfamiliar challenges and experiences - we are creating opportunity to lose something of ourselves (the life we used to lead and the person we used to be) while at the same time creating the potential to discover, 'that

thing, the nature of which is totally unknown to you' (Solnit 2006 with a quote attributed to Meno). Losing ourselves is the way we challenge ourselves to live a life in which we can discover for ourselves who we are.

## Post script

I tend to agree with Jankowska (2016) that whether you see a significant change of circumstance as an inflection (opportunity) or disruption (setback) is all a matter of interpretation and psychological orientation (optimism and positivity versus more pessimism and negativity).

Some situations or events can be understood as inflections but can turn into a significant disruption and disruptions can be turned into inflections by seeing the positivity and opportunity in the situation even if they are difficult and uncomfortable. Either way it is down to me how I choose to interpret these events, what meanings I attach to these and then my attitudes and responses. All of these things matter and determine whether I 'bounce back' and move forward, and whether I draw on and build my resilience. Understanding the power of interpretation has definitely helped me turn several disruptions into inflections and not to give up or slide into depression and self-pity (Jankowska 2016)

I am a great believer that any educational theory I advocate in the service of lifewide learning must be applicable to my own life. As I am writing this chapter in September 2015, over the last few weeks, three of my children have made significant decisions that have effectively created inflection points in their own life.

My youngest daughter, did not do as well as she had hoped in her GCE AS level chemistry course. She spent the last 10 days of August revising to retake the paper she had done badly in and managed to move from an E to a B. She clearly struggled with and did not enjoy the subject and feared if she continued to A2 as she had planned, the effort required would have a negative impact on the other subjects she was studying. After much deliberation and discussion with family and teachers she decided not to continue with this subject and re-oriented her goal for

university. When she looks back she will appreciate that this was an important inflection point in her life.

My next youngest daughter graduated in June this year with a good degree in politics. She had intended to apply for positions on a retail graduate training programme and spent the summer working in a well known high street chemists to gain some experience of what it was like working on the shop floor. The experience changed her perspective and after a lot of reading, considerable research into career prospects and a lot of family discussion, she became enthused with the idea of studying psychology and eventually applied for and was accepted onto a Masters conversion course. She knows it is going to be hard work to develop the knowledge but the self-determined, self-directed process she has been through has fuelled her motivation to succeed. This is the second example of someone close to me creating an inflection point for themselves.

At 18 my youngest son had hoped to study medicine and had an offer but his grades in the IB just fell short of the offer. So he reoriented himself and studied another subject diligently and passionately, immersing with a first class degree. After university he did not want to go on to further study and he fell into a job which paid well but did not engage him in the sort of social enterprise where he thought he was helping people (the reason why he had wanted to become a doctor). To some extent he satisfied this yearning through voluntary work with a charity that cared for vulnerable people. Two years on, and thanks to his mother who attended a promotional event in London, he discovered the possibility of studying medicine in Eastern Europe. After doing his own research into whether his academic qualifications were good enough, and making inquiries with an organisation that helped people secure a place to study medicine, he applied for and was accepted on a course leading to MD. He knows it's going to be a long slog (6 years) but he is prepared to try. Furthermore, he admits that both financially and psychologically, he could not have attempted such a pathway until this point in time. This is a defining moment for him as he has created this inflection point in his life and I can't help but think that in embarking on this adventure, and knowing him as I

do, he is also creating the potential to discover for himself, 'that thing, the nature of which is totally unknown to you'.

# CHAPTER 6

## The University Ecosystem: Ecological Perspectives on Curriculum, Pedagogy & Learning Environment

### What is Curriculum?

This chapter considers the way in which the idea of learning ecologies might be applied to a university's curriculum, its pedagogic practices and learning environment that underpin and support students' learning and their broader experience of being in a university.

In their book 'Engaging the Curriculum' (Barnett and Coate 2005:16) assert that 'curriculum goes to the heart of what we take higher education to be, of what might be and should be in the twenty first century'. This chapter and this book are trying to engage with the important question of what we take higher education to be, of what might be and should be in the decades to come, in the context of helping students develop themselves for their complex and unknowable future learning lives.

The word "curriculum" began as a Latin word meaning "the course of a race". By the nineteenth century, European universities routinely referred to their curriculum to describe both the complete course of study and particular courses and their content. How we define and perceive the curriculum has important consequences for how we approach the task of promoting students' learning and development, including the way they perceive their affordances for learning. From an ecological perspective, perhaps the most useful definition of a curriculum is that proposed by (Wiles (2008) and Kelly (2009) 'the totality of student experiences that occur in the educational process'.

It is all a matter of whether the educational process is defined narrowly or expansively. At one end of the continuum a learner's educational process might be limited to that which is taught and learnt

within a programme. At the other end of the continuum it includes all a student's experiences while they are studying at university - since most experiences have some potential for learning (Jackson 2011a).

Smith (2000) considered the idea of curriculum from four perspectives:

- *Curriculum as content* - a syllabus or body of knowledge to be transmitted and learnt
- *Curriculum as product* - an attempt to achieve certain ends in students like the achievement of specified objectives. The outcomes model in higher education is a product-oriented curriculum
- *Curriculum as process* - curriculum results from the interaction of teachers, students and knowledge. It is what actually happens in the classroom and what people do to prepare and evaluate learning achieved.
- *Curriculum as praxis* - the process/activity by which a theory or skill is enacted, embodied or realised.

The last two conceptions have most relevance to the concept of a learning ecology. In higher education the term curriculum is often perceived as being synonymous with the subject or subjects taught within a student's academic programme. There is thus a relationship between curriculum and the disciplines that form the basis for the academic organisation of a university. In fact, Berger (1970) emphasised the idea of discipline as curriculum in his definition of a discipline as 'a specific body of teachable knowledge with its own background of education, training, procedures, methods and content areas.'

Curriculum can also be visualised as an instrument or tool for delivering policy. Fotheringham et al (2012:2) visualised the *curriculum as vehicle* to recognise the curriculum as a fulcrum between high level policies and the students that these policies are intended to serve. Such a conception recognises the importance of curriculum, in the sense of both product and process, as the driving force supporting delivery of institutional policies and priorities. This concept would also be relevant to the idea of developing students' abilities to create self-determined learning ecologies

if this became an institutional objective in the way personal development planning has for example.

### Academics' Conceptions of Curriculum

In their study of curriculum in higher education Fraser and Bosanquet (2006:274) identified four ways in which academics think about curriculum:

- 1) the knowledge, learning and experience contained within a unit or module of study
- 2) the content and process of a programme of study comprising a variably prescribed set of study units or modules
- 3) the students' experience of learning: a process that is negotiated between learners and teachers and includes 'intended and unintended.....transactions' between a learner and a teacher'
- 4) a collaborative partnership between learners and teachers that result in changes for both learners and teachers.

All these conceptions are based on an assumption that learners learn a curriculum, whether it is designed for them or negotiated with them.

In their study of creativity and curricula Edwards et al (2006) derived a similar set of perspectives on what faculty thought curriculum meant but also detected something that was much more emergent.

Use [of the term curriculum] varied widely, ranging from 'syllabus' and programme plans, to notions of the hidden curriculum, in which the social, cultural and political context (what some participants described as the 'fuzzier bits') was counted as part of what was taught. ... However, one conception of the curriculum emerged for understanding the broader possibilities for understanding creativity. This was the idea of the lived curriculum as experienced in the classroom. ... The lived curriculum arose dynamically out of [the teachers] interactions with students. (Edwards *et al.* 2006:60)

Oliver's (2002) interview-based study confirms that these are the ways that academics think about curriculum and also recognised that individuals hold multiple conceptions' of curriculum which can be drawn

upon in the same conversation. The following exemplify the variety of conceptions held:

- The absence of curriculum
- Curriculum as content map
- Curriculum as programme map
- Curriculum as process
- The hidden curriculum
- The lived curriculum

Whilst none of these should be viewed as *the 'right' definition* (they are all possible right answers depending on the way curriculum is being framed and used) it is interesting to note that some of the concepts presuppose others. With the exception of the absent and the lived curriculum, the definitions seem to become increasingly inclusive and holistic in terms of influences on teaching and learning.

The notion of the lived curriculum seems to represent a conceptual leap from conceptions that emphasise planning, designing, organising and instructing towards a conception of spontaneous performance, coping and being a part of a shared experience. It is a concept of emergence in which the experience of delivering changes what has been designed emerges dynamically out of interactions with students.

'You've got to improvise - it's like a performance, in a way. One in which the audience can heckle and change the ending and stuff like that - you're not in complete control, and there's no road map, and you just have to prepare as best you can and then cope' (Oliver 2002 faculty interviewee).

### Curriculum as an ecology for learning

The idea that a curriculum is inhabited by people and brought to life through the interpretations and actions of the teacher and the responses of her students to those actions, in an environment that is structured and culturally attuned to encouraging and supporting learning is an ecological concept. It suggests also that learning itself is an emergent phenomenon:

something that is only brought into being as a result of people participating and interacting in particular disciplinary and pedagogic contexts, working with the resources, tools and technologies that are available within the space it affords for learning, on the problems and inquiries that are relevant to the situation.

I have adapted Rogers' (1961) definition of creativity to capture the idea that learning emerges from the circumstances of a learner's life as a result

Learning is 'the emergence in action of a *new* relational product growing out of the uniqueness of the individual on the one hand, and the materials, events, people, or circumstances of his life'. (adapted from Rogers 1961 - the word new has been substituted for novel)

of participating in a curriculum that has been brought to life by the teacher and enacted through their relationships with the teacher, their peers and the subject material and other resources in their learning environment. This way of thinking about a learner inhabiting their learning environment is entirely consistent with the notion of an ecology for learning and we can relate the idea of curriculum to the conceptual framework for a learning ecology developed in chapter 2 (Figure 6.1).

**Figure 6.1** Visualisation of a learning ecology

Barab and Roth (2010) discussed the idea of curriculum-based ecosystems and suggested that the curriculum could be 'usefully arranged' around problematic situations with accompanying resources and tools rather than disciplinary content alone. The problem frames the learning situation (context) and gives meaning to content and purpose to the learning with which it is associated.



'curriculum-based ecosystems begin by setting up the problem and then making available various resources and suggested activities through which students assemble the necessary networks for solving the problem' (Barab and Roth 2010:9).

## Holistic Curriculum Paradigm

What if higher education whole heartedly embraced the idea of learning ecologies? What concept of curriculum would optimise the affordances for students to experience and be aware of their own ecologies for learning? As we saw earlier, there are many conceptions of curriculum and the way it is defined determines the nature and extent of affordances for student learners to create their own ecologies for learning, developing and achieving.

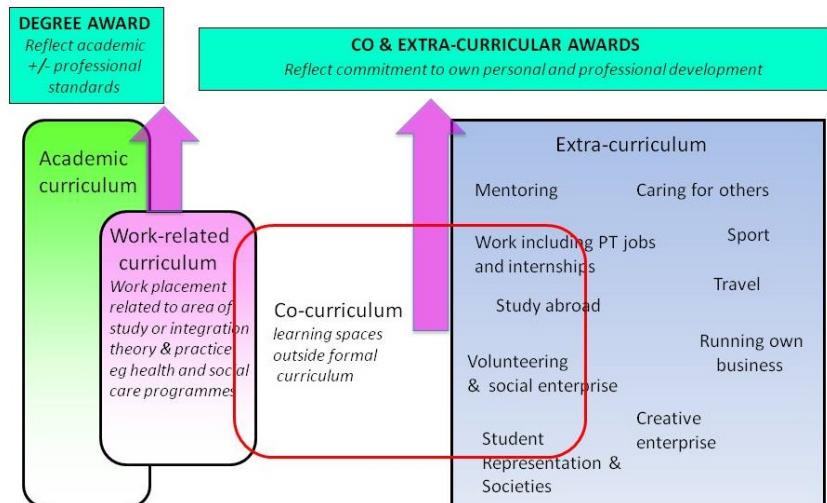
For the purpose of exploring the what if question I will adopt the most expansive concept of a higher education curriculum that I can think of namely a lifewide curriculum (Jackson 2011b) which includes all a student's experiences while they are studying at university - since most experiences have some potential for learning. In fact, the recent expansion of co- and extra-curricular award schemes in UK higher education (Jackson 2014) means that many universities are implicitly adopting a lifewide curriculum although they do not use this term to represent what they are doing. Such schemes enable a learner to incorporate and integrate their learning from any aspect of their life into their higher education experience.

The concrete expression of a lifewide curriculum is depicted in Figure 6.2. It contains four different curricular domains:

1. academic curriculum, which may by design integrate real-world work or community-based experiences;
2. work-related curriculum which is linked to a programme but does not receive academic credit
3. co-curriculum: experiences provided by the university that may or may not be credit-bearing and for which learners may or may not receive formal recognition;

4 extra-curriculum: experiences that are determined by the learners themselves and constitute all the spaces that they inhabit outside the other domains.

**Figure 6.2** A lifewide curriculum (Jackson 2011c, 2014)



The distinction between co- and extra-curricular has been deliberately blurred in some universities as experiences that would be considered to be extra-curricular in Figure 6.2 have been incorporated into the co-curriculum.

### Academic curriculum

The academic curriculum is predominantly focused on *learning about a subject* with heavy reliance on explicit or codified knowledge mediated by teachers who embody an epistemology of practice that is appropriate to 'being an academic in a particular disciplinary field'. Experiences in the academic curriculum tend towards mastering theory-

rich knowledge through transmission, self-study and sometimes small group study. Most subjects taught in universities adopt the lecture as the most efficient teaching vehicle for transmitting information but it is the poorest vehicle for enabling learners to develop their knowing. Barab and Roth (2006) are critical of pedagogies that do not permit learners to understand through situating their learning in a context of purposeful and relevant activity. Fortunately, teachers in all disciplines employ a wide range of strategies to engage students in more active forms of learning. Approaches to learning that encourage learners to form personal or collaborative ecologies for learning include project-based, problem-based, inquiry-based, context-based - work / community / field -based, designing-making, enterprise-led, game-play/role-play, student-organised seminars, conferences and exhibitions, participation in competitions contract-based learning where goals and outcomes are negotiated. It is in the more active approaches to learning that the greatest affordance for students to create their own ecologies for learning.

### Work/practice curriculum

In the work environment the emphasis is on tacit knowledge that is embodied in the conversations and relevant social practices of the people who are involved in work. In the work environment learning and development are a by-product of performing and accomplishing a task or project rather than being the focus for the task.

The practice-curriculum replaces the largely theoretical thinking experience of the classroom with the emotionally turbulent, real time, experiential and situational problem solving environment of work. It involves learning through doing in dynamic contexts, and sometimes not succeeding so that learning through mistakes is important. It involves working alongside and observing people who are already expert and tapping into their tacit embodied knowledge.

The role of the educator is to: a) prepare learners for their experience and support them through it, b) encourage reflection and support this process through tools and strategies that will enable learners to think deeply and systematically about their experience drawing maximum

benefit from it and c) help learners recognise their complex learning and achievements, and value their self-evaluations of their informal learning.

Participating in the practice curriculum enables learners to learn and be inducted into an epistemology of social practice which is fundamental to being able to build ecologies for learning and achievement in a particular work environment. The epistemology of (professional) work practice (coming to know what to do through working in specific situations drawing on past experiences which includes learned theory) can only be learned through the experience of practising with other practitioners. The epistemology of practice pays particular attention to the idea of Legitimate Peripheral Participation (Lave and Wenger, 1991). It is situations of social practice that learners come to know what it means to be creative in the organisational and professional cultures of a particular work environment.

Eraut and Hirsch (2007 and chapter 4) notes that the basic epistemology of practice involves the professional actions of:

- *Assessing situations* (sometimes briefly, sometimes involving a long process of *investigation and enquiry*) and continuing to monitor the situation;
- *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);
- *Pursuing an agreed course of action*, performing professional actions - modifying, consulting, evaluating and reassessing 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.

They are the essential processes that underlie self-regulation (chapter 7) and the key processes necessary to build and maintain an ecology for achieving and learning in the process. Consequently, the work/social practice environment offers learners significant affordance for not only

developing and applying their self-regulatory skills and behaviours, but also to develop and implement their own ecologies for learning.

### *Signature pedagogies*

Signature pedagogies (Schulman 2005) create ecologies for learning that are relevant in particular disciplines and curricular contexts. They are the modes of teaching and learning, used in the preparation of people for a particular profession such as law, medicine, teaching or being an architect, engineer or geologist. They provide the pathway to admission into the practices of the profession and involve not just learning to think academically within the disciplinary field but also to think and behave as a professional practitioner would.

The educator in a profession is teaching someone to understand in order to act, to act in order to make a difference in the minds and lives of others-- to act in order to serve others responsibly and with integrity.....professional education is a synthesis of three apprenticeships—a cognitive apprenticeship wherein one learns to think like a professional, a practical apprenticeship where one learns to perform like a professional, and a moral apprenticeship where one learns to think and act in a responsible and ethical manner that integrates across all three domains (Schulman 2005a).

Signature pedagogies are heavily routinised and systematic. There is little room for novelty in the approach to a case. Learning is undertaken in social practice contexts, for example - studios, laboratories, workshops, the field, hospital or other environment where people work. Such settings provide experiences that are more unstructured, informal and unpredictable and learners have to be able to assess situations, formulate strategies to deal with them and monitor and adjust their own performance in dealing with them ie engage in professional self-regulated learning.

### Co-curriculum

The co- (complementary) curriculum, is not part of the formal academic or practice curriculum. It contains experiences or

opportunities provided by the university that may or may not be credit-bearing and for which learners may or may not receive formal recognition. The co-curriculum may contain opportunities for learning particular skills that are essentially taught and where a competent authority determines what will be learnt and how it will be learnt. But the co-curriculum is also likely to contain opportunities for learning in unstructured situations where learners participate in social practice in community organisations or employment settings outside the university, or perhaps involve themselves in an enterprise activity like creating a business, organising an event or entering a competition. In these situations learners, often working collaboratively, are more able to determine their own goals and purposes, knowledge and skill content, processes, resources, tools and technologies and outcomes/achievements.

A distinctive feature of co-curricular activities is their potential for incorporating diversity (learners from all levels, all disciplines and all cultural backgrounds) into the experience and for learners themselves to take a more direct role in shaping, co-creating and facilitating the experience. Such opportunities provide considerable opportunity for engaging in social practice and even creating such practice, and for creative self-expression. The role of the professional educator here is to ensure that learners are aware of these things and that self-evaluation processes designed into the experience draw attention to these forms of learning and creativity. The co-curricular environment offers learners significant affordance to develop and implement their own ecologies for learning often in partnership with their peers and facilitators.

### Extra-curriculum

The extra-curriculum domain comprises all the experiences that are determined by the learner themselves and constitute all the spaces that they inhabit outside the other curricular domains. We don't normally consider this domain in higher education yet it is sometimes the largest and often the most creative part of a learners life. It is rich in experiences that involve complex relationships and social interactions with family and friends, sustained activities that are grown from need - like having to

earn an income to support study, activities that are pursued for their intrinsic interest and challenges - like sport, hobbies, membership of societies, drama groups, religious affiliations, and looking after yourself as an independent adult. All these things need to be incorporated into a busy life. Space needs to be found and lives have to be organised to enable things to happen while retaining the ability to improvise when faced with the unexpected.

The extra-curricular domain is rich in novel experiences since this is where people experiment and try out entirely new experiences. For example, travel may put a learner into a culture very different to their own, or serious illness or loss of a close friend or relative may push people into emotional spaces that have never been encountered before and stand out as significant events in a learners life. There is much informal and complex learning embedded in many of these situations which could be recognised as part of the personal growth of the individual.

In the extra-curricular domain learners choose their own contexts for participation and spending their time motivated by their own interests, purposes and beliefs. The unstructured and sometimes chaotic nature of experience provides great affordance for learners themselves to determine their own goals, plan and execute their own strategies, develop and apply their capability to deal with particular situations, identify, use and create resources, use their own tools and technologies, monitor and judge their own performance and what they have achieved. Because of these characteristics it offers the greatest affordance for students to build their own ecologies for learning, developing and achieving.

## Teacher ecologies for students' learning

Higher education teachers have the most wonderful opportunities to create ecologies to help and enable students to learn and they have abundant resources and infrastructures in the learning environment to support the ecologies they create. A teacher's ecology for learning involves the teacher and their students immersed in a curriculum (usually

subject-based) which is brought alive by the teacher's pedagogic practices and expertise, enacted and supported within the university's learning environment which is rich in places, spaces, resources, tools, technologies and professional support for learners and learning. The teacher's ecology for learning is located in the present and emerging near future but it is connected to the past through the learning and capabilities gained in previous learning ecologies they have created. It will be connected to future learning ecologies when they are brought into existence. It is very much part of the 'flow' which Barab and Roth (2006) consider is so important to the creation of meaning.

When educators fail to engage students in meaningful relations and instead impart core ideas as isolated facts or abstract concepts, these facts and concepts are no longer connected to the situations that allow them to be powerful tools in the world. The core disciplinary formalisms (facts, concepts, practices, methods, principles) run the likely risk of becoming disembodied and effectively disconnected from any meaningful use in the world.....The irony is that we then wonder why [students] appear unmotivated to learn after we have disconnected meaning from the learning situation, assuming that the learner somehow will attribute the same functional value to the information as the teacher does. It is in response to this problem that we argue for an ecological view of learning and participation, one that allows content to live in its contextual richness with a focus on helping students attend to those underlying, invariant structures that also have cross-contextual value (Barab et al., 1999). In essence, we believe that "the place to look for meaningful content is not in the normal physical descriptors of individual particles [nor in the individual], but instead in the variables of the flow itself" (Swenson, 1999, p. 21). It is within this coupling of individual and environment, in the flow itself, that ecological psychologists locate meaning and intelligent action (Barab & Plucker, 2002) (Barab and Roth 2006:3-4)

Unfortunately, while teachers have huge affordances for the creation of ecologies for learning, learners themselves may not have the same opportunities to create their own ecologies for learning. Their affordances depend on the way their programme has been designed and the way the

teacher interprets and brings alive these designs. Depending on the underlying educational philosophy learners' learning ecologies may be tightly controlled in terms of what is learned, how it is learned and when it is learned depending on whether the teacher adopts a transmission, guided discovery or self-directed learning strategy or any blend of these possibilities. A learner's experience has to be viewed comprehensively and holistically in order to understand the nature of the learning ecologies that are being deployed.

### Pedagogy : bringing a curriculum to life

A curriculum without a teacher's pedagogy is a lifeless thing. It's no more than a specification that sets out the hopes and expectations of the curriculum designer, which may or may not be the teacher whose job it is to give it life. So what is the skilled social practice that breathes life into written words? According to Smith (2012) 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) (Künzli 1994 quoted in Gundem 2000: 236).

But there are, according to Smith (*ibid*), other dimensions of pedagogy that are more relevant to the idea of ecologies for learning, these include pedagogy as accompanying, caring for (and about), bringing learning to life and having a fundamental concern for enabling people to flourish. This moves us away from a transmission and acquisition model of learning towards a more social and relational view of a teacher facilitating students' learning and caring for them and their flourishing. This view of pedagogy is consistent with Thomson et al (2012:8) who locate pedagogy in the highly situated social practices of the individual teacher and their social-cultural setting. These authors capture well the relational and

ecological nature of being a teacher in the most profound sense of the word.

Pedagogy is more than teaching method, more than curriculum, more than assessment practice (Leach and Moon 2008). It is all these things, but it is also how they are made into patterns of actions, activities and interactions (Schatzki et al 2001) 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 (Facer 2011).

Smith (2012) develops further the idea of pedagogy as *bringing learning to life* through the actions of : *Animation* - bringing 'life' into situations. This is often achieved through offering new experiences.

*Reflection* - creating moments and spaces to explore lived experience

*Action* - working with people so that they are able to make changes in their lives.

## Animation

In their book *Working with experience: Animating learning* (Miller and Boud 1997) link 'animating' to 'learning' because of the word's connotations: to give life to, to quicken, to vivify, to inspire. They see the job of animators (animateurs) to be that of 'acting with learners, or with others, in situations where learning is an aspect of what is occurring, to assist them to work with their experience' (ibid:7). They work with people on situations and relationships so that they are more stimulating and satisfying. However, they also look to what Dewey (1916) described as 'enlarging experience and to making it more vivid and inspiring'. They encourage people to try new things and provide opportunities that open up fresh experiences

## Reflection

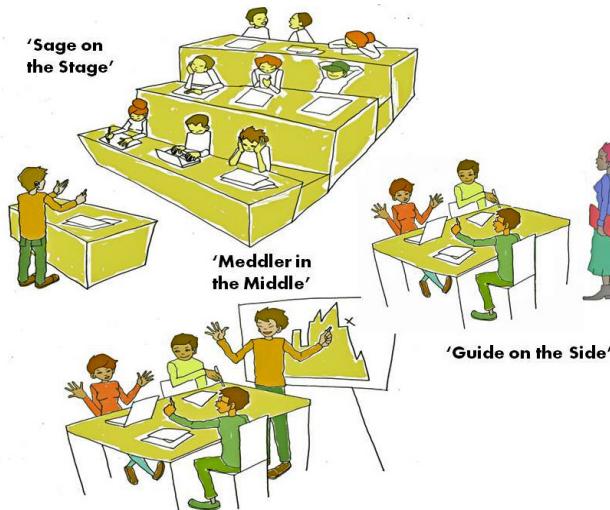
Conversation is central to the practice of informal educators and animators of community learning and development. With this has come a long tradition of working with the concerns and interests of those they are

working with, while at the same time creating moments and spaces where people can come to know themselves, their situations and what is possible in their lives and communities.

## Action

This isn't learning that stops at the classroom door, but is focused around working with people so that they can make changes in their lives - and in communities. As Lindeman put it many years ago, this is education as life. Based in responding to 'situations, not subjects' (Lindeman 1926: 4-7), it involves a committed and action-oriented form of education. In short, this is a process of joining in with people's lives and working with them to make informed and committed change.

McWilliam (2009) incorporates these ideas into her own *caricatures* of pedagogic practice suggesting that there are three basic pedagogic stances a teacher can adopt (Figure 6.3) which she calls, '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)



**Figure 6.3**  
Representations  
of teacher as  
'sage on the  
stage', 'guide on  
the side' and  
'meddler in the  
middle'  
(McWilliam 2009)

Each stance results in a different type of ecology for learning with different types and levels of affordance for student learners to form and pursue their own goals, define and create their own process for learning and involvement in assessment, create/co-create their own content, and give and receive feedback to peers and teacher. Transmission models of teaching have far fewer affordances for students to create their own ecologies for learning than more facilitative or meddling models of teacher as co-learner.

Active learning means that learners take more responsibility for and are actively engaged in their own learning rather than simply receiving and processing the information given to them by their teachers. Students must do more than just listen. They must read, inquire, question, discuss, write and be engaged in solving problems. In particular, students must engage in such higher-order thinking tasks as analysis, synthesis, and evaluation (Bonwell & Eison 1991). Of course the reality is that even in a lecture-based course students are or should be doing all of these things alongside the lectures they are attending.

But purposeful active learning in which activities have been conceived and implemented to deliberately engage learners in particular forms of learning, engages students in two different ways - through doing things and thinking about the things they are doing and have done (*ibid* 1991). In this way active learning strategies can be aligned to the self-regulatory model of learning (Zimmerman 2000 and chapter 7) that embraces the motivations to do something and the thinking about what needs to be done (forethought), the doing (performance) and the thinking about what has been done and achieved (reflection).

In active learning less emphasis is placed on information transmission and more emphasis is placed on developing student thinking and communication skills and the exploration of attitudes, values and beliefs. Student motivation is increased because of their interest and involvement in what they are doing. Furthermore, in active learning, students are able to receive immediate feedback from their teacher.

All teaching and learning techniques that seek to encourage and develop students' as the creators of their own ecologies for learning must

involve active learning and should embrace the triadic processes of forethought, performance and reflection of the self-regulatory model of learning (Zimmerman 2000 & chapter 7).

### Pedagogy-andragogy-heutagogy continuum

Hase and Kenyon (2001) draw attention to the continuum of teaching practices used to encourage and support learning and development from instructional models at one end of the continuum, through teaching that is facilitative where learners have some autonomy over how and what they are learning (an andragogic approach) to educational environments where the learner is empowered and enabled to make their own decisions about their own learning (heutagogic approach). They argued that it was important for higher education to pay more attention to the latter.

Education has traditionally been seen as a pedagogic relationship between the teacher and the learner. It was always the teacher who decided what the learner needed to know, and indeed, how the knowledge and skills should be taught..... It may be argued that the rapid rate of change in society, and the so-called information explosion, suggest that we should now be looking at an educational approach where it is the learner himself who determines what and how learning should take place. Heutagogy, the study of self-determined learning, may be viewed as a natural progression from earlier educational methodologies - in particular from capability development - and may well provide the optimal approach to learning in the twenty-first century (Hase and Kenyon 2001)

While most teachers in higher education are familiar with the idea of pedagogy, they are unlikely to be familiar with the terms andragogy and heutagogy which are more commonly used in adult education. Knowles (1975) suggests that andragogy is characterised by learner control and self-responsibility in learning, learner definition of learning objectives in relation to their relevance to the learner, a problem-solving approach to learning, self-directedness in how to learn, intrinsic learner motivation, and incorporation of the learner experience. In an andragogical approach to teaching and learning, learners are actively involved in identifying their

needs and planning on how those needs will be met (Blaschke 2012). A key attribute of andragogy is *self-directed learning*, defined by Knowles (1975:18) as:

a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes

In adopting an andragogic approach the educator acts as a tutor and mentor, with the instructor supporting the learner in developing their capacity to become more self-directed in their learning. Teachers establish objectives and construct the curriculum in response to the needs and inputs of learners and provide resources to support their learning. Their role is to guide learners along their chosen pathways while the responsibility for learning lies with the learner themselves (Blaschke 2012).

Heutagogy (based on the Greek for “self”) views learning as an active and proactive process determined by learners themselves: learners are “the major agent in their own learning, which occurs as a result of personal experiences” (Hase & Kenyon, 2007:112). The teacher facilitates the learning process by providing affordance in their designs and practices, guidance and resources, but they empower the learner to create their own process (or ecology) for learning. Learners are able to negotiate learning intentions and the outcomes to be assessed. They are able to determine what will be learned, how it will be learned and how it will be assessed (Hase & Kenyon, 2000; Eberle, 2009). The heutagogical approach to learning is entirely consistent with the idea of self-determined learning ecologies, while the andragogic approach contains elements consistent with an ecological view of self-directed learning.

### A pedagogy for exploring the present

Facer (2016) argues that to develop a pedagogy that supports future learning we need to develop a pedagogy that develops people in

ways that they can explore and understand the possibilities and affordances of the present: in other words a teacher pedagogy of the present that develops learners' heutagogic capabilities and orientations for exploring the present in order to understand its affordances and possibilities for learning and developing themselves into a different future (ibid 58-9)

.....an educational practice that wishes to take the future seriously might begin with the cognitive, affective and political task of becoming aware of *the potential for novelty in the future*. Stated simply, the future, from this perspective, would be understood as a source of rich possibility of *different* ways of being.....

As such, the future needs to be understood not as a known territory to be mapped and conquered and fought over, but as a source of abundant possibility for the present (Bloch, 1959/1986; Poli, 2011). .....

From this perspective, the task of education is not a question of educating towards a pre-specified future that we know and have already imagined. Instead, the task is to explore how to create the spaces and practices that will continually enable the dynamic disclosure, imagination and creation of radically new possibilities in the present. Such an ontological assumption about the future as a site of radical novelty reframes the educational challenge, it constructs the present as a site in which as-yet unrealised possibilities are both latent and imagined....

Facer's representations of the 'task to explore how to create the spaces and practices that will continually enable the dynamic disclosure, imagination and creation of radically new possibilities in the present' is precisely the job of an individual's self-determined ecology for learning and developing in order to perceive, explore, and re-perceive the affordances in what (Poli 2001) calls the 'thick present' of their lifeworld, (Facer ibid:59).

To that end, the educational aim should be to enrich our own and our students' understanding of what Roberto Poli describes as the dynamism and emergent properties of the "thick present" (Poli 2011). This thick present is made up of the multiple layers of reality

that are the materials for creating futures, from the physical attributes of the world, to the social and historical structures, to the anticipatory practices that work backwards from the possibilities we conceive about the future upon the present.

## Learning Environment

Environment denotes the totality of the surroundings, conditions and circumstances in which something or someone lives and functions. In human ecosocial systems the environment includes the cultures within which people live and work. A learning environment consists of a wide variety of things that affect learning. We might start with physical spaces such as classrooms, lecture theatres, computer rooms and specialist rooms where particular forms of social practice take place - like laboratories, workshops, dance studios and music rehearsal rooms, and then move to libraries and learning resource centres and into social spaces such as cafe's, bars, and even the outside public spaces where people meet and talk. To these we must add the virtual spaces that provide spaces for people to interact. Learning environments are planned but how they are used can only be planned up to a point.

The idea of a learning environment implies a setting where intentions and design cannot account for everything that happens; some elements escape control or are at least unintended. Environment, then, is a mix of the deliberate and the accidental, the conjunction of planned and unanticipated events. To some extent, traditional teaching in conventional classrooms could support this dynamic—students could be given assignments to take in directions that show mastery but also imagination and creativity. Now, however, with minimally mediated access to large amounts of information and with a substantially enhanced social dimension available to students, the set of directions students can take in their learning is far larger and growing. Some of this change is sanctioned by faculty; other parts of it reflect the environmental changes brought by technology and a tipping of control in favour of students regardless of faculty intentions (Warger and Dobbin 2009).

The ever increasing use of information and communication technologies in teaching and learning is one of the primary drivers behind conversations about learning environments, though many of the fundamental principles involved are equally valid in settings with little or no technology. The idea of environment implies a multiplicity of participants, forces, resources and systems interacting. Environment is dynamic—changing in response to influences from outside or arising inside. It recognizes complexity in causes and effects (Warger and Dobbin 2009:6). Many authors have used the idea of ecology/ecosystem to represent the interaction of people in their learning environment. For example, Hannafin and Hanafin (1996) used the idea of ecology/ecosystem to embrace the complexity, interactivity and interdependency of the functions, activities, structures, resources and people that are involved in a university's learning enterprise and learning environment.

Learning environments operate as ecosystems. Individual elements must function autonomously as well as interactively.... In learning environments, learners as well as facilitators observe, measure, test, listen and probe to assess the integrity and effectiveness of the environment [to support learning] and make needed changes. This may require the learner and facilitator to examine and adjust strategies, technologies or learning activities to achieve balance. It requires active teaching and learning to develop understandings of how each element, as well as the overall system is functioning.. Ecosystems are judged successful when they promote equilibrium among their components and interact in ways that support their functions (Hannafin and Hannafin 1996 52-3)

Ellis and Goodyear (2010) positioned their examination of students' experiences of e-learning in the context of 'the broader ecology of learning and teaching' that a university supports. They develop a compelling narrative for viewing the university as a large complex ecosystem involving the relationships and interactions of all the inhabitants - students, teachers, researchers, support and administrative staff, managers and leaders, and their connections with employers and society more generally, and the resources, physical spaces and virtual environments, processes and

practices that are played out day to day. They used the term, 'ecology of learning' to represent the educational practices and learning activities that promote students' learning stating, 'we feel it best represents the nature of the phenomenon which has students at its centre, and includes all legitimate stakeholders including teachers, university service providers and university leaders.' (Ellis and Goodyear 2010:51). From a university ecosystem perspective the key aspects of an ecology of learning (*ibid* 20) are: maintenance of an ecological balance; the development of self-awareness of how the parts of the ecology are related to the whole; the ongoing pursuit of feedback to inform self-awareness and the capacity of self-correction (agility) required to ensure (re)alignment in a rapidly changing world.

Maintaining an ecological balance on learning requires all the parts of the university to act in ways that demonstrate self-awareness of their function and purpose in relation to the mission of the institution..... In order for the parts of the university to understand how they [its component parts] are functioning, in relation to the work and purpose of the whole, they need to engage in systematic processes of collecting feedback from stakeholders about the effectiveness of their operations..... Ellis and Goodyear (2010:30)

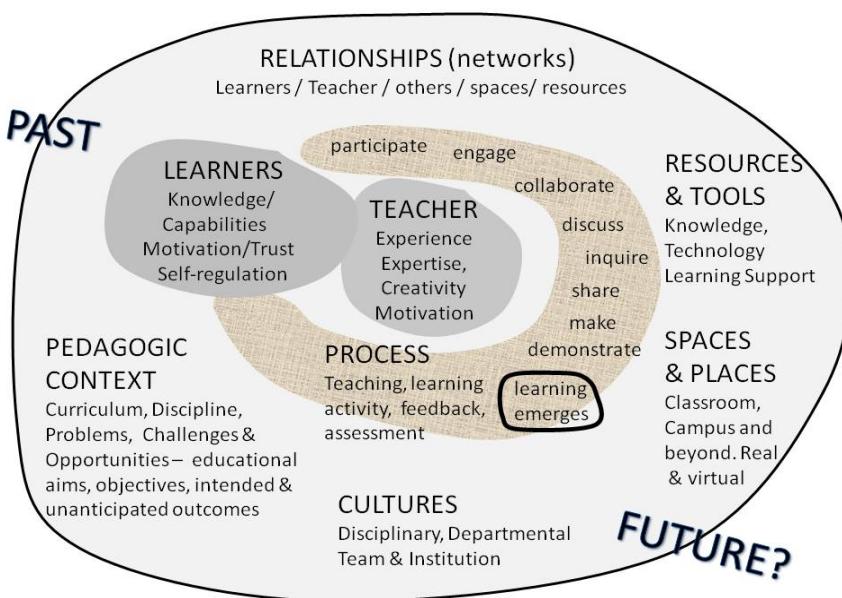
These perspectives on the university as a complex ecosystem support provide a useful foundation on which to develop and apply the concept of learning ecologies at the level of teachers and student learners.

## Typology of Learning Ecologies

A traditional face-to-face university course 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 6.3 identify the components of a typical course-based learning ecology that is designed and taught by a teacher..

**Figure 6.4** Typical course-based learning ecology created by a teacher to encourage and support students' learning



The *affordance* for learning 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 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 learners own responses to all of these things.

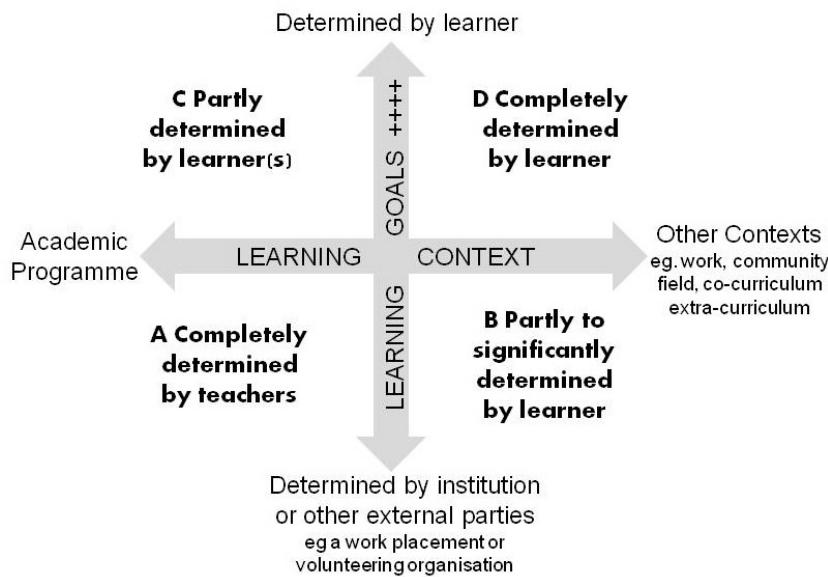
### Ecological view of learning, development & achievement

But the university ecosystem sits within an even bigger ecosystem that is also full of affordance for learning in such social practices as work, volunteering and community-based activities. This larger ecosystem is available to students who have the will to learn and develop through their involvement in such activities. An ecological view of learning enables us to integrate all potential learning environments and activities into a students' developmental ecology in the manner demonstrated by Michael and Natasha in chapter 3.

Jackson (2014) provides a framework (Figure 6.5) to help visualise the relationship between individuals' learning ecologies and educational and other social practices that support and recognise the outcomes of learning from such ecologies. The conceptual tool was created to imagine the affordances for learning provided by a lifewide concept of curriculum (Figure 6.2). The 2x2 matrix is defined by the 1) *contexts for learning* i.e. whether the contexts are formally constituted and structured within an academic programme or whether they are informal and unstructured opportunities for learning and development, and 2) whether the *institution or the learner* determines the what and why, the how, where and the when of learning, and ultimately determines what counts as learning. The key question is who determines the goals and purposes, knowledge and skill

content, processes, resources, tools and technologies outcomes and achievements. Four different scenarios are imagined to represent the different conceptual spaces in Figure 6.5.

**Figure 6.5** Conceptual tool for evaluating the affordances for learning available to students while they are studying at university based on the idea of a lifewide curriculum. These affordances occur in the institutional ecosystem and in the ecosystems beyond the university. The affordances are such that a students' learning ecology may be located in any of the conceptual spaces. The different spaces have different levels of affordance for students to determine and create their own ecologies for learning ( $D > B/C > A$ ). The Goals++++ axis contains the dimensions of goals and purposes, intended learning, knowledge and skill content, process, resources including tools and technologies, relationships and recognition of achievement.



### *A) Traditional lecture-based learning ecology*

Teachers working with a pre-determined curriculum or syllabus containing specific knowledge and opportunities for skill development and supported by an appropriate set of resources, engage their students in a process for learning. The main activities undertaken by learners are attendance at lectures, perhaps supplemented by seminars, essay-based coursework assignments, and revision for examinations. Learning and achievement reflect mastering the content of the course, determined through teacher assessment. In this type of learning ecology the learner has little or no involvement in the design of the ecology they merely participate in one that has been designed for them. They have little or no control over the goals, tasks, content, process, resources and what counts as learning and achievement. Their learning is likely to be geared to gaining the best grades in their coursework and examinations.

### *B) Teacher designed active learning ecology*

Pedagogies that lead to extended processes for learning and contexts within which particular forms of learning are situated will engage learners in very different forms of participatory activity. Problem-, project-, inquiry-, event-, design and make, and field-based learning all actively encourage learners to define and explore their own problems, build and utilise relationships for learning, be resourceful and discover for themselves the knowledge they need to produce possible solutions, sometimes in contexts that are unfamiliar. In these types of learning contexts teachers operate as facilitators, guides, supervisors and coaches rather than didactic transmitters. Such pedagogies and practices help learners develop the will, capability and confidence to create their own learning ecologies for learning and achieving. Students will still want to gain good grades in their coursework and examinations, but in engaging in these sorts of processes they are gaining much more. They are learning through an experience that learning involves a process that has to be created. That involves assessing a situation, defining problems and seeing opportunities, setting goals, planning and executing tasks, discovering and applying relevant knowledge and other resources and forming new relationships. Although

ultimately the teacher will determine what counts as learning and achievement and they may give little or no recognition for learners' processes of learning, learners will still have learned these things. Learning that is important to the creation a learning ecology.

*C) Self-directed but institutionally supported learning ecology*

There are some contexts in unstructured learning environments like for example work, volunteering in the community, independent fieldwork, co-curricular enterprise and event organising, which involve learners in activity in which they determine for themselves goals, tasks, content, process and resources. Such environments are beyond the control of the teacher and institution but they may be influenced and supervised by other people like employers, supervisors, entrepreneurs, who may influence goals, tasks, content, process, relationships and resources, and ultimately the recognition of what counts as learning, performance and achievement. Universities can capitalise on these contexts for students' development through frameworks and processes that enable learners to visualise, plan, record/evidence, reflect on, make claims and gain recognition for their own learning and development. These forms of support and recognition vary in the extent to which they focus learners' attention on specific goals and outcomes or they encourage learners to define their own goals and achievements. Support may also be given to encourage and facilitate interaction between learners engaged in a similar process for example in providing a forum for students to exchange information and discuss situations.

*D) Independent self-directed learning ecology*

This conceptual space is where people create their own learning ecologies for their own purposes typically for their own learning projects often associated with interests like sport, hobbies, travel, working in the community or for a charity, enterprise like setting up a business or organising an event, raising a child and countless more contexts. Involvement and learning are not driven by the need or desire for formal recognition but by the intrinsic desire to improve self, and the sense of

doing something worthwhile to contribute and make a positive difference. In such self-motivated circumstances the learner determines for themselves and or with co-participants goals, tasks, content, process, resources and relationships and achievements. Although, learners do not seek recognition for learning and personal development gained through such experiences a university could provide the tools and mechanisms that enable learners to plan, record/evidence, reflect on, make claims and gain recognition for their own learning and development. From an educational perspective these contexts are particularly favourable for learners developing their own ecologies for learning and achievement in a way that a formally structured and controlled educational environment cannot.

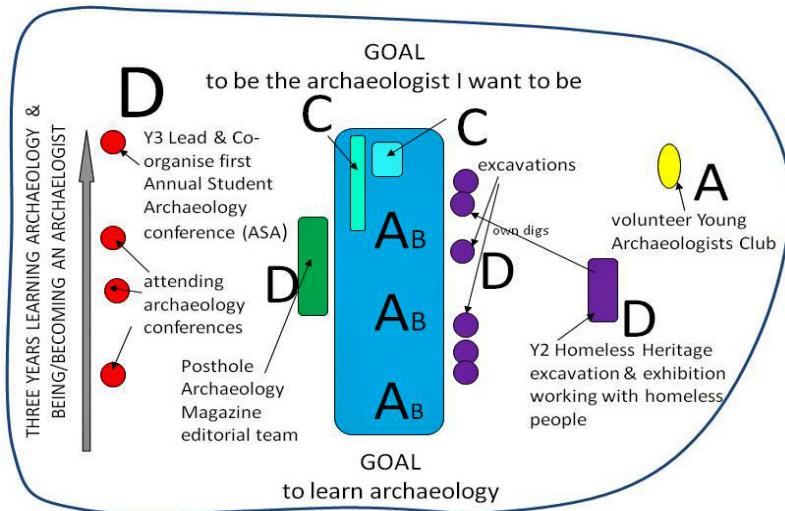
### Illustration of how this conceptual tool might be used

In chapter 3 Michael told his story of the things he did to try and develop himself to become the archaeologist he wanted to become. Using the map of his ecology for learning and developing himself while he was at university we can appreciate the affordances he perceived and accessed to imagine and determine, sometimes with co-participants - goals, tasks and activities, content, process, resources, relationships and achievements Figure 6.6 provides a visual representation of his doings. become the archaeologist he wanted to be. His ecology for learning includes his BSc programme and many other activities that were outside his course. The letters ABCD relate to the affordances in a particular situation for determining his own goals, tasks and activities, content, process, resources, relationships and achievements. They reflect the degree to which is able to create his own ecologies for learning, development and achievement.

The outer boundary encloses the things he said contributed to his sense of being an archeologist and the way he developed his knowledge, skills, values, beliefs and confidence in being an archaeologist - his ecology for learning and personal development. The letters ABCD relate to the affordances in a particular context/activity for determining his own goals, tasks and activities, content, process, resources, relationships and achievements. It is clear that although his academic programme provided

some affordances for him to determine his own ecologies for learning and achieving. The projects he undertook or created for himself outside his course provided him with the greatest affordance for self-determined learning and achievement.

Figure 6.6 Mapping a student's ecology for learning and personal development. See Michael's narrative (chapter 3).



This simple mapping device could be used to help learners reflect on, make sense of and appreciate their own learning and development. It shows them that what they do outside their programme to develop themselves is as important as what they do within their programme. It tells them that they, not the university, control their own ecology for learning, developing and achieving.

### Value of an ecological perspective

An ecological perspective on a students' higher education learning experience brings together in a holistic way all the elements of a student's experience for learning, developing and achieving that make sense to him.

It also embeds the learner and their learning in the environment, contexts, problems, opportunities, conditions and circumstances that inhibit or stimulate their learning. From this ecological perspective the things that really matter and which have made a significant difference to him are not only the things that the university has done or provided. Often, the things that matter to him will also include things that he has done by and for himself. These things matter because he has been able, through his own intrinsic motivations, decisions, agency and muddlings to make them happen. He has been able to take responsibility for his own actions and engaged in something that might have challenged and scared him through which he gained valuable experience and a real sense of accomplishment. We are not talking about simple achievements like passing a test or an exam - he has spent much of his life doing this. Rather we are talking about doing something difficult he has never done before and proving to himself that he can do it and do it well. And an important part of that sense of achievement derives from the messy journey he has made to work things out for himself.

An educational institution may encourage and enable learners to create their own learning ecologies in some or all of the spaces outlined in figure 6.5. but all too often the bulk of a student's higher education learning experience is located in the space of academic routine (space A) where there is little or no scope for creating their own ecology for learning. However, even when an academic programme is not designed to encourage learners to create their own ecologies for learning, some (perhaps most) learners are motivated to create their own ecologies for learning that enable them to become the scientist, lawyer, geologist, engineer or any other discipline-based practitioner they want to be. We should be inspired to change our traditional perspectives on learning by the stories of students who see and act on the affordances for their own development in all dimensions of their life.

# CHAPTER 7

## Learning Ecologies: Habitats for Self-Directed, Self-Regulated, Learning, Development & Achievement

### A story of self-directed & self-regulated learning

Naomi was a final year Biomedical Sciences undergraduate student when she wrote this reflective account to explain how she challenged herself by organising and leading a small group of student volunteers to work in a village in Uganda.

The volunteer trip I organised was something I had thought about for years and finally had the means to do. I approached the Students' Union and asked whether there was a programme already set up. I was referred to a local non-government organisation called Experience Culture, which was set up by two ladies from Guildford. They informed me about the relationship the town had with its twin town in Uganda called Mukono. I had no idea of the extent of the connection until I attended a few council meetings and had conversations with the members. I was inspired by the idea of contributing to this ongoing project.

I emailed the entire university asking who wanted to come with me and soon realised just how much I had bitten off! The response was overwhelming and I tried to be as fair as possible while only being able to choose five other students. Once the group was assembled I started to organise the next steps and fundraising. I soon found that while students are generous to causes, it is difficult to stir up enthusiasm towards raising money without pitching the idea in an incendiary manner. It took a lot of planning and long hours, often through the night, to try and make our fundraisers enticing and fun, while maintaining the focus on the cause itself. We came up with ideas

such as the sale of sweets at student events, a decorated bake sale, a pub quiz, a giant dodgeball tournament and a music concert at the university, all of which took place over six months. Any money raised was to be a donation towards the Mukono Children's Home and Medical Centre where we would be working.

This was all a huge challenge to me as I am not naturally outgoing, and I had to really pull myself out of my shell in order to achieve the results I needed. Being the organiser and leader of a group was new to me and extremely daunting; this proved to be one of the most marked times of my life, during which I grew immensely as a person, and developed my confidence through a comforting sense of achievement.

We started work immediately upon our arrival in Uganda, and soon became immersed in a life wholly separate and unique to our own back home. Working so closely with the students, teachers, hospital workers and volunteers was a wonderful experience, and we soon came to view the world through their eyes, with emotional and profound results. The humble and earnest attitude they brought to all aspects of their lives, and the courage they showed in the face of extreme hardships were true testaments to the strength of the human spirit. At the children's home we taught lessons in and out of the classroom, sports and games, and sex education. This was probably where I was most at peace while in Uganda, as the love and simple kindnesses the children bestowed upon us was almost magical. Their excitement towards learning was contagious and I looked forward to spending time with them every day. It was a sharp realisation to see the stark differences between the culture and attitudes in Uganda and those back home, where complacency and over-indulgence is rife.

At the Medical Centre we helped out at aids clinics, helped with filing, and went on 'field trips' out into rural communities to teach about HIV/Aids, sex education and health and nutrition. Our donations were spent on a library for the Children's Home, which we painted ourselves, shoes for the children, and mosquito nets for those in the communities. Seeing families actually living in conditions of extreme poverty and illness exposes a helplessness in a form so raw it takes your strength and composure away more swiftly than you could ever

expect or prepare for. To shake the hands of someone who has lost their family, their health, and their independence, while knowing there is only so much you can do to change this changes you irrevocably. And yet, their strength, and their composure remain not only intact but more strikingly dignified than anyone you would meet under better circumstances.

One particularly draining day of work involved us going out into a community far away to try to obtain support for Sarah, an 11 year old girl abandoned by her family who was HIV-positive [because she had been raped]. She had walked 41km barefoot to the medical centre to ask for help. We negotiated with her family for four hours to try to get them to provide shelter and food for her in order for her to receive drug treatment from the Medical Centre. It was entirely surreal to be sitting under a tree in the African sun, fighting for someone's chance of survival, with the desperation and urgency of the conversation all too apparent. This drawn out and highly strung affair was absolutely worth it when they finally agreed, ultimately saving her life. I have since been co-sponsoring her schooling fees and trying to ensure her welfare from a distance, which requires careful budgeting and communication with our contacts. The knowledge that we can help at least one person in this way is something I cling to when it feels that we are just one drop in an ever-present ocean of suffering that often threatens to overwhelm us.

The experiences we had in Uganda spurred me on to try and make a bigger difference, and to sustain what we had started. I began compiling an education pack which would include information on sex education, HIV/Aids, health and nutrition, and simple translations from English to Luganda as well as simple maths sums such as calculating monetary transactions. The idea was to make these packs durable and simple, so that one literate worker or volunteer from the Medical Centre could go out into the communities and teach it to large groups. I felt that one of the key targets to improving their quality of life was education. However, while this is often a daily component of life for most, it is painfully scarce in third world countries, where it is seen as a luxury rather than a necessity. The children in the communities we visited were unable to attend any schools as they could not afford it.

Therefore, I hoped to bring a simple platform for education to them in the form of these packs.

Upon arriving back in England, we completed a video diary as a summary of our experiences. I also organised a book drive parallel to one being held by the Borough Council, to try and gather suitable children's books for the new library at the Children's Home. This required good advertising, such as printing and putting up posters around the campus, promoting it before lectures, arranging pick-ups and drop-offs and setting up boxes around the university. I plan to raise more money to send to trusted contacts at the school so that they will be able to buy local books for the children, but by sending books from England I hope to help introduce different perspectives and ideals to the children, and lend a new realm of imagination to their learning.

In my second year at university I set up a new volunteering society with my sister. Pioneering this society was daunting to say the least, with every step unpaved, and layers of bureaucracy to overcome. We held an AGM to elect a committee, and soon began planning events and ways to draw students in and promote volunteering. Our original goal was to keep raising money for different communities in and around Mukono, organise local volunteering opportunities for students, and send another group out to Uganda in addition to a volunteer trip to Thailand to work with children in slums and on an anti-trafficking project. This proved extremely trying, as university restrictions did not allow us to raise money for any charity or organisation ourselves, and also there were insurance restrictions on overseas university trips. As a result, we concentrated on local volunteering, and brought students together to participate in events such as 'Swim for the children', 'Tree O'Clock', and various YMCA overnight events among others.

We planned the overseas trips on our own without the support other societies are able to lean on, and tried to prepare the students going on them as best we could by creating information booklets. These contained details on the respective languages and cultures of each destination, the projects they would be undertaking, helpful phrases and tips, and health and travel advice. I had not anticipated

the immense amount of time required to run a society and plan events on this scale, and it is a credit to key members of the committee whose hard work and encouragement are really appreciated. Getting students involved in events that are purely voluntary is no easy task, and the skills I learnt through attempting this are truly invaluable. It took perseverance and optimism to make many of the events happen, and an incredible amount of committed time.

There were numerous moments when I felt disheartened or burnt-out, but the knowledge that we have started something to benefit others, which will carry on even after we leave university honestly makes it completely worth the effort. In my final year at university, I will be continuing the planning and support of the trip to Uganda and its communities with a new group of students, as well as an acting mentor of the volunteer society, which we have handed on to a new committee.

I cannot fully explain the feeling of wholeness that accompanies helping someone in a significant way. Every new experience adds to my person, and expands or alters my perspectives. I feel that it has helped me to grow in so many ways, especially in terms of confidence and my capabilities for dealing with unfamiliar situations and create new opportunities for myself and others. I feel spurred on to continue what we started and more, and truly believe that I am now much better equipped to achieve these goals. Through the various activities I have undertaken I have an improved understanding and insight into myself, and others. I have acquired skills such as time management, leadership and the ability to communicate ideas to other people, and very importantly, the outlook that while an idea may start as just an idea, or may seem like just a drop in a vast ocean, it can manifest itself as a wonderful accumulation of events; a tidal wave whose ripple effects extend continuously outwards.

### An ecological perspective

Naomi's ambition was to become a doctor and she was planning to apply to medical school after completing her biosciences degree. This was her *distal goal* that shaped her everyday living in and experience of the world and drove her to create more immediate *proximal goals* towards achieving her ambition. She actively searched for something meaningful

to do and in the process expanded the *affordances* in her life for situations that would enable her to help other people. She changed the circumstances of her life and in the process she discovered a new purpose - to help people in small town in Uganda. This became her *proximal goal* and she was willing to dedicate a significant part of her life to the project alongside her academic studies. In committing to this goal she had effectively created an *inflection point* in her life which had a significant impact on her development as a person, 'this proved to be one of the most marked times of my life, during which I grew immensely as a person'.

Naomi created a *process and activities* to enable her to achieve her ambition. There was nothing in a book to tell her what to do, she had invent and improvise this process for herself in the *contexts* in which she



was living. She appreciated the enormity of what she was doing and realised that she needed the help and support of others so she developed a strategy to search for and find a group of like-minded self-motivated people (*new relationships*). She then set about involving them in developing the *resources* they needed to make their contribution. Together with her co-volunteers they restructured the environment to support the development of resources by organising numerous fund raising activities that not only required considerable effort but also their imagination and creativity.

The second part of her story relating to her experiences in Uganda, involves putting herself into an entirely *unfamiliar context with unfamiliar problems and challenges* through which she learnt and developed. Through her conversations and other interactions with village people and participating in activities with them, she and her team of volunteers began to develop knowledge that was situated in their socio-cultural setting.

Together they encountered many challenges - culture, language, poverty, difficult social situations and disease: all contributed to the rich environment in which they had to learn to adapt and perform. The students was certainly out of their comfort zone. Through their efforts and willingness to learn they managed to accomplish some useful short term goals in Uganda and feel that they had made a positive difference to the lives of people they had met.

'Working so closely with the students, teachers, hospital workers and volunteers was a wonderful experience, and we soon came to view the world through their eyes, with emotional and profound results'

The third part of her story describes what happened on her return to university. It reveals the emotional impact the experience had on her. This new and different Naomi created new strategies for sustaining the work she had begun while in her second and third years at university. In this way the ecology she created for one set of situations developed into another ecology for another set of situations involving different people.

A learning ecology is a 'person-in-environment', 'person-in-activity' concept. By this I mean that the person - their beliefs, attitudes, values, knowledge and capabilities, behaviours, actions, learning, development and achievements is influenced and shaped by the circumstances, situations and physical, social-cultural environments they inhabit. Naomi's involvement in her self-directed project and the involvement of others she engaged and connected with in the different contexts she encountered, constituted her ecology for learning, development and achievement. This ecology included: her own self-determined process to enable her to achieve her goals, and complex set

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of relationships, novel contexts, situated social action, personal and collaborative learning, and the structuring of the environment to create usable resources. Her self-determined project was driven by a desire to make a positive difference and also the desire to be a certain sort of person, and through her efforts and experiences she became a different person. The next part of this chapter will examine the idea and role of self-regulation in such self-determined processes before returning to Naomi's story to examine her experience through the lens of self-regulation.

## Regulating our thoughts, actions and feelings

Donald Schön's valuable insights enable us appreciate the complex ways in which our thinking, action and prior and current experience connect, interact and integrate to enable us to deal with uncertain and challenging situations. Somehow they collude to engage us in an iterative process of inquiry, decision making and action through which we learn to engage with, deal with and possibly exploit a situation.

the practitioner allows himself to experience surprise, puzzlement, or confusion in a situation which he finds uncertain or unique. He *reflects* on the phenomena before him, and on the prior understandings which have been implicit in his behaviour. He carries out an experiment which serves to generate both a new understanding of the phenomena and a change in the situation.... He does not keep means and ends separate, but defines them interactively as he frames a problematic situation. He does not separate thinking from doing... Because his experimenting is a kind of action, implementation is built into his inquiry (Schön 1987:69)

By reflecting on and judging our experiences and the effects of our actions, we eventually make better sense of the uncertainties through which we have travelled and consolidate our changed perceptions of reality. The complex process through which we imagine and decide what to do, then do it and reflect on it, when dealing with a new situation is

called *self-regulation* and this process and its significance to the process of creating and maintaining a learning ecology, constitutes the theme for this chapter.

Self-regulation is not a mental ability or an academic performance skill; rather it is the self-directive process by which learners transform their mental abilities into academic [and other sorts of] skills. Learning is viewed as an activity that students do for themselves in a proactive way rather than as a covert event that happens to them in reaction to teaching. Self-regulation refers to self-generated thoughts, feelings, and behaviours that are oriented to attaining goals..... These learners are proactive in their efforts to learn because they are aware of their strengths and limitations and because they are guided by personally set goals and task-related strategies.....These learners monitor their behaviour in terms of their goals and self-reflect on their increasing effectiveness. This enhances their self-satisfaction and motivation to continue to improve their methods of learning. Because of their superior motivation and adaptive learning methods, self-regulated students are not only more likely to succeed academically but to view their futures optimistically (Zimmerman 2002: 65-6).

### Self-regulation and performance

Research has shown a link between the use of self-regulated learning strategies and academic achievement. Students who score highly on measures of self-regulated learning are more likely to achieve higher marks in examinations and assessments (Gettinger and Seibert 2002, Kitsantas et al 2008, Kornell and Metcalfe 2006). Self regulation is also important to the improvement of performance when moving from novice

'results show that elite youth athletes possess well-developed self regulatory skills, especially reflection, ..... elite youth athletes reflect more on their past performance in order to learn and are making more effort to accomplish their tasks successfully. Moreover, the elite youth athletes in the pre-vocational system outscored their pre-university non-athletic counterparts on their ability to learn efficiently by means of reflection' (Jonker et al 2011)

to more expert states in such diverse domains as sport (Cleary and Zimmerman 2001, Jonker et al 2011) musical performance (McPherson and Zimmerman 2002) and video gaming (Soylu 2014) suggesting that the theory of self-regulation can provide an overarching framework for explaining self-directed learning and development in many different contexts. Furthermore, there is some evidence, at least in sport, that high performing athletes with well developed self-regulatory skills are also more effective in their academic learning (Jonker et al 2011, Jonker 2011) inferring that self-regulation habits and skills are transferable between the domains of informal and formal learning.

### Developing capability in self-regulation

Research also shows that self-regulatory processes are teachable and once learned can lead to increased motivation and achievement (Schunk and Zimmerman 1998). Learners who possess some self-regulatory habits can also practice and develop these orientations and capabilities through their own self-determined projects outside the academic environment, for example through hobbies and sport and these new understandings and capabilities might then be transferred back into the academic domain. However, according to Zimmerman (2002), few teachers effectively prepare students to learn on their own.

Students are seldom given choices regarding academic tasks to pursue, methods for carrying out complex assignments, or study partners. Few teachers encourage students to establish specific goals for their academic work or teach explicit study strategies. Also, students are rarely asked to self-evaluate their work or estimate their competence on new tasks. Teachers seldom assess students' beliefs about learning, such as self-efficacy perceptions or causal attributions, in order to identify cognitive or motivational difficulties before they become problematic. (Zimmerman 2002:69)

So the challenge to formalised education is how to teach and encourage learners to develop the skills, attitudes and habits of self-regulation so that they can be more effective learners and achieve more

of their potential. A number of approaches have been developed to encourage self-regulated learning in the academic environment. Examples are reported by Merino and Aucock (2014), who describe a series of enrichment tutorials in an accountancy degree course, Mahon and Crowley (2013) who describe a group-based training programme in a university study skills programme, and Nicol and Macfarlane-Dick (2005) who describe the use of formative feedback to improve self-regulated learning.

In considering curricular processes that help develop self-regulation Nicol (2010:4) argued that the main characteristic of autonomy or self-regulation in learning in the academic context is that students take significant responsibility for setting their own learning goals and for evaluating progress in reaching these goals. Fundamentally, developing learner self-regulation requires that students have regular opportunities to:

- 1 critically evaluate the quality and impact of their own work during and after its production (for example, academic texts, problem solutions, designs)
  - 2 critically evaluate the quality and impact of the work of their peers.
- In the educational literature these two processes are often referred to as self and peer-assessment.... In fact, peer-assessment and self-assessment should both be implemented for the development of learner self-regulation (Nicol 2010:4).

Nicol (*ibid* 4-5) described these practices as 'high-impact assessment and feedback activities (HIAFAs)' which involve students in:

- reflecting on and assessing the quality of their own work
- engaging in peer review of each other's work
- determining criteria to apply to their own work
- identifying their own learning needs and setting their own learning goals
- engaging in collaborative projects where they give each other feedback
- creating problems or issues that they go on to address

- reflecting on and evaluating their own learning to build a portfolio
- devising their own module (for example, in collaboration with academic staff).

Another approach used to develop self-regulation skills across UK higher education is known as Personal Development Planning (PDP). In fact, the first became aware of the idea of self-regulation while I was involved in developing the higher education policy for Personal Development Planning (PDP) in 1999, and subsequently in the systematic review of evidence for PDP efficacy undertaken by Gough et al

(2003). I believed that self-regulation provided an underpinning theory of thinking, action and learning for PDP, and good PDP processes and practices provide a concrete way of encouraging the development of self-regulatory skills, attitudes and thinking. The role of PDP in enabling students to practice and develop the habits of self-regulated learning will be examined later in the chapter.

Beyond the academic curriculum, the case for students developing skills, dispositions and habits of self-regulation to sustain them throughout complex learning lives, is neatly summarised by Barry Zimmerman.

Self-regulation is important because a major function of education is the development of lifelong learning skills. After graduation from high school or college, young adults must learn many important skills informally. For example, in business settings, they are often expected to learn a new position, such as selling a product, by observing proficient others and by practicing on their own. Those who develop high levels of skill position themselves for bonuses, early promotion, or more attractive jobs. In self-employment settings, both young and old must constantly self-refine their skills in order to survive. Their capability to self-regulate is especially challenged when they undertake long-term creative projects, such as works of art, literary

(QAA 2002, 2009:5) defines PDP as, 'a structured and supported process undertaken by an individual to reflect upon their own learning, performance and / or achievement and to plan for their personal, educational and career development.'

texts, or inventions. In recreational settings, learners spend much personally regulated time learning diverse skills for self-entertainment, ranging from hobbies to sports (Zimmerman 2002:66).

### Self-regulation and informal learning

This brings us to the possible involvement of self-regulation in informal learning settings, a topic explored by Boekaerts and Minnaert (1999: 534) who drew attention to the fact that researchers 'have failed to explore self-regulatory processes in informal learning environments'. Through a literature review they identified ten attributes of informal learning which together produce a natural form of learning that gives a person the impression that they are learning spontaneously and without much conscious effort (Table 7.1). Informal learning settings in which people initiate and manage their own participation and learning contrast markedly in their capacity for self-regulation with formal learning environments. The latter are bounded by intended learning outcomes defined and assessed by the teacher, content that is controlled by a syllabus or curriculum, learning activity that is initiated, directed or guided by the teacher who determines the goals of the learning enterprise and what learning will be recognised through her assessment instruments.

Self-regulation, in the true sense of the word, will only emerge when students are allowed to learn in a context where they can weigh the feasibility and desirability of alternative actions and goals (Heckhausen & Gollwitzer, 1987), using their own criteria. The perception of freedom of action (an appraisal which informs students that they can act according to their own wishes, expectations and needs) in a supportive context (where they can borrow resources when needed) will help them to translate their own needs, expectations and wishes into clear intentions..... The main point to be made is that students have a better chance of developing their own goals in accordance with their need structure when they are allowed to learn in a realistic context that they perceive as free from inappropriate social or evaluation constraints. ....formal learning contexts are not primarily geared to help students develop their own criteria vis-a'-vis objects, materials, persons, settings, and skills. Rather students are prompted to abide by the rules that make social interactions and

assessment procedures run smoothly. In other words, in formal learning contexts students are expected to pursue teacher-defined and teacher-initiated goals and this calls for goal-maintenance, prompted by external regulation, rather than self-maintenance based on internal regulation (Boekaerts and Minnaert 1999: 542)

**Table 7.1** Attributes of Informal Learning (Boekaerts and Minnaert 1999: 536)

- 1 The learning process is described as active, voluntary, self-discovering, self-determined, open-ended, non-threatening, enjoyable, and explorative.
- 2 Learners use a number of self-regulatory processes spontaneously, such as self initiating learning and self-monitoring their progress.
- 3 These self-regulatory processes make an explicit appeal to intrinsic motivation; conversely, intrinsic motivation facilitates self-regulatory processes.
- 4 Most informal learning is embedded in a social context, meaning that social cues are highly relevant and that students engage in cooperative learning activities. These socially situated learning activities are loosely structured, learner directed, and mediated by peers who often share the same values, attitudes, interests, and beliefs.
- 5 Informal learning situations utilize (realistic) objects, materials or settings that are highly contextualized.
- 6 The learning experience is more qualitative than quantitative, more process oriented than product oriented, more synthetic than analytic, and more flow-driven.
- 7 Time allocation in informal learning episodes is unhurried in nature, self-paced, and open-ended with relatively few time constraints.
- 8 Even when there is a kind of curriculum (e.g., a path in a museum to discover the life patterns of the ancient Greeks), it is a flexible one, signifying that the structure is non-linear and bottom-up.
- 9 There is no compulsory, individual testing or assessment procedure, but rather a collective, informal type of assessment or self-assessment based on feedback.
- 10 Set goals tend to be broader which may result in considerable variability in what gets learned.

On this last point, broad fluid goals also open up greater possibility for what might emerge and therefore encourage an opportunistic orientation to learning. We are often surprised at the consequences when we engage informally with something new and this element of surprise is another aspect of the psychology of informal learning that reinforces motivation.

Building on these perspectives on the relationship between self-regulation and informal learning contexts, this chapter explores the role of self-regulated learning in personal learning ecologies that are developed outside the academic curriculum. The underlying proposition is that higher education can do much more to encourage student development in these forms of learning by developing strategies like PDP that encourage learners to be more conscious of themselves and their effects in the world through the self-regulatory processes they are engaged in.

## Theory of Self-Regulation

Self-regulated learning is defined as self-generated thoughts, feelings and actions that are systematically oriented towards achievement of the learner's own goals Zimmerman and Schunk (1989). Social cognitive researchers describe self-regulated learning in terms of self-processes and associated self-beliefs that initiate, change and sustain learning in specific contexts. These processes and beliefs are linked to three fundamental questions about learners' self-regulated approaches to learning (Zimmerman 2000)

'How questions refer to students use of metacognitive processes such as planning, organising, self-instruction, self-monitoring and self-evaluating ones efforts to learn. Where questions pertain to behavioural processes such as selecting, structuring and creating learning environments that optimize growth. Why questions refer to processes and beliefs that motivate self-regulated students to learn, such as beliefs about their capabilities to learn, intrinsic interest in the task and satisfaction with their efforts...High levels of motivation are necessary to self-regulate when short term goals must be

subordinated to long term goals and ultimate gratification must be delayed. In summary, self-regulation refers to metacognitive, behavioural and motivational processes and beliefs used to attain personal learning goals in specific contexts. (Zimmerman 2000:221)

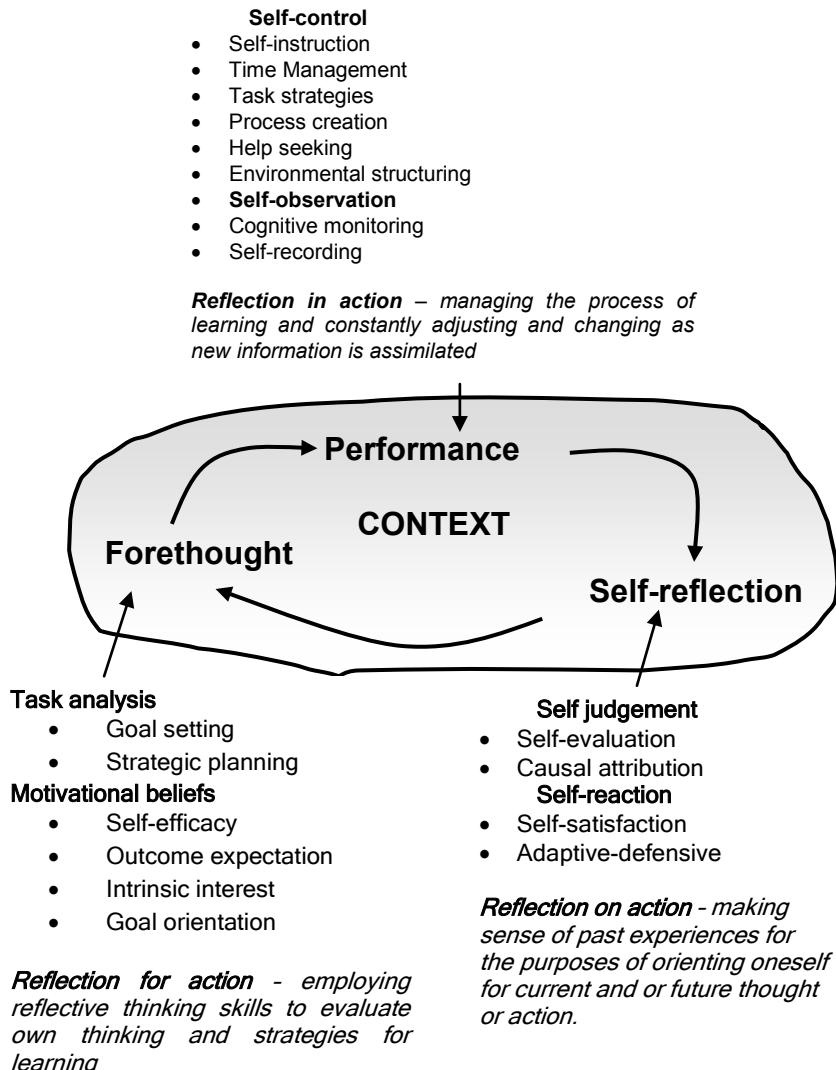
Without the will to learn things that are difficult and complex, there can be no hope for learning (Barnett 2007). Learning and motivation are linked by a sense of personal agency: beliefs about possessing the requisite cognitive and behavioral processes (or means) to achieve desired environmental outcomes (or ends). Personal agency is connected to a belief in one's self-efficacy to learn or perform at certain designated levels (Bandura, 1986, 1997). Self-efficacy beliefs are distinctive because they refer to the process, rather than the outcomes, of learning. The distinction between process and outcome beliefs is central to a social cognitive perspective on learning and motivation (Zimmerman and Schunk 2008:323-4). A learner who adopts a self-regulating approach to their own learning will be involved in a continuous process involving 1) forethought 2) action/ performance 3) self-reflection operating within a context specific environment that is structured by the learner to provide resources for learning and achieving specific goals (Schunk and Zimmerman 1994, 1997, 1998, 2003, Zimmerman 2000, 2002, 2003, 2008). Figure 7.1 summarises the theoretical model.

'Will is the most important concept in education. Without a will, nothing is possible. At any level of education, a pupil, a student cannot make serious progress unless she has the will to do so. Unless she has a will, a will to learn, she cannot carry herself forward, cannot press herself forward, cannot come successfully into new pedagogic situations' [including the situations she creates for herself] (Barnett 2007:15)

### Forethought

The thinking that occurs before decisions are taken about what to do involves thinking about the situation, context, problem, challenge or opportunity. Assessing the situation and imagining what might be done to

**Figure 7.1** A model of self-regulated learning (Zimmerman 2000:226) coupled to notions of reflection Ertmer and Newby (1996).



deal with the situation (formulation of a goal or objective for action). Considering the sorts of actions or tasks that might be performed and the likely or possible effects and costs of such actions. Such thinking might involve 'assessing' an existing situation or 'imagining', based on past experiences or other knowledge, a situation that might unfold given the circumstances and contexts.

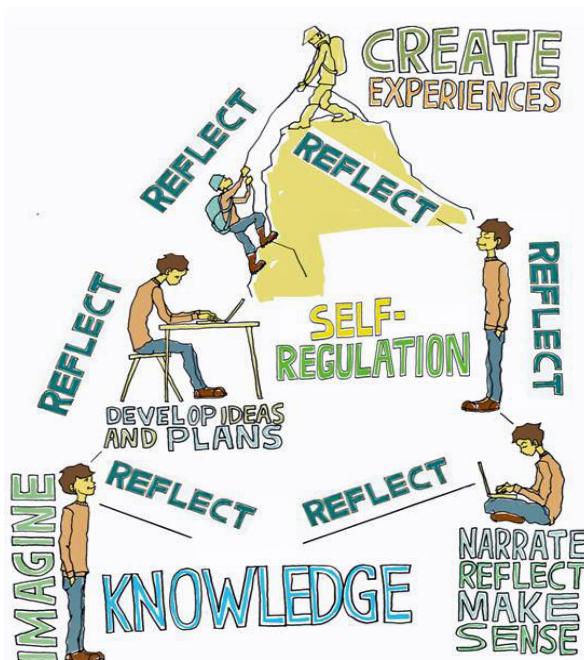
The self-regulatory model identifies two subordinate categories - task analysis and self-motivational beliefs. People do not engage in tasks or set learning goals and plan and work strategically if they are not motivated by strong personal agency (Zimmerman 2000:226) the key features of which are self-efficacy - personal beliefs about having the means to learn and or perform effectively, and outcome expectations - personal beliefs that the outcomes will be worthwhile .

*Role of Reflection:* The role of reflection in the forethought stage is to enable us to think about past experiences or parts of experiences that might be related to the real or imagined situation we are encountering. This enables us to create mental models that help us make good decisions and plans about what to do. Reflection combined with our critical thinking helps us prepare mentally and practically for what lies ahead. As we begin to engage in the task of planning and making decisions about what we are going to do, reflective thinking can also help us test our planning against past experiences and enable us to refine our plans. Reflective thinking combined with our analysis of the situation can help us build confidence in our preparation for action: it can feed our belief that that we are likely to be successful by implementing the intended approach.

These processes for thinking enable us to imagine the possible ecologies we might create in order to learn, develop, perform and achieve. Forethought is the home of imagination (idea generation) and creative thinking (how our own or other people's ideas might be combined to create a new approach for the particular circumstances). It is our ability to make sense of the contextual particularities and nuances of complex situations that enables us to create responses that stand a chance of succeeding. By combining our creative thinking, reflective thinking and

critical thinking we can develop new solutions to deal with situations we have not encountered before, test those solutions against past experiences and evaluate critically the ideas in the specific contexts that they will be applied. In this way we can see how reflective thinking is not a stand-alone process rather it is fully integrated with other thinking processes and heavily influenced by the social-cultural in which decisions and actions are located.

**Figure 7.2** Pictorial representation of the model of self-regulation emphasising the ways in which reflection can be involved in the three parts of the self-regulation model - thinking prior to action & experience, thinking during action & experience, and thinking after-action & experience.



## Performing

The second part of the self-regulatory process is the action or performance through which we implement our plans to deal with, or create, new situations and experiences. It includes our capacities and attitudes to instruct our self and seek help to learn and accomplish our

plan, our capacities for managing ourselves, our time and our tasks, the creation of processes for learning and the structuring of the environment in order to learn.

These processes and practices enable us to optimise our efforts to achieve our goals. They are the things we do in order to bring our ecologies for learning into existence - like finding, using and creating resources, extending our personal learning networks and creating new relationships for the exchange of ideas and knowledge, deal practically with the situations we are in or create, and the co-production of new knowledge or performance.

*Role of Reflection:* A second set of subordinate processes used during the performance phase is self-observation. It involves the cognitive monitoring of our own performance and the conditions that surround and influence our performance. This metacognitive process is also called reflection in action, and it enables us to adjust our actions and performance in response to our observations on the impact we are making and on our failures to achieve intended results. But, when we are fully engaged in a situation there is little time available for reflection and most of our responses, will be reactive and intuitive rather than derive from reflective deliberation (Eraut and Hirsh 2008:42-3). However, where spaces permit (eg during a break in activity) we may immediately begin to think about recent events as a way of learning and refining immediate plans for action when we resume activity.

### Self-Reflection

After we have engaged with and performed in a situation we can create new space for thinking about our actions and their effects, and the social and physical dynamics of the situation we were in. In this part of the self-regulation process reflection becomes the dominant thinking process as we think about the whole experience and try to make more sense and draw deeper understandings and meanings from it. Our thinking involves both self-judgements and self-reactions to those judgements (Zimmerman 2000, 2002) .

### *Self-judgement*

The two key self-judgement processes are self-evaluation and attributing causal significance to the results. Self-evaluation involves comparing our perception of our performance with a standard, criteria or goal - *did what we did work well or not so well in helping us achieve our objective? Could we have done what we did better?* It might also involve comparing own perceptions of performance with the feedback given from other people involved in the situation, or even people who were not part of the situation who offered us their perspectives on it. Attributional judgements are pivotal to self-reflection because attributions to a fixed ability prompt learners to react negatively and discourage efforts to improve. By contrast attributions of poor performance to inappropriate learning strategies sustains perceptions of efficacy and motivations to engage in different ways in similar situations in future.

### *Self-reaction*

Self-reaction includes judgements on self-satisfaction and adaptive inferences. Self-satisfaction involves perceptions and associated effects regarding one's own performance. Courses of action that result in satisfaction and positive effect are pursued. Whereas actions that produce dissatisfaction and have negative effects are avoided. Self-regulated learners condition their satisfaction on reaching their goals, and these self-incentives motivate and direct their actions.

*Role of Reflection:* Reflection - or thinking about the situation and the whole experience, is one of the three phases of the self-regulation model of learning. Reflection is an activity in which people mentally revisit and re-experience their experiences, think about them, feel some of the emotions they engendered, mull them over and evaluate and learn from them. They

- *Return to experience* - that is to say recalling or detailing salient events.
- *Attend to (or connecting with) feelings* - this has two aspects: using helpful feelings and removing or containing obstructive ones.

- *Evaluate experience* - this involves re-examining experience in the light of one's intent and existing knowledge etc. It also involves integrating this new knowledge into one's conceptual framework (Boud et al 1985:26-31).

Reflecting on and articulating the key lessons learned from experience, boosts our self-efficacy, which in turn has a positive effect on immediate learning and their motivations to deal with similar situations in future. Reflection also aids the process of making explicit what has been tacit ie knowledge that was embodied in dealing with the situation (Di Stefano et al 2014). By extracting deeper meaning from the situation individuals are able to create new personal knowledge to guide their future planning and actions and also refine or generate self-theories of why certain things happen in certain situations. Such high level abstraction helps us transfer what has been learnt from one context to another and one time to another. In this way lessons learnt during the implementation of one learning ecology can be brought to bear in a future learning ecology.

### Reactive and proactive self-regulators.

Research into how people regulate themselves suggests that there are two forms of self-regulation (Zimmerman and Schunk 2008). Reactive learners avoid forethought and attempt to regulate functioning during and after performance whereas proactive learners engage in significant forethought, including reflecting-for-action, in order to improve the quality of their planning and performance.

## Self-Regulation in an Emergent World

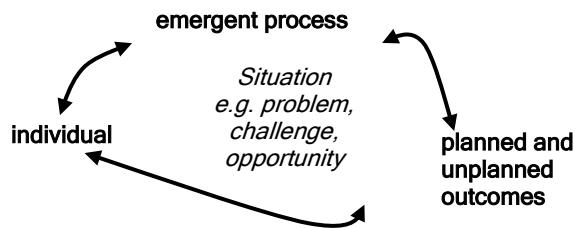
We might usefully add one further dimension to this explanation of how a person is actively engaged in learning and developing themselves through their self-determined life experiences. The model of the autodidactic (self-instructed) learner (Tremblay, 2000) incorporates the self-regulating model of learning but sets it in a context of emergence

(Figure 7.3). A slightly modified version of Carl Rogers definition of personal creativity might be used to convey the idea.

Autodidactic learning is 'the emergence in action of a new relational *product* growing out of the uniqueness of the individual on the one hand, and the materials, events, people, or circumstances of his life' (Rogers 1960:350 - the word new has been substituted for novel and the relational product is learning).

**Figure 7.3** The autodidactic model of learning (Tremblay 2000)

- The process develops without prior condition
- Knowledge emerges through action and the individual is open to recognising and exploiting its value
- The individual works with the process heuristically



- The individual creates her own rules and vocabulary for learning
- The individual is strongly self-regulating
- The individual and the environment are reciprocal determinants
- The individual gains knowledge through a complex, diversified and expanding web of resources

An autodidactic process is heuristic, iterative and contextual. Situations may be orchestrated but they might equally be conditions of coincidence. An individual's learning project does not develop in a linear way and the actions necessary for the realisation of a task are not presented in a sequential and predictable manner. Knowledge and knowing emerge through action. The process is a continuous experiment

in which action and reflection share the same space. Theory (self-theory) develops from action and the knowing that emerges through action. This is an appropriate conception of the way that people approach learning as a sustained experiment in which action and reflection on action and the shaping of future actions share the same space. Autodidactic learners are dependent on the resources for learning that are available in their immediate environment and learning projects are shaped through taking this into account. Autodidactic learners often do not plan to use particular resources but see and exploit opportunities as they arise; they seize every opportunity that chance offers them to learn.

### Social dimensions of self-regulation

The self-regulation model outlined above seems strangely individualistic given that we inhabit a social world. Figure 7.4 portrays a more social dimension to the self-regulation model in which individuals are connected to the social world they inhabit.

**Figure 7.4** The social world of self-regulation

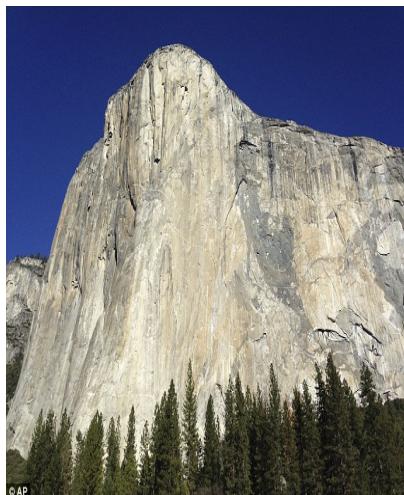
The Social Age (Stodd 2014) has added another dimension to our processes for reflection by enabling us to share our own experiences and our reactions and reflections on those experiences through websites, blogs and other forms of social media and receive feedback from people we do not know. In this way self-regulation and our reflective processes have become even more social.



Mobile technologies and Social Media enable us to record and share events and experiences in real time in ways that would not have been possible even five years ago and this creates a more dynamic and resource-rich and social environment which can be drawn upon for reflective purposes.

In January 2015 Tommy Caldwell and Kevin Jorgeson became the first people to climb the 1000m, sheer granite face known as the Dawn Wall of El Capitan in Yosemite National Park. The two climbers

documented the entire endeavor in detail on Twitter, Facebook and Instagram so that people across the world could watch it unfold and share something of their experience.



The climbers used social media not only to chronicle the ups and downs of their journey (performance), but also to engage with their community of supporters and followers. They even held a question-and-answer session mid-way through the climb using Twitter.

The Q&A covered everything from specifics about climbing techniques to choice of music and sleeping arrangements. This story simply illustrates



how most experiences can be documented and shared in real time with others who are interested and that such acts can increase the social impact of an event and these shared resources can subsequently be used in the post event reflective process. The self-regulatory underpinnings to this pioneering ascent are revealed in the five years of planning, preparation, training and many failed attempts on parts of the climb and the whole climb for both men. Their story of planning, practice, self-monitoring and reflection, and perseverance and resilience is exemplary in illustrating the forces of self-regulation in a great achievement.

## Self-Regulation and Learning Ecologies

Returning to Naomi's story, can we see evidence of self-regulation in the ecology she created to fulfill her ambition to make a difference to people living in a small town in Uganda? While her objective was not explicitly to learn and develop herself - significant learning and personal development were bi-products of the activities she determined and engaged in order to achieve her goal.

Her interest in volunteering in the sort of situation she described, had been in her mind for a long time (*distal goal*) but it was only when she became a university student that she realised she had the means to achieve her ambition and the confidence to begin the process of planning and organising herself.

Her *forethought* involved her in thinking about how to explore possibilities until she discovered and was inspired by a concrete idea around which she formed her personal project. In this way she



appropriated an existing project and made it her own. Her attention then turned to involving others and she created a strategy to find and build relationships with like minded people so that they became part of the process of co-creating the ways and means of raising money to fund the experience and make donations to the medical centre. This task involved many different activities. It seems that she was in no doubt that with the help of others, she thought she could achieve her goal. Her and significant commitment demonstrated that she believed what she was doing would make a difference to the lives of people and be worthwhile : a commitment

that carried on after she had returned to the UK.

Her *performance* was demonstrated through the tasks she set herself in contexts that were both familiar and unfamiliar with problems, challenges and opportunities that she had not encountered before. She searched for and found like-minded people to help her accomplish the goal she had set herself and structured her environment to develop the resources she needed to accomplish her task. She invented, with the help of others, numerous activities aimed at improving the lives of the children and adults involved in her activities. These were connected within a coherent process for fund raising. On her return she planned, organised

I feel that it has helped me to grow in so many ways, especially in terms of confidence and my capabilities for dealing with unfamiliar situations and to create new opportunities for myself and others. I feel spurred on to continue what we started and more, and truly believe that I am now much better equipped to achieve these goals. Through the various activities I have undertaken I have an improved understanding and insight into myself, and others. I have shown that I have acquired skills such as time management, leadership, the ability to communicate ideas to other people, and very importantly, the outlook that while an idea may start as just an idea, or may seem like just a drop in a vast ocean, it can manifest itself as a wonderful accumulation of events; a tidal wave whose ripple effects extend continuously outwards. (Naomi's reflective account)

and participated in activities to continue her project and involve other students and developed new resources to support the educational programme she had begun.

I felt that one of the key targets to improving their quality of life was education.....The children in the communities we visited were unable to attend any schools as they could not afford it. Therefore, I hoped to bring a simple platform for education to them in the form of these packs. Naomi

Naomi's commitment to *reflection* is evident in the time she committed to this activity during her experience through her hand written diary, the film clips that recorded some of the events, people and the social-cultural and physical setting she worked in, and the reflective narrative. She evaluated her own performance by comparing who she used to be with who she was after being involved in these experiences. There is also a sense in her writing that when she looks back at what she did and accomplished she is satisfied with her performance. Here are some the ways in which she expresses judgements about herself and her performance and achievements.

'Although there were numerous moments when I felt disheartened or burnt-out, but the knowledge that we have started something to benefit others, which will carry on even after we leave university honestly makes it completely worth the effort.'

'I grew immensely as a person, and developed my confidence through a comforting sense of achievement.'

'I feel that it has helped me to grow in so many ways, especially in terms of confidence and my capabilities for dealing with unfamiliar situations and to create new opportunities for myself and others'.

Naomi's inspiring story illustrates well the self-motivated, self-determined and self-regulated nature of a complex learning ecology which evolved over a significant period of time because she continually

revisited and revised her goals as her understanding of the 'problem' and 'situation' changed. This continual refinement of proximal goals, framed within the distal goals of 'making a positive difference to the people of Mukono' and 'becoming a doctor', continually energised her to do more and drove the continuous development of her ecology for learning, developing and achieving.

In her account we see Naomi demonstrating epistemological, personal and relational maturity (Baxter Magolda 2014) as she grappled with the complexities and uncertainties of the situations she encountered or created and took responsibility for her belief system, her identity and social relations as she authored her life (Kegan 1994, Baxter Magolda 2014)

Epistemological maturity is required to analyse and judge the validity of multiple perspectives to make wise decisions. Personal maturity is necessary to enable acting autonomously yet collaboratively and acting with integrity. Relational maturity is required for effective collaboration that integrates multiple perspectives in an uncertain and complex world. (Baxter Magolda 2014:77-8).

## Connecting Personal Development Planning (PDP) to Self-Regulated Learning and Learning Ecologies

Earlier in this chapter I drew attention to the use of Personal Development Planning (PDP) to support the development of self-regulatory skills and habits. PDP is particularly interesting phenomenon because it is the only approach to learning that has ever been mandated through policy in UK Higher Education. The purpose of policy which was introduced in 2000, is to encourage the development of approaches to learning that involve planning, action and reflection in all HE learning contexts and at all levels.

The strength of PDP policy is that it permits and encourages diverse interpretations and practices: there is no prescribed way of doing PDP. Rather, teachers and institutions have the responsibility for creating practices that are meaningful and useful in specific learning and learner contexts.

When expressed as a set of actions PDP processes contain a set of interconnected activities namely:

- *thinking and planning* - what to achieve and how to achieve it: setting goals
- *doing* - implementing plans with greater self-awareness so that more can be understood and learnt
- *recording* - thoughts, ideas, experiences and achievements both to understand better and to evidence the process and results of learning
- *reflecting* - thinking about what has happened, making more sense of it and creating deeper meaning
- *evaluating* - making judgements about self and own work and determining what needs to be done to develop/improve/move on
- *using the personal knowledge gained* to change thinking, beliefs, behaviours; learning from the experience

From this set of actions we can generate a process-based definition of PDP i.e. Approaches to learning that connect planning (specific goals for learning), doing (aligning actions to learning goals), recording (self-

PDP is 'a structured and supported process undertaken by a learner to reflect upon their own learning, performance and/or achievement and to plan for their personal, educational and career development.'

The primary objectives of PDP are to enhance the capacity of learners to reflect, plan and take responsibility for their own learning and to understand what and how they learn.

PDP helps learners articulate their learning and the achievements and outcomes of HE more explicitly, and supports the concept that learning is a lifelong and lifewide activity. (QAA 2009)

evidencing learning) and reflection (reviewing and evaluating learning and actions and their effects).

*Doing* - The idea of learning through reflection is meaningless unless it is rooted in the experiences of learning or past experiences of learning. Learning through the experience of doing enhances self-awareness and self-motivation. In the context of PDP the doing is connected to the action planning. To obtain benefit people have to be conscious of what they were doing

*Planning and setting goals* - The capacity to plan a strategy for learning and then align subsequent actions to personal plans is an essential part of the process. However, life is very complicated and such plans should be seen as guides to be modified and refined rather than checklists that have to be adhered to. This requires people to be conscious of the effectiveness of their strategies in realising their goals and to plan in a way that enables changes to be made should this be necessary.

*Recording* - The extent to which recording is a feature of PDP varies according to the context. We naturally learn through reflection without recording anything but the discipline of recording helps us understand what we have learnt and provides us with evidence and a personal record of our own development. Developing the habit and skill of documenting one's own learning is a useful skill in a world that creates new explicit knowledge from the embodied tacit knowledge of people. But the requirement to keep records can become the driver for PDP and lead to a bureaucracy that impedes learning and stifles enthusiasm. Care must be taken to define the rationale for recording information and how this is integrated into learning processes and facilitative conversations with tutors.

*Reflecting (Reviewing and Evaluating)* - The idea of metacognition or self-awareness brought about by thinking about situations that have been experienced and trying to make sense of them, is central to the idea of learning in this way. PDP can be thought of as a way of building knowledge about self and through this a stronger sense of self-identity. The idea of evaluating requires people to make judgements about their

own learning and performances. It requires people to develop the knowledge and skills in creating and using reference points and feedback mechanisms in order to enable themselves to make evaluations that are realistic and helpful. In fact PDP processes and practices are an important way of highlighting the central importance of feedback in self-regulatory processes.

Learning through reflection is central to developing self-awareness. Reflection is a necessary part of the process of trying to assimilate and understand new knowledge and to relate it to what is already known modifying existing knowledge in the process and creating new meaningful learning. Reflective learning will already be incidental in the academic activities of most students but deliberate strategies for its use will make students more conscious of it so that it can become an integral part of their approach to learning. PDP tends to emphasise reflection on action and performance after the event or experience. In reality reflective deliberation occurs in the planning stage of the process (reflecting on similar situations in the past in order to plan for the future) and in the performance stage (I messed that up didn't I how can I avoid doing that in future?).

*Using personal knowledge* - The strength of PDP is that it is a method of creating knowledge about oneself. Ultimately the real benefit is to the individuals who create this knowledge and who are able to draw upon it and use in ways that are meaningful and useful to themselves. Such knowledge might be used in an instrumental way eg being able to relate personal knowledge and skills to the needs of an employer. Or it may be used in more profound ways to modify conceptions, attitudes, behaviours that lead to personal change. PDP therefore encourages people to learn about themselves and to act upon this learning by fostering and supporting the habit of personal change.

### Learning through the processes that PDP promotes

A key question for PDP policy makers and those who support student PDP is whether the actions, attitudes and behaviours that PDP promotes actually result in positive learning outcomes and improved

achievement. While there is an extensive anecdotal and self-reported literature to this effect, scientific evidence derived from researcher manipulated studies, is hard to come by. Gough et al (2003) conducted a systematic review and mapped the field of knowledge relevant to the research question - *what evidence is there that processes that connect reflection, recording, planning and action improve student learning?*

An initial trawl of the English language world literature since 1982 resulted in 14,271 potentially relevant studies being identified. The abstracts and titles of these documents were evaluated using a range of criteria developed by a 'PDP user group' in collaboration with the research team and 982 documents were identified as being worthy of further analysis. 813 of these documents were accessed and read and evaluated using the criteria developed and of these 158 documents were subject to more rigorous analysis and key wording to produce a map of the research field. Twenty five experimental researcher-manipulated studies, considered to provide the best research evidence on the impact of this type of learning, were subject to detailed analysis and data extraction. Nineteen of the experimental studies had a moderate or high quality rating using quality assessment criteria developed by the research team. Seventeen of these studies provided evidence of positive impact on students' learning.

### PDP & self-regulation

It is self-evident from the descriptions above that there is a strong and positive connection between the self-regulation theory and PDP processes and practices. Indeed, many if not all the researcher manipulated studies identified in the systematic review were concerned with aspects of self-regulation in teaching and learning practices.

The model of self-regulated learning provides a scientific explanation of the processes that underlie PDP and helps us understand how the actions, behaviours, attitudes and emotions of individuals engaging in PDP learning processes might be connected. There appears to be a good correlation between the key actions and behaviours in the PDP model of learning and those of self-regulated learning. But the model of self-

regulated learning provides much greater detail of the thinking processes, motivations, values and belief systems that underlie PDP practices. As such it provides a useful analytical tool with which to evaluate different types of PDP practices. The following observations can be made.

PDP processes tend to focus on the instrumental features of action planning, record keeping and reflection on action and performance. The other important features of self-regulated learning are often implicit.

There is often little consideration given to the richness of the forethought process and the underlying motivations, values and beliefs that underpin the sense of self-efficacy that drives the whole process. PDP offers a real opportunity to value the intrinsic motivations of learners yet we often see PDP being driven by the extrinsic motivation of teacher assessment which takes no account of the personal motivations that drive individuals. This runs counter to the ideal of preparing students for a world in which their personal motivations will be far more important in securing their own success in life than any external motivations.

Forethought is the home of imagination (idea generation) and creative thinking (how own or other people's ideas might be used). If we are to nurture imagination and creativity in students' learning this should be explicit in both PDP and self-regulation models of learning.

Imagination is a source of personal energy that motivates us to do something in a particular way. The ability to imagine goals and impacts and then imagine interesting ways of achieving these things is important to sustaining the motivation to learn and do and fuels self-regulated behaviour.

The doing (performance) part of the self-regulation model identifies many sub-processes that are implicit in PDP practices - notions of self-instruction, help-seeking and using the environment to create resources for learning. These are all crucial in problem-working throughout life and they are rarely explicitly recognised in PDP models for learning. 'Doing' is the home of creativity in action (making use of own or other people's ideas). The process of engaging with emergent problems in real time, the structuring of the environment to create resources for learning, the adaptation and transfer of ideas to new contexts, the juggling of

numerous tasks and the nurturing of relationships are all manifestations of creativity in action. These things all rely on self-efficacy and personal motivation to sustain them.

There is generally a strong emphasis on reflection in PDP practices but the quality of reflection can be quite variable and it requires considerable practice and coaching to develop the critical thinking aspects of reflection. Comparing own performance and attributing causal significance to results - requires evaluation against criteria, standards or previous performance - what is good/poor performance attributed to? The extent to which we provide students with the knowledge and skills to do this, and the opportunities for practising self-evaluation are quite variable in PDP processes.

Emotions like *anger* (resentment, annoyance, hostility and even outrage), *sadness* (dejection/ depression, flatness, energyless, loneliness), *fear* (anxiety, misgiving, apprehension) and *enjoyment* (contentment, satisfaction, pride and even pleasure) are all part and parcel of everyday learning. But higher education, with its focus on the development of a rational/analytical/critical thinking and detached perspectives, tends to ignore the personal emotionally involved dimensions of learning. PDP provides an opportunity to put emotions back into learning within contexts that are meaningful to the learner and to acknowledge that learning is an emotional business.

How we feel about something has a major effect on whether we want to pursue something or abandon it. The interplay of emotions, beliefs, actions and contexts are complex and unpredictable but we need to be conscious of them as they will impact on our decision making processes. The self-regulatory model acknowledges these things in a way that PDP models often do not. Goleman's (1996) book on emotional intelligence depicts a world in which the capacity to cope with life is strongly dependent on attitudes of mind that have little to do with the thinking rational part of the brain and more to do with the emotional, non-rational and intuitive brain. The roots of self-efficacy, our senses of personal and professional satisfaction with what we have done and our willingness to adapt in the future, lie in these attitudes of mind. If we are to improve our

ability to promote personal knowledge of these things through the higher education experience then we need to develop PDP strategies and evaluation criteria that clearly address and work with emotional intelligence.

### PDP & learning ecologies

There is an opportunity for PDP practices, that accommodate the model of self-directed, self-regulated learning to support an approach in higher education that embraces the idea of learning ecologies. Naomi's narrative of the learning ecology she developed around her volunteering project was written while she was involved in the University of Surrey's Lifewide Learning Award which had within it a PDP process which invited her to record her thinking, activities and achievements. She used a diary and made film clips which were later assembled into a film. She produced a personal development plan which set out her goals and how she intended to achieve them and also provided a template for the reflective account she produced as she looked back on her experience. The framework and the award it supported, provided her with an incentive and a structure within which she could record her learning and achievements. In this way PDP could be a useful aid to the development of educational practices that encouraged and recognised learners' own ecologies for learning, development and achievement.

### Concluding Thoughts

Self-regulation is a powerful theory that explains the relationship between a learner's willingness and desire to learn, their ability to set themselves a goal(s), create and implement strategies and activities to achieve their goals, monitor and evaluate their progress towards what they want to achieve and adjust their strategies if necessary, capitalise on new opportunities as they emerge, make judgements about their own performance and draw deeper meaning / learning from their experience through reflective processes. All these dispositions, ways of thinking,

capability and behaviour are involved in the creation and maintenance of a complex ecology for learning, developing and achieving.

The fundamental difference between learning in an informal learning context compared to a formal learning setting is the learner's perception of choice - the freedom to choose between possible goals, activities, participants, resources, tools and technologies, when to start, when to change tack and when to stop, and to keep on choosing throughout a learning project, until the decision is made to stop. The creation of a self-determined, self-directed process for learning - an ecology for learning, developing and achieving, in an informal setting, provides the affordances to make use of these freedoms and choices, and experience the sense of learning spontaneously and without much conscious effort (Boekaerts and Minnaert 1999).

There are numerous ways of developing self-regulatory attitudes, skills and habits in formal educational settings. In the UK a policy has been developed to encourage Personal Development Planning (PDP) at all levels and in all higher education contexts. The framework of attitudes, values, skills and habits PDP promotes are can be related to the thinking and practice of a self-regulated learner. The policy emphasises that students' learning and development takes place in personal, educational and career (or work-related) contexts while they are studying at university and it encourages students to take responsibility for, plan and reflect on their own learning in these diverse learning contexts. PDP is ideally configured to support both the development of learners' self-regulatory skill and habits and their involvement in creating their own ecologies for learning, developing and achieving.

# CHAPTER 8

## Connecting Learning Ecologies

### Connectivity

Previous chapters have explored the holistic idea of individuals' learning ecologies. An individual's self-created learning ecology grows from the circumstances (contexts) of their own life. They establish it for a purpose that is directed to their interests and needs and desire to accomplish specific goals.

The representation of a learning ecology encompasses the person acting in and on their environment and their environment in turn influencing the way they act through the affordances (eg material or virtual objects, events, resources, people) it offers. Their learning ecology includes the person's processes, activities and practices, their contexts, relationships, networks, technologies and tools.

Connectivity is an essential ingredient of an individual's learning ecology and the connections they make often determine how successful they will be in achieving their goals. In this chapter we will consider in more detail the way people create connections to other people for the purpose of learning and achieving their goals regardless of whether they are instrumental (to learn something specific) or to do with their sense of identity, wellbeing, and fulfillment. The net effect of these connections and ensuing interactions is to provide the person with information, knowledge, relationships, experiences, opportunities and other resources for learning, developing and achieving the things they value.

### Personal Learning Networks & Relationships

Networking is an important way in which individuals extend their ability to connect to and benefit from the learning and wisdom of other people (Rajagopal et al 2012a & b). People are an important resource: a potential

source of information and personal knowledge and a potential source of help and emotional support. This affordance lies in the relationships we have with a person and/or the way we create a relationship for a particular purpose. Rajagopal (2015:5) explains the idea of networking in professional and personal contexts.

professional networking as the act of making connections with other professionals, with or without the intention of making long-term ties with them. The skills at the centre of networking involve an ability to identify and understand other people's work in relation to one's own, and to assess the value of the connection with these others for potential future work.

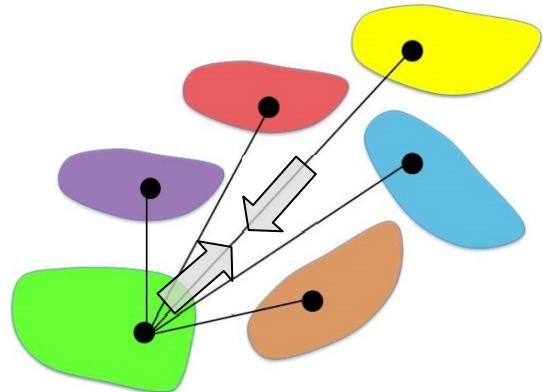
The result of networking is a personal professional network, *i.e.*, an egocentric, personally and intentionally created network of people set up by an individual specifically in the context of her professional activities. This network gathers a heterogeneous circle of people, distributed across different groups and places, and connected to the individual with connections of varying degrees of strength (Nardi et al 2000, Granovetter 1983).

Both strong and weak connections contribute to the individual's learning: strong ties allow for active collaboration on knowledge creation, whereas weak ties are sources for new information, knowledge and ideas. For personal networks, Grabher and Ibert (2006) proposed a three-layered approach, consisting of a communal layer (strong ties), a sociality layer (weak ties) and a connectivity layer (very weak ties). Using a combination of face to face and technology facilitated communication an individual can create and orchestrate ties to individuals, existing networks and organisations to effectively support their learning needs. In doing so they create a *personal learning network* (PLN).

In creating a network of people for the purpose of gathering information and for learning and problem solving, individuals are seeking to connect their ecology for learning and development to the ecologies of other people who share their interests and often occupy similar roles within a broadly shared context - like working in higher education. Although they

won't see it as such, they are in fact building a network to connect to other people's ecologies for learning (Figure 8.1).

**Figure 8.1** Typical pattern of information flow in a personal learning network. Information flows are between one and many. Each contact in the network is involved in their own ecologies for learning.



Professionals design, build and navigate their PLN to bring them the greatest benefit at each stage of their career. This means that our PLN's are constantly evolving to reflect the circumstances of our life. People seek out and join (online and face-to-face) professional associations, participate in face to face events like meetings, conferences, workshops, seminars or networking events to meet new people or to reinforce existing ties. Increasingly, web-based technologies play a role in connecting with new people, for example on social networking sites such as LinkedIn, Facebook, Academia.edu and special interest forums such as the groups within LinkedIn.

Rajagopal (2015a:6) identifies a number of factors that influence choices in building, maintaining and using a PLN. The first group of factors relate to the professional learner's personal and professional interests, largely determined by certain immediate professional needs. The second group of factors relate to the qualities of the contact or their organisation, network or reputation, and their apparent willingness to share or collaborate. These also include the type of relationships of the learner and their contact and the individual's assessment of the potential value of them connecting to a particular person. The third group of factors relate to characteristics

and developments of the work environment in which the tie between the professional learner and the contact is situated.

## My own PLN

Figure 8.2 illustrates the idea of a Personal Learning Network using my own PLN and the Seek-Sense-Share model of information flow through a network (Jarche 2014).

**Figure 8.2** Illustration of how my PLN helps me find, make sense of and share information.



I use special interest email lists and a range of social media - Twitter, LinkedIn, Acamedia.edu and RSS feeds from blogs to enable me to establish an information flow that is relevant to my interests. My approach to accessing my information flow from my PLN is quite chaotic. But it

becomes more disciplined and systematic when I want to learn something or share something. I dedicate the time and resources to seeking people and information that might be relevant for a particular purpose. In other words, while this model explains the ongoing information flows in my life, it only springs into action when I have a purpose and create an ecology for learning or achieving something for which I need information and knowledge.

The illustration represents the flow of information and knowledge through my learning. I use my PLN to seek and find information in two different ways. The first is to provide me with a continuous flow of information that might be of interest and which I might be able to make use of either now or in the future. I harvest information that is of interest and file it in a place where I think I will naturally seek such information. The second mode becomes active when I engage with a problem and I begin to create an ecology within which I seek specific information. At this point I seek out specific individuals inside or outside my existing PLN, who I believe can provide me with information that is relevant to my particular learning project. This is a transactional relationship in which I commit to sharing my problem and what I have learnt with the people who include me in their PLN. Implicit in this transaction is a commitment that I will help them when they need help.

In accessing the information I make a judgement as to its relevance, validity and utility and then I either store it or put it to use by bringing it into my learning project. Through a process of trying to understand and apply the information (sensing), I create new meaning and change my own understandings which I can share via my Twitter accounts or through my websites, or mail lists and on-line open access publications. The value of curating as part of the infrastructure for sharing is that it provides a context to enable others, who do not know my context, to be able to make more sense of it. This in turn may stimulate interest and new exchanges with people who I may then include in my PLN.

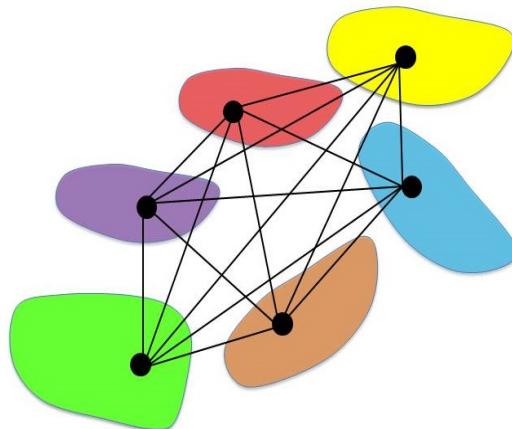
## Participation in established networks

In addition to the PLN's we construct, we also seek out and want to belong to established networks that we feel will contribute to our learning and sense of identity. This is an established social practice in all fields and disciplines: once the need is felt to grow. From an individual's perspective, this means creating opportunities for conversations to take place as and when needed and to be able to access the conversations of other people who share roles and interests.

In joining and participating in an established network an individual is seeking to connect their ecology for learning and development to the ecologies of other people who share their interests and often occupy similar roles within a broadly shared context - like working in higher education. The communication and information flow within such a network is illustrated in Figure 8.3

**Figure 8.3** Connecting ecologies for learning within an established professional network.

An individual's behaviours in such a network and their responses to, topics being discussed, is influenced by five factors (Rajagopol 2015b) namely: the context in which the individual is situated, the strategies (methods of working and learning) that the individual generally uses, the domain that the individual is interested in and has knowledge of, the dynamics of the network that the individual has access to, and the individual's implicit and explicitly formulated goals and motivations. These factors influence the networker's willingness, and capability to participate in networked conversations. They are the



unexpressed or hidden influences that the networker carries in every networking situation or session that he/she participates in.

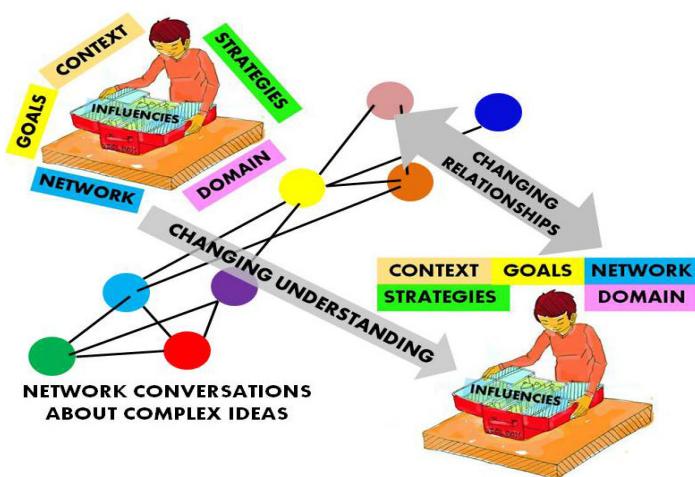
Each networking conversation affords individuals the opportunity to explore complex problems, particularly their social complexity, through interactions with others who share an interest in the problem. Through explorative dialogue, they discuss their personal beliefs and interpretations of the problem in ways that are influenced by these five factors. As a consequence of these dialogues, participants in the networked conversation start to co-create new meanings and understandings of the dimensions of the problems they are discussing. They forge more links between and within the factors themselves, and thereby re-construct their individual perspectives or understanding. Through this process they begin to align their own interpretations and understandings with other participants, creating a collaborative or shared perspective or understanding of the problem. In this way networked conversations that are grown from the personal learning ecologies of participants are an important process for the creation of meaning within a community of interest (Rajagopal 2015b).

The experience of participating in networks show many similarities with Weick's descriptive perspective on sensemaking (Weick et al 2005). Networkers are situated in a socially complex environment around a complex problem or broad topic, on which they participate in many discursive activities - a chaos containing various diverse interpretations of the five factors (*sensemaking in flux*) emerges. They engage in noticing and naming (both individually and collaboratively) what they see and perceive during the networking event, by linking up (or aligning) several instances of the factors (*noticing and bracketing; labeling and categorizing*). Their perceptions are positioned against the backdrop of their own past activities, e.g. projects that they have done in the past year, or the teaching practice that they pursue (*presumption*). The networking event (the conference) gives them the opportunity to re-evaluate their presumption and to amend it based on their new interactions (*retrospection*). These temporary understandings are iterative - with every new social interaction, the understanding can be changed to create a better fit (*social and systemic*). The networkers

also engage in action, defining goals and strategies (*action*). Finally, the networkers ultimately value the conversations held at the conference, in their various formations (one-to-one, small group, ad-hoc discussions, one-to-many presentations). In these conversations, tacit knowledge is increasingly articulated (articulation in *communication*) (Rajagopal 2015b: 22).

The process of networking within an established forum formed around a community of shared interest is both physical and relational - by participating in the networking activities and cognitive and emotional through the sharing of perspectives, experiences, problem-solving and sense making. Rajagopal (2015) provides a model to illustrate this process (Figure 8.4)

**Figure 8.4** The cognitive process in network conversations leading to co-creation of new meanings, understandings and relationships



A networker in a dedicated networking space, chooses to interact with others on a shared topic of interest or problem. As they inhabit this conversational space they are influenced by their goals, strategies, network, context, domain knowledge, interests and needs. By experiencing and observing conversations with other people in the networking space, they try to make sense of the different aspects of the problem being discussed. Through this process they align, interpret and alter the

influences on their thinking according to their changing understanding. The networker might also contribute to co-created understanding by sharing their own sense making through the network conversation. When the networker leaves the networking space, their goals, strategies, context, network, domain knowledge and interests have been modified as a result of the learning that has taken place, it is likely that their understandings are now more in tune or aligned with those of other participants. The networker has re-assessed and altered their interpretation of the problem or topic discussed and the factors that influence their thinking (Figure 8.4).

### Example professional network (MELSIG)

MELSIG is a special interest group: a group of people who are interested in how digital and social media can be used to enhance and transform teaching and learning in higher education. 'It's the sense of purpose that gives our existence meaning and binds us together' (Middleton 2015). MELSIG has its own website hosting curated resources and facilitates ongoing conversation through Twitter @melsiguk and a mailist. It has an on-line journal and facilitates book projects. About four times a year MELSIG holds free events around specific topics that attract people other than MELSIG members. The events are promoted through the MELSIG Twitter handle, an event specific hashtag, and a Jiscmail list. This network uses a blended approach to communication and engagement and many relationships form around the projects it sponsors (Middleton 2015).

### Collectives

There is nothing new in people forming networks or communities of interest around their interests and passions: interacting socially with like minded people is one of the great joys of learning which engenders a strong sense of belonging, as well as opportunities for personal development and achievement. However, increasing availability of digital and networked media offer new affordances for participating in interest-based groups. Digital media 1) offer engaging formats for interactivity and self-expression, 2) lower barriers to access for knowledge and information,

3) provide social supports for learning through social media and online affinity groups, and 4) link a broader and more diverse range of culture, knowledge, and expertise to educational opportunity (Mizuko et al 2013:6)

Clarissa is a 17-year-old aspiring screenwriter, growing up in a working-class household.....Her passion is fantasy fiction. When friends introduced her to an online role-playing site that involved writing fiction interactively, she jumped at the chance to connect with others who shared her interest. Online, she found a community of like-minded peers who shared her interests, and who collaboratively wrote stories and critiqued each other's work. Clarissa made great strides in her writing, engaging with it in ways that felt more authentic, and more motivating than her writing classes at school. In the end, she was proud enough of her work to use it in class assignments and in her college applications [to college] (Mizuko et al 2013:6)

This example of self-directed learning shows how an individual, motivated by their interests and passion seeks out like minded people to share their interest and collaborate with willing and equally enthusiastic and motivated peers. This type of engagement in learning connects in a deep and active way one individual's learning ecology with the learning ecologies of others who share their interests. The term connected learning can be used to describe this collaborative ecological enterprise (Mizuko et al 2013 and <http://connectedlearning.tv/>) and the benefits can be witnessed through Clarissa's story.

Clarissa's case illustrates how a highly resourceful and interest-driven young person can find social and informational supports for a specialized interest. Although she did not have learning supports or many friends who shared her interest, the online world opened up a new site for learning and specialization. Not only was Clarissa able to reach out to form a new peer group that was knowledge and expertise-driven, but she was able to take what she learned from the online context and connect it to her school achievement. She was acquiring individual skills and knowledge, as well as adding value to a community by sharing her own knowledge and creating high-quality work. In Clarissa's case, she built her own connected learning environment by tying together her

interests, her peer networks, and her school accomplishments. (Mizuko et al 2013:7)

Thomas and Seely Brown (2011) recognise that these sorts of participatory behaviours in digital learning environments are part of a new culture of learning in which people learn through active participation in what they termed a 'collective'.

In the new culture of learning, people learn through their interaction and participation with one another in fluid relationships that are the result of shared interests and opportunity. In this environment the participants all stand on equal ground - no one is assigned to the traditional role of teacher or student. Instead, anyone who has particular knowledge of, or experience with, a given subject may take on the role of mentor at any time (Thomas and Seeley Brown 2011: 50-1)

We call this environment a *collective*. As the name implies it is a collection of people, skills, and talent that produces a result greater than the sum of its parts. Collectives are not solely defined by shared intention, action, or purposes. Rather, they are [also] defined by an active engagement with the process of learning. (Thomas and Seeley Brown 2011: 52)

A collective is very different from an ordinary community. Where communities can be passive, collectives cannot. In communities people learn in order to belong. In a collective, people belong in order to learn. Communities derive their strength from creating a sense of belonging, while collectives derive theirs from participation. (Thomas and Seeley Brown 2011: 51-2)

In the new culture of learning, collectives, as we define them, become the medium in which participation takes shape. They are content-neutral platforms, waiting to be filled with interactions among participants. As such they are well defined to facilitate peer to peer learning, their *raison d'être* (Thomas and Seeley Brown 2011: 52)

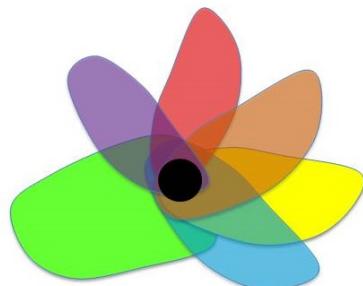
Thomas and Seely Brown recognise the ecological nature of this culture of learning.

The almost unlimited resources provided by the information network serve as a set of nutrients, constantly selected and incorporated into the bounded environment which provides the impetus for experimentation, play and learning. Accordingly, the culture that emerges, the new culture of learning, is a culture of collective inquiry that harnesses the resources of the network and transforms them into nutrients within the learning environment, turning it into a space of play and experimentation (Thomas and Seeley Brown 2011: 118).

What emerges from the interactions of participants in such a dynamic environment for learning is continuous adaptation and growth of a new, different and often unpredicted system. In a complex learning system such as occurs in a collective, the locus of control is ever shifting and continuously negotiated. Davis and Sumara (2005) explain that a complex adaptive system operates in a state of decentralized control. In emergent learning systems, “the phenomenon at the cent[re] of each collective is not a teacher or a student, but the collective phenomena of shared insight” (Davis & Simmt 2003: 153).

Viewed from an ecological perspective the way people inhabit these environments, their culture, and ways of being outlined above, are very different from other forms of connected and networked learning. When people move beyond conversation into action and co-participate in active learning and work or play together to co-create something their ecologies for learning, developing and achieving are not only connected: they are intimately shared (Figure 8.5).

**Figure 8.5** representation of a collective in which six people work or play together in ways that reveal their ecologies for learning are partly to substantially shared.



## Rhizomatic Perspectives

The capacity and process of creating meaningful or random connections from which meaning is not immediately apparent can also be visualised through the biological metaphor of a rhizome which was first explored by Deleuze and Guattari (1987). They likening the process of thinking to the way the roots of a rhizomatic plant spread laterally to seek, find and extract nutrients from its substrate in order to sustain growth (Figure 8.6)

**Figure 8.6** Rhizomatic learning takes its name from the rhizome, a type of plant which Deleuze and Guattari (1987) believed provided a useful metaphor for understanding thinking and the way ideas develop.



The concept of a rhizome as a metaphor for thinking (note ‘thinking’ - not ‘learning or teaching’) was developed in their book ‘A Thousand Plateaus’, which they published in 1980. This book was intended as an experiment in schizophrenic and nomadic thought, but has captured the attention of some educators, who see the rhizome as a useful metaphor for understanding learning in open environments such as MOOCs (Mackness 2014a)

The concept of ‘rhizomatic learning’ draws on the rhizome metaphor to explain the way individuals who are involved in self-directed learning reach out and spontaneously connect to other people or groups or networks of people, resources and platforms for conversation and other forms of interaction in order to learn and develop.

Ideas related to rhizomatic learning stem from the metaphor of the rhizome and some of the principles of rhizomatic thinking outlined by Deleuze and Guattari in their book *A Thousand Plateaus* (1987); principles such as Connections - a rhizome ceaselessly establishes connections and affords multiple points of entry; Heterogeneity -any point of a rhizome can be connected to any other and must be; Multiplicity - a multiplicity is, in the most basic sense, a complex structure that does not reference a prior unity and requires no central pivot point, being a-centred and de-subjectified; Asignifying rupture -if you break a rhizome it can start growing again on its old line or on a new line. Connections are constantly breaking (deterritorialisation) and reforming (reterritorialisation); Cartography and decalcomania -the rhizome is like a map and not a tracing. You can enter a rhizome at any point. Maps are always unfinished and subject to revision (Mackness and Bell 2015:31).

The rhizome is stem of plant, like hops, ginger or Japanese bamboo, that helps the plant spread and reproduce. It responds and grows according to its environment, not straight upwards like a tree, but in a haphazard networked fashion. As a story for learning, it is messy, unstable and uncertain. It is also, as anyone who has ever had one in the garden will tell you, extremely resilient. As with the rhizome the rhizomatic learning experience is multiple, has no set beginning or end, - "a rhizome creates through the act of experimentation (Cormier 2012).

Rhizomatic learning links individuals to the affordances - possibilities and potentials of the social and information worlds we inhabit and have the potential to connect to and influence. As a model for the social construction and co-creation of knowledge, rhizomatic learning processes emphasise the freedom of agents in a network to independently pursue their own goals and interests and the interconnectedness of information and knowledge as well as the dynamics and possibilities for exploration. The collective thinking, actions and behaviour of a networked group of people communicating with each other, having multiple parallel conversations that move in lots of different directions engaging different groups of participants, would seem to relate well to the rhizome analogy.

Dave Cormier has done much to explore and develop the idea of rhizomatic learning through his open access cMOOCs. In 2014 and 2015 Cormier designed, convened and facilitated the rhizo14 and 15 cMOOCs i.e. he developed an online space and invited people via social media to participate in the space to explore the idea of rhizomatic learning. The words of one participant capture their experience of the process.

The web is an ideal place for this kind of learning. By exploring a community or a context, you can get to know how language is used, what the customs are and how decisions are made. You can get a feel for knowing in that field. The idea is to think of a classroom/community/network as an ecosystem in which each person is spreading their own understanding with the pieces available in that ecosystem. The public negotiation of that 'acquisition' (through content creation, sharing) provides a contextual curriculum to remix back into the existing research/thoughts/ideas in a given field. Their own rhizomatic learning experience becomes more curriculum for others.

Our words, our images, our diagrams were what drove the learning for ourselves and for others in the course. Where the conversations went did not start from a single centre and move in an ordered fashion from there; they started wherever we started, and moved wherever those involved wanted them to move. As a result, there were numerous conversations happening at the same time, going in different directions, linking up to others if we made the links happen (Mackness 2014b).

Rhizo #14 and #15 were time bounded, cMOOC events, although some of the relationships that formed carried on beyond the event itself. Participants worked across distributed platforms of their choice, e.g. P2PU, a Twitter, a Google+ community, participant blogs, and activities designed within the cMOOC promoted aggregation, remixing, repurposing and feeding forward. These platforms facilitated both peer to peer, and individual to whole group	<p>Week 1—Cheating as Learning (Jan 14-21) Week 2—Enforcing Independence (Jan 21-28) Week 3—Embracing Uncertainty (Jan 28-Feb 4) Week 4—Is Books Making Us Stupid? (Feb 4-Feb 11) Week 5—Community As Curriculum (Feb 11-Feb 18) Week 6—Planned Obsolescence (Feb 18-?)</p>
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communication (Figure 8.8) within the framework of learner autonomy, diversity, openness and interaction (Mackness and Bell 2015 26-7).

Rhizo #14 #15 differed from other cMOOCs in some significant respects. There were no course objectives and virtually no course content was provided -the community was the curriculum.

In the rhizomatic model of learning, curriculum is not driven by predefined inputs from experts; it is constructed and negotiated in real time by the contributions of those engaged in the learning process. This community acts as the curriculum, spontaneously shaping, constructing, and reconstructing itself and the subject of its learning in the same way that the rhizome responds to changing environmental conditions (Cormier 2008:3)

Rhizo #14 was designed around weekly provocative statements and questions. But the way content was created, co-created and shared was very much the responsibility and through the activity of participants.

#Rhizo14 attracted 500+ registered participants. Designed to run for 6 weeks, it continued via an active Facebook group and Twitter hashtag for more than two months after the end of the MOOC. The MOOC design explicitly modelled rhizomatic learning and thinking principles: there was minimal content or direction by the MOOC convener and participants were expected to create their own curriculum. Nomadic behaviours, lines of flight, multiplicities, the making and breaking of connections, subversive behaviours, territorialisation, deterritorialisation and reterritorialisation were all in evidence (Mackness 2014c)

While many participants were positive about their experience of Rhizo 14 some were not. Interestingly, the very idea of rhizomatic behaviour, the breaking off of parts of the network to form a group that coheres around a co-created agenda, also resulted in feelings of disconnection, exclusion and alienation from other participants in the rhizomic network. Rhizo14 participants for whom the experience was less than positive felt isolated. They felt unable to make meaningful connections despite in some cases

being experienced “MOOCers.” Some felt that the course was based on weak philosophical foundations and that the rhizome is an empty signifier (Mackness and Bell 2015:32). To balance these negative perspective of Rhizo14 we should also acknowledge that more positive perspectives emerged.

For me, what has made #rhizo14 so valuable are the collaborations that came out of it and the new friends that I have made. I’m involved in collaborations through my face-to-face university program. None of those collaborations have been as rich and rewarding as the collaborations I’ve had with #rhizo14 (Hogue 2015)

All this indicates that individual experiences and perceptions of affordance in a cMOOC network are quite varied. Unlike the rhizome, where presumably each node can exploit the potential for growth equally, people acting as free agents do not.

## #creativeHE

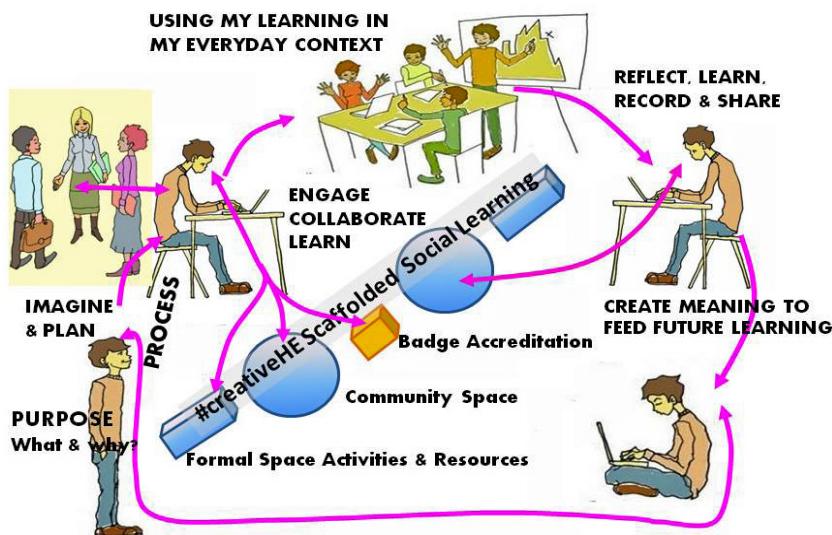
I had very little experience of MOOC's but was fortunate to be invited to help facilitate #creativeHE mini-mooc while writing this book. While participating I was conscious that I had incorporated the experience into my ecology for the development of my knowledge for this book. What I learnt is summarised in a series of articles in a special issue of Creative Academic Magazine (Jackson et al 2016).

The course was organised around a series of weekly topics and activities supported by appropriate resources that were intended to encourage participants to think about a particular concept and reflect on their own beliefs and practices. Stodd (2014) provides a model for understanding the type of learning enterprise that #creativeHE represents (core of Figure 8.7). Scaffolded social learning is built around two types of components: formal elements (*'boxes'*) and informal social elements (*'bubbles'*). At the boundary between each, there is a gateway. The bubbles are co-creative, community spaces, places where we can share our experiences or resources, feed in questions, and responses to

opinions. The boxes are formally defined learning eg classroom [or other prescribed activities] or the use of defined resources. The overall arrangement is defined by an overarching narrative with a defined outcome in terms of skills [knowledge] and capability.

The overarching narrative for #creativeHE was defined by both the leader/organiser and all the active participants. It formed around questions like 'what does creativity mean? and how can we apply it in educational settings? The learning process #creativeHE involved some individuals participating in structured activities (the rectangular boxes) and the sharing of their responses to such activities in community spaces and unfolding conversations that relate directly or indirectly to the inquiry themes being explored? Some participants created portfolios to evidence their participation in the structured activities and earned badges as they progressed through them.

**Figure 8.7** Integrating a model of on-line scaffolded learning with a learner's own ecology for learning (Jackson 2016)



Stodd's model of scaffolded social learning does not take account of what participants are doing in the rest of their lives or how what they are doing connects to their own learning projects. Those who design on-line learning environments tend to see the world as a space that they have created. The reality is that that the world is created by people who create their own ecologies for learning and achieving and sometimes these ecologies incorporate an organised and structured space that has been designed by someone else. Every participant had a life outside #creativeHE furthermore it was the most important part of their life in terms of time, effort, relationships and achievements, and most importantly it afforded participants the potential to discuss and put into practice what they were learning. What the designers of scaffolded learning environments create is new affordance for learning that a learner can incorporate into their own ecology for learning.

Over the eight weeks that the course was run I engaged in many productive conversations, met and formed good relationships with many people, learnt about and used new technological tools and generally enhanced my understandings of many things. Through participation I changed my perceptions of being and learning in a mooc and developed my understanding of how a mooc could be integrated into a learners own ecology for learning (Figure 8.7).

After the course had finished I came across #humanmooc (HumanMOOC.com) : an instructor-led course that sets out to humanise on-line instruction. I was too late to join the course but felt that the idea of humanized instruction and community interaction in on-line environment established for the purpose of learning, resonated with my experience of #creativeHE. I loved the underlying wisdom in the principle of seeking to develop an environment within which our humanity can flourish. An environment in which people can trust each other and be sufficiently confident to share their personal experiences and reveal how they feel as well as what they know. My experience of #creativeHE was that it indeed felt like a very human experience replete with deep and meaningful conversations founded on shared experiences, caring, compassion,

empathy, humour, insights and inspirations, creativity, commitment and new relationships and friendships.

## Learning in a Collective

Thomas and Seely Brown 2011: 51-2) draw attention to the differences between communities of general interest and collectives whose members share specific interests and passions to be and continue to become a certain sort of person.

Where communities can be passive, collectives cannot. In communities people learn in order to belong. In a collective, people belong in order to learn. Communities derive their strength from creating a sense of belonging, while collectives derive theirs from participation. (Thomas and Seely Brown 2011: 51-2)

In their study of video gamers Sanford, Merkel and Madill (2011) proposed that a rhizomatic understanding of learning and knowing is an extension/incorporation of complexity science and as such helps to flesh out understandings of emergent decentralized control which is an important feature of complex systems.

The metaphor of a rhizome with “multiple points of entry” stretching in multiple directions with multiple points of both affinity and separation fits well with our observations of our participants: some choose to be active on forum sites, on youtube.com, or online with people across the globe; some choose puzzle games, some first person shooters, some long project-style games with an involved back story; some create machinima, some video themselves playing as a reflective tool, some create their own videogames. We observe students working individually or in smaller groups in diverse acts, taking up a variety of media within communities that come together with an interest in video games that is broad and diverse in scope. In these communities (underground, not unlike rhizomes) participants experience the “freedom [to] extricate themselves from the ‘tracing’” and explore without risk a variety of mediums in order to become more capable in the community. They

therefore begin to try on different “roles”, moving fluidly in relationships, challenging pre-conceived notions of the wider community regarding the identities of the individuals in these gaming worlds (e.g., adolescent as student, consumer, isolated individual). (Sanford, Merkel and Madill 2011:54-5).

These researchers observed that during gaming sessions participants were both consumers and producers constantly creating, distributing and modifying their own games and game-related literacies. Several of their research subjects wrote their own blog and participated in forum sites, video-capture their game play and distribute it via youtube.com as models for others to critique and/or mimic (Sanford, Merkel and Madill 2011: 56-7). They considered that the video game sessions were 'aptly described by complexity theory as characterized by emergent decentralized control, where leadership, knowledge, and direction are shared throughout the group rhizomatically' (Sanford, Merkel and Madill 2011:64). There is a wonderful passage in their article which describes one of their group interview sessions. It captures very well the dynamics of how a group of people who share a passion, behave when sharing their experiences and understandings.

From....open-ended questions arise conversations that could not be anticipated; participants take turns opening up the chat, mentioning a game they have tried out, read about, or talked with friends about. There are often responses that open up other ideas and conversation continues. Although we have requested that they take turns in the conversation so we can transcribe it later, there is often considerable overlapping and enthusiastic talk happening at the same time. These conversations lead to the sharing of blog sites, YouTube posts, demonstrations of games, and calling up previews of upcoming games on the internet. They ask each other questions as often as we ask questions, wanting to get others' opinions, advice about a game or how to proceed in a game, asking about new developments and terminology they haven't heard before. In this way they are accessing collective knowledge and broadening their own individual understandings and creating social capital for use in other communities to which they belong. As John comments, *I never get to play ... I never*

*have time, so that's why I come here, wanna hear what you guys are talking about, and other than with Mike, he plays Xbox games, the only time I get to play is here.* It is through this shared knowledge that community is created and sustained over time and changing membership. The rhizomatic nature of the sharing and learning draws from other spaces and places of learning and continually shapes and reshapes this one, recognizing that 'there is no fixed course'.

From the perspective of learning ecologies, gamers participate in the situated world of gaming with their friends. They learn together from doing and co-creating experiences (experiential knowing) as well as talking about their experiences and sharing their understandings. They share their enjoyment of the games they play and they want to improve. There is a strong competitive element which drives their learning but intuitively they know that it is in their own interest to share the personal knowledge they have gained in order to access the personal knowledge of others, and perhaps enhance their self-esteem by the expert status they have within their own community. They are in effect learning and developing with each other and through each other's experiences. Their ecologies for learning and development are deeply connected in a manner depicted in Figure 8.5.

Perhaps the ultimate goal of a collective is to create a single ecology to which all the members contribute towards achieving a common goal formed around a shared purpose, working in a shared context, and seeing and exploiting the diversity of affordances available, using and creating resources and developing and sharing relationships to achieve their goal.

### Convergence of learning ecologies

Much of our professional life involves working in teams where we work together to achieve a common goal. So these perhaps are the situations where we are most likely to encounter convergence of learning ecologies. I reflected up on my own experiences to find examples of when my own ecology for learning converged and merged with the learning ecologies of others. But in the whole of my forty year professional career I can only think of one example where I experienced and felt convergence (like the gamers)

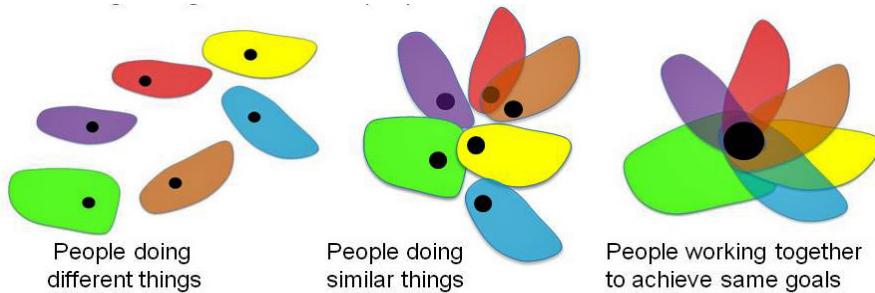
over a sustained period of time. It happened during my first job as a geology teacher at a university in Saudi Arabia. My Head of Department, an Australian, had a vision for a major research project covering a substantial chunk of the Arabian Shield (about 200 miles wide and nearly a 1000 mile long). Another geologist, a Welshman, joined the department at the same time as me and the three of us formed the core team for what we called the 'Arabian Shield Geotraverse' project.

We were a diverse group of peers with different pasts and interests but complementary specialist knowledge and skills. But we shared the same professional and cultural context and over the four years we worked at the university we made numerous expeditions across the mountains and deserts collecting samples and studying the geology. We shared the same vision, co-created the goals and strategies for achieving them and invested equally in achieving the goals. We continually worked together and continuously discussed what we were doing inside and outside work. While we had an overall project leader we all took a lead when necessary. We sought and found many different affordances within the circumstances of our lives. We worked on endless subprojects - organised an international conference and numerous publications. We developed and shared the contacts and relationships we made with people who could help our project, and shared the resources we found. We put huge amounts of time and effort and even some of our own money into subsidising our research.

Our process and achievements unfolded in an emergent way. We had enormous scope to use our creativity solving many logistical, cultural and scientific problems along the way. For example I created the institute's first geological museum based mainly on the materials we collected and the knowledge we gained. We co-created abundant new knowledge and worked on numerous writing projects co-authoring many papers which were disseminated through publication. Through our co-created experiences we grew professionally and became the geologists we wanted to become. After four years we each left the university and moved on to the Saudi Arabian geological survey but continued to work on our collaborative project in our own time for another four years before two of us left the country. This is the best example I have in my life of a learning ecology that

was shared with colleagues who were also my friends. And this was in the days before computer and internet technology took over the world! I would characterise this situation as having elements of near total convergence of our individual learning ecologies around our shared project, whilst retaining elements that were not converged around projects that were particular to each member of the team.

**Figure 8.8** Different working relationships with colleagues lead to varying degrees of connectivity and overlap between learning ecologies.



Between 1995-2005 I worked in four different national HE organisations where I was a member of a team of peers that developed and committed to delivering each year a programme of work. In most of these roles each member of the team worked to their own objectives and programme of work meeting the targets they had agreed with their line manager. There was little convergence of our individual learning ecologies. The one organisation where there was a good degree of convergence was the Higher Education Quality Council, where between 1995-97 six members of the Quality Enhancement team worked on a single unifying research and development project - the Graduate Standards Programme. While each member undertook their own sub-projects there was significant ongoing interaction over the two years the project and the pooling of knowledge and the growing of shared understandings. Because of this level of convergence our overall achievements and final summative report of the project were more than the sum of the individual parts. I would

characterise this situation as an intermediate level of convergence in our learning ecologies in order to achieve a shared long term goal (Figure 8.8).

Between 1990-93 I was the geology inspector for Her Majesty's Inspectorate. Our role was to assess the quality and standards of education in the Polytechnics. Much of my work was self-determined and independent of anyone else (I was the only geology inspector) but periodically I worked in a small team (usually 3 or 4 people) to 'inspect' science education. We were peers but with different subject backgrounds and different levels of experience. Each inspection had a team leader responsible for setting up the inspection, coordinating the team's efforts and producing the report. We worked together intensively for 3 or 4 days. We had a clear and shared purpose and goal, we shared the professional context, and worked within an overall and well established procedural framework using the same protocols. But we each determined our own process. We pooled our knowledge continuously and the aim of our process was to contribute to the building of a single summative report. When the job was completed we went our separate ways and it might have been a long time before we worked together as a team. In this type of transient team situation there was temporary convergence of our learning ecologies to achieve a specific short term goal.

In my last employed role I led a small educational development team (6-10 people) at the University of Surrey (Surrey Centre for Excellence in Professional Training and Education). We worked together for five years although there was some exchange of personnel. Each member of the team had a different role and we agreed goals and discussed and identified the more significant activities as a team. We had team meeting every Monday morning for one hour when everyone shared their work and perspectives on the topics for discussion. We shared and pooled our knowledge of the institution and the people we worked with. At the highest level, we had a team ecology formed around the centre's mission but we all worked individually to our own objectives. Where we did achieve a degree of convergence was when we undertook a common project like running a national conference. Here we had a significant shared goal that we worked towards quite intensively in the latter stages. This situations represents a

lower level of convergence compared to the other scenarios outlined above. However, if we defined the learning ecology at the level of the project, rather than the individual team member, we would have a single learning ecology.

In sharp contrast to all of the above, when I was a senior lecturer in geology at a polytechnic. I worked totally independently of anyone else in the department. My subject specialism and research interests did not overlap with anyone else and there was little in the way of team working even on the modules that were co-taught. Perhaps this is typical of the working world of most academics and in my career it marks the end of the continuum where there is no convergence of a learning ecologies within a work environment (Figure 8.8).

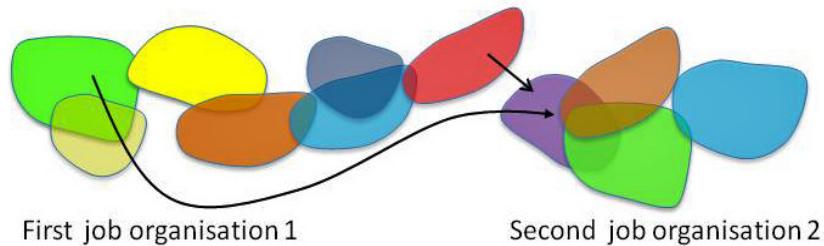
Any work context will provide affordances for a degree of convergence in the learning ecologies of individuals. We might speculate that in the professional environment when people work collaboratively on team-based projects, the learning ecologies of individuals might coalesce and converge towards a single team-based ecology for learning and achieving. Drawing on my own experiences in higher education, a reasonable proposition might be that different work environments have affordances for different levels of convergence. At one end of the continuum there is total convergence at the other there is little or no convergence. From my own experiences the most satisfying and engaging experiences, through which I have developed most, are those in which there is significant convergence around a vision and goal that was shared by everyone in the team. The least satisfying professional experiences have been team-based experiences where there was no common project around which we could converge and cohere.

### Learning ecology perspective on lifelong learning

This way of thinking about learning and development suggests that we might view our life as an unfolding sequence of ecologies for learning and developing ourselves and trying to accomplish the things we need or want to achieve. Some of these ecologies, like those associated with formal education, will be more or less designed for us and we will have relatively

little scope for determining what we want to learn and achieve. But other ecologies for learning, developing and achieving, particularly outside formal education, we will determine for ourselves. So when we look at our life we might visualise a sequence of ecologies, some overlapping, some separated and some connected in a manner depicted schematically in Figure 8.9.

**Figure 8.9** Representation of an individual's sequence of ecologies for learning, developing and achieving in a work environment



# CHAPTER 9

## Towards Education 3.0

### Introduction

This chapter is a product of learning in the Social Age (Stodd 2012, 2014) in so far as Twitter drew my attention to an interesting article by Jackie Gerstein (2014), a person who I don't know personally, who contributes regularly to my own personal learning network through her postings on Twitter and her blog. In her article she used the well known evolutionary metaphor Web 1.0 to Web 2.0 to Web 3.0 to illustrate an evolutionary trend in education from Education 1.0, through 2.0 towards 3.0. I was inspired by her ideas and within a few hours of reading it I sat down and wrote a blog post (now this chapter) 'piggy backing' on her ideas to expand the use of the metaphor to cover students' creative development and their awareness and involvement in creating their own ecologies for learning.

Our higher education system is founded on the assumption that teaching is necessary for learning to occur (Thomas and Seely Brown 2011). The major influence on students' experiences of higher education and the way they are encouraged to learn is their teachers' pedagogic stances. McWilliam (2009) categorises these into one of three types - 'sage on the stage' (knowledge transmitter with predominantly lecture-based learning practices framed within an instructivist theory of learning), 'guide on the side' (more of a facilitator with activity-based learning practices framed within a constructivist theory of learning), and 'meddler-in-the-middle' (an involved co-learner/co-producer in the learning process with associated activity-based learning processes framed within constructivist and connectivist theories of learning). Gerstein's use of the 1.0 to 3.0 metaphor examines and caricatures the types of approaches used to promote students' learning within what she infers is an evolving set of social practices. Although, we can recognise that all three educational representations (1.0, 2.0 and 3.0) exist together and it might be argued, an

effective educational programme would draw on all three representations. In fact an experienced teacher might move from one pedagogic stance / set of social practices to another depending on the learning context. So the forms of education described within the 1.0 to 3.0 conceptual space, can be performed and produced by the same teacher in the same course.

What follows is a way of capturing some of the ideas discussed in this book about the relationships between certain forms of education and the affordances they provide for enabling students to develop the disciplinary knowledge and skill, self-awareness, self-regulatory skills and capabilities and opportunities to create their own ecologies for learning and achieving so that they are better prepared for living and learning in their complex and rapidly changing future world.

## Education 1.0

Education 1.0 is, like the first generation of the Web, a largely one-way process. Students go to universities to get education from professors, who supply them with information in the form of a stand up routine that may include the use of class notes, handouts, textbooks, videos, and in recent times the World Wide Web. Students are largely consumers of information resources that are delivered to them, and although they may engage in activities based around those resources, those activities are for the most part undertaken in isolation or in isolated local groups. Rarely do the results of those activities contribute back to the information resources that students consume in carrying them out (Keats and Schmidt 2007:2)

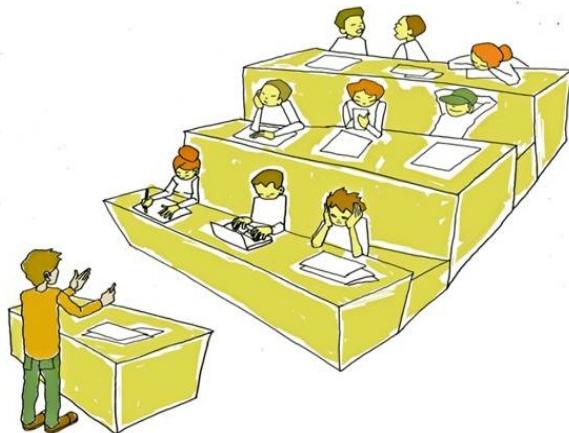
In the 1.0 version of education the teacher acts as 'sage on the stage' working within an instructivist theory of learning. Education is operationalised as a process for transferring information from the teacher to the student who receives and tries to make sense of it. Instructivism, sometimes referred to as Direct Instruction incorporates a teacher-directed, carefully planned curriculum, with purposeful teaching at its core. It follows two basic assumptions. First, the purpose of instruction is to help the learner understand and interact with the world; and, secondly, learners should be

directed by instructors who make the decisions about the goals of learning, the content of learning and the sequence of the learning (Margules, 1996).

Traditional venues for teaching - such as the classroom are organised to support this mechanistic process and learning is treated as a series of steps to be mastered, as if students were being taught how to operate a machine or even, in some cases, as if the students themselves were machines being programmed to accomplish tasks (Thomas and Seely Brown 2011:35). According to these authors, the ultimate end point of a mechanistic approach is efficiency. The goal is to teach as many people as you can to learn as much as they can, as fast as they can and show that they have learnt it by a standard test. In this teaching-led approach, standardisation is a reasonable way to do this, and testing is a reasonable way to measure the result. The processes that necessarily occur to reach the goal, are considered of little consequence in themselves. They are valued only for the results they produce within the overall frame of efficiency and effectiveness. In the UK the rapid expansion of higher education between the late 1980's and mid 1990's meant that lecturing to large groups became the most efficient way of teaching in a mass system of participation reinforcing the traditional 1.0 model of education. Education 1.0 may not be a pedagogic choice but a necessary way of dealing with an environment limited by the resources available for teaching. In the instructivist approach, knowledge exists independently of the learner, and is transferred to the student by the teacher. The teacher-centred model requires the student to passively accept information and knowledge as presented by the instructor.

Education 1.0 is essentialist, behaviourist and instructivist education based on the three Rs - receiving by listening to the teacher; responding by taking notes, studying text, and doing worksheets; and regurgitating by taking the same assessments as all other students in the cohort. Learners are seen as receptacles of that knowledge and as receptacles, they have no unique characteristics. All are viewed as the same. It is a standardized/ one-size-fits-all education (Gerstein 2014)

**Figure 9.1** Caricature of Education 1.0: the teacher is a sage on the stage working within an instructivist model of learning. Learners are receptacles for transmitted knowledge. The teacher creates an ecology for learning defining the goals, content, process, resources and outcomes against which learners are assessed. There is ample scope for teacher creativity but little room for students' creative development.



This pedagogical approach is the dominant teaching-learning model in universities around the world. The internet and related technologies have been used to support this approach for example in enabling the learner to (Gerstein 2014):

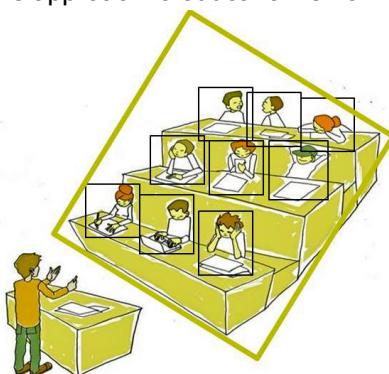
- Access information via ebooks and websites, but these often lack any type of interactivity or capabilities for the learner to comment, share, or interact with the content.
- Watch, learn, and take notes from live and/or video lectures that focus on didactic dissemination of content and information.
- Use technologies and mobile apps based on drill and grill where learners are given direction instruction via these technologies and asked to provide the correct answers to questions.

### Learning ecology 1.0

Learning ecology 1.0 is the traditional classroom-based learning ecology where teachers working within the instructivist model of learning

with a pre-determined curriculum or syllabus containing specific knowledge and opportunities for skill development and supported by an appropriate set of resources, engage their students in a process for the explicit purpose of learning the nature of which is predetermined by the intended learning outcomes and the content of the syllabus. Students' learning and achievement involves mastering the content of the course, as determined through teacher assessments. In this type of learning ecology the learner has little or no involvement in the design of the ecology for learning they simply participate in one that has been designed for them and behave in ways that the teacher wants them to behave ie read this, discuss this, write an essay, solve this problem etc.. This approach to education is not intrinsically wrong. It is the way that much of the world has been educated to date. It is only wrong if this is the only approach used to encourage and support learning in formalised learning environments.

**Figure 9.2 Creativity and Learning Ecologies 1.0**



*Creativity 1.0 'being creative is thinking outside the box I have put you in'  
Ecology 1.0 'I want you to read this by tomorrow and I will test you'*

### Creativity 1.0

In this environment the teacher has plenty of scope to be creative in the way they interpret and implement the design and content of the course, the way they find, make sense of and use information and create resources for teaching and learning, and in the way they create learning activities that engage learners. But from the learners' perspective there is often little room for individuality or personal creativity in this pedagogic approach. In fact, for the approach to work well the teacher requires compliance and conformance to exactly what the teacher wants the learners to do and learn. Furthermore, assessments such as tests, unseen exams and standardised coursework

essays ensures that learners focus on the requirements rather than engage in more open-ended explorations of learning in the subject. Nevertheless, this approach does result in learning and changes in learners' understandings and this is the most fundamental level at which creativity takes place (Vygotsky 1930): what Kaufman and Bhereto (2009) call mini-c creativity.

'any human act that gives rise to something new is.... a creative act regardless of whether what was created is a physical object or some mental or emotional construct that lives within the person who created it and is known only to him Lev Vygotsky 1930 (7)

## Education 2.0

Most teachers realise that instructivist approaches to learning rarely inspire and engage learners in deep explorations of their subject and seek more active ways of engaging learners in the knowledge, problems and challenges their subject affords. They know, from their own experience, that they learn best when they are motivated to formulate and solve their own problems, when they ask questions and their curiosity drives them to search for and gather information from different sources, and when they devote time to making sense of it and change their own understandings in this active learning process.

The 2.0 version of education with its emphasis on active learning has been around a long time. In the USA Bonwell and Elison (1991) produced an Association for the Study of Higher Education (ASHE) report describing a number of active-learning strategies while in the UK a major Government initiative between 1987-92 (Enterprise in Higher Education or EHE) promoted similar active learning processes to encourage student development of

Education 2.0 takes on the characteristics of an andragogical, more constructivist teaching orientation where the principles of active, experiential, authentic, relevant, and socially-networked learning experiences are built into the class or course structure.'(Gerstein 2014)

enterprise skills (Winter and Hawkins 1997). While there is no doubt that the 1990's witnessed a flourishing of active-learning in higher education, active learning strategies within particularly disciplinary teaching and learning contexts have been around much longer. Active learning can involve simple tasks within a single teaching session eg involving students in discussion groups and inviting them to generate ideas. Or they might involve complex activities extending over weeks or months performed outside as well as inside the classroom. It is these complex multiple activities that provide the best scope for students' to develop their own ecologies for learning.

The adoption of a range of approaches to active learning inside and outside the classroom encourages learners to adopt a more constructivist approach to learning: when learners create their own meanings and understandings through their interactions with their own experiences. In developing their practices to support andragogical (self-directed), constructivist approaches to student learning teachers may blend or even replace the sage on the stage pedagogic stance with that of guide on the side becoming more of a facilitator to encourage learners to think and find things out for themselves and learn with and from each other. They may even become meddlers to disrupt the habits and routines and encourage and show learners how to step outside their comfort zones by modelling such behaviours as a co-participant in a learning enterprise.

Education 2.0, like Web 2.0, permits interactivity between the content and users, and between users themselves. With Web 2.0, users move from just accessing and processing information and content to being able to directly interact with the content through commenting, remixing, and sharing it via learning activities inside and outside the classroom and using technologies like social media platforms that support the sharing and reshaping of content. Now we are in the Social Age Education 2.0 is supported by an enormous range of mobile communication and web-based technologies that permit users to communicate directly with one another synchronously and asynchronously and that enable people to communicate and create content in many different ways - text, audio, video, music, pictures, animations to name just a few.

Like Web 2.0, Education 2.0 includes more interaction between the teacher and student; student to student; and student to content and other resources. Education 2.0 has progressive, humanistic roots where the human element is important to learning. The teacher-to-student and student-to-student relationships are considered integral to the learning process. Education 2.0 focuses on - communicating, contributing, collaborating and co-creating and is formed around principles of constructivism (rather than the instructivist principles of Education 1.0). The learning process acknowledges that learning is not only a cognitive process but also a highly social and often physical and emotional process.

### Learning ecologies 2.0

The ecologies created by the teacher are ecologies for active independent and collaborative learning. Activities might be framed by teachers but the detail of the what happens and how it happens is created or co-created by learners themselves. There is an enormous range of active learning contexts and strategies used in higher education including : problem-, project-, enquiry- research- and field-based learning which actively encourage learners to define and explore problems and goals, build and utilise relationships for learning, discover and create resources and experiment with possible solutions for themselves sometimes in contexts that are challenging and unfamiliar. In project work for example students might choose the topic for their research and formulate research questions, identify the resources they need, develop a methodology, conduct research-based inquiry to gather data, analyse, interpret the data gathered and synthesise the work in a report all more or less independently or with minimal supervision. In doing this students are creating their own ecology for learning and achieving their self-defined goals and while developing and applying the attitudes, skills and behaviours of self-regulated learning. Education 2.0 offers the opportunities for students to move out of the regulatory control of the teacher to regulate their own thinking, behaviour and actions.

Learning ecologies 2.0 recognise that there is a world of learning and achievement outside higher education and that one of the objectives of a

higher education is to prepare learners for this world of ambiguity, uncertainty and emergence where there are rarely single right answers to problems only many possibilities and learning is about deciding which possibility to run with and make work. The relevance of education to real world situations becomes very important in Education 2.0 and Learning Ecologies 2.0 often aim to simulate or even incorporate real world experience. Education 2.0 has benefited from the new affordances provided by Web 2.0 technologies like social media platforms, wikis, personal websites and blogs which encourage and permit collaboration, social learning and co-creation of knowledge and artefacts, the sharing of personalised learning and curation of knowledge so that it can be shared. There is a shift to openness and willingness to share in the Web 2.0 world unlike the closed world of Web 1.0 which makes it a more supportive environment for creativity to flourish.

**Figure 9.3** in the  
Education &  
Learning Ecology  
2.0 the teacher  
encourages her  
students to  
engage in an  
active learning  
process acting as  
a facilitator to help  
them optimise the  
learning that  
emerges through  
the learning process that they design and implement.



*Creativity 2.0 'why don't you pool your ideas on how to solve the problem?'*  
*Ecology 2.0 'what is your goal and what steps do you need to take to achieve it? Try and do it by next week and tell me what you did.'*

With greater freedom to choose how and what to learn comes a greater need for self-regulation (Chapter 7) 'self-generated thoughts, feelings and actions that are systematically oriented towards achievement of the learner's own goals' (Zimmerman and Schunk 1989). Learners have to be

encouraged to set their own goals for learning, plan strategies to achieve their goals, implement their plans and be conscious of the effects they are having and adjust if necessary and reflect to learn through and from experience. In constructivist environments metacognition becomes an important target for development and learners are required to develop the skills to record, reflect on, draw deeper meaning and learning from their experiences. The recognition that learning that is personal to the individual means that there has to be a perspective change in what counts as learning and new approaches to assessment have to be developed to recognise such learning. In the UK this perspective change has been encouraged through the systematisation of personal development planning (PDP) (QAA 2009 and chapter 7).

The development of narratives to record and explain the learning process and provide evidence of learning is encouraged and supported through e-portfolios and there are a wealth of computer-based and on-line Web 2.0 tools to support this process.

## Creativity 2.0

Affordances for students' creative development are significantly enhanced in Education 2.0. The act of imagining, designing and implementing a complex set of interlocking activities to achieve a goal (like a significant independent project), or put another way bring an ecology for learning into existence, is a creative act in its own right.

Because Education and Learning Ecology 2.0 provides more affordance for personal and collaborative creativity the onus is on teachers to believe that their students' creativity is worthy of development and care enough to create opportunities for them to demonstrate their creativity and gain recognition. 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.

Students will be creative if they are given permission and the right conditions and challenges. Education 2.0 has the potential to provide this but for learners to develop their understandings of creativity attention must

also be paid to enabling them to become conscious of their creativity as they are using it. Borrowing from practice in the architects' studio, the champion of reflective teachers Professor John Cowan, 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 (including the teacher) through the learning processes (Cowan 2006). Working backwards, the results of creative thinking and action are embodied in a self-peer and teacher assessed portfolio - with significant emphasis on self-assessment. Here teachers and students can benefit from the wealth of Web 2.0 technologies and tools that enable them to record their imaginative ideas and their actions to turn ideas into practical realities. It is only by paying close attention to how personal creativity features in an individual's process that he/she can truly learn what creativity means in the particular circumstances of his/her life.

**Figure 9.4** Example of converting a traditional lecture based course (Education 1.0) on the design and production of fashion garments into an active learning, close to real world experience (Education 2.0). Illustration by Andres Ayerbe

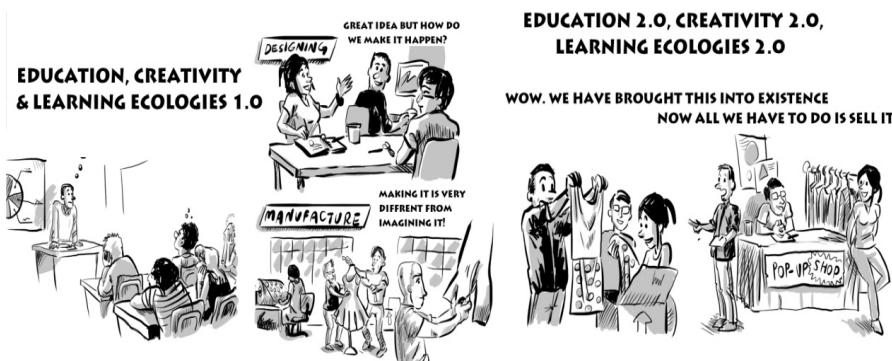


Figure 9.4 provides an illustrative example of converting a traditional lecture based course (Education 1.0) into an active, close to real world learning

experience (Education 2.0). Students on designing, manufacturing and marketing fashion garments courses, worked collaboratively with their teachers, who had commercial experience, to design a collegiate range of garments. Industrial standard designs for manufacturing were produced with the help of the teacher. The garments were manufactured and then students marketed and sold the garments in a pop-up shop on campus which they created (Baker, Jackson and Longmore 2014: 91-2).

## Emergence of Education 3.0

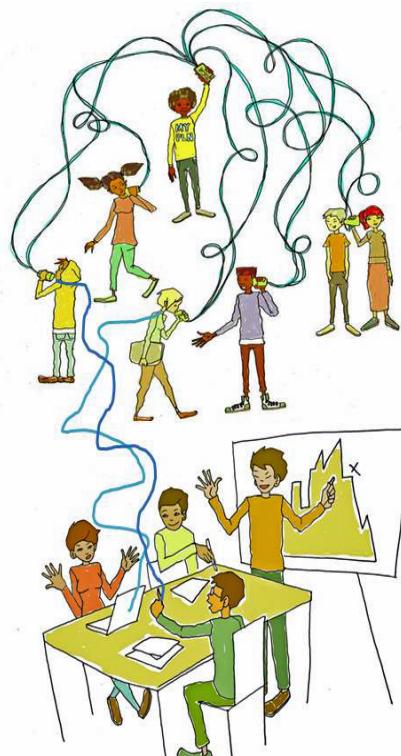
Since the millennium we have been entering a new age of communication and learning which some commentators have termed the Social Age (Stodd 2012, 2014). Enhanced connectivity is at the heart of changing our behaviours and habits in how we find, use, develop and distribute information and knowledge and create new meaning and understanding. The Social Age might be defined in terms of the creation of *value* by connecting individuals and their interests and passions

Education 3.0 is a more heutagogical, connectivist approach to teaching and learning. The teachers, learners, networks, connections, media, resources, tools create a unique entity that has the potential to meet individual learners', educators', and even societal needs. Education 3.0 recognizes that each educator's and student's journey is unique, personalized, and self-determined (Gerstein 2014)

(adapted from Rhode 2014). The Social Age began with Web 2.0 technologies but we are now morphing into Web 3.0 as a result of ever faster and increasingly pervasive broadband, wifi, 3G + 4G technology that enable connectivity almost anywhere at any time with infinite information resources and personal knowledge residing within personal learning networks.

Gerstein (2014) provides a useful summary of the Education 3.0, heutagogical (self-determined as well as self-directed) connectivist learning environment in which learners:

- Determine what they want to learn and develop their own learning objectives for their learning, based on a broad range of desired course outcomes.
- Use their learning preferences and technologies to decide how they will learn.
- Form their own learning communities possibly using social networking tools suggested and/or set up by the educator. Possible networks, many with corresponding apps, include: Facebook, Twitter, Edmodo, Instagram, Blogging sites, Youtube, and other social networks.
- Utilize the expertise of educators and other members of their learning communities to introduce content-related resources and suggest Web 2.0 and other online tools for that the students could use to demonstrate and produce learning artifacts.
- Demonstrate their learning through methods and means that work best for them. It could include using their mobile devices to blog, create photo essays, do screencasts, make videos or podcasts, draw, sing, dance, etc.
- Take the initiative to seek feedback from educators and their peers. It is their choice to utilize that feedback or not.



**Figure 9.5** The connectivist view of learning where knowledge is distributed across a network of connections and learning is the process of connecting to and making sense and use of information in these varied sources.

The idea of connectivity and connectivism underlies the concept of Education 3.0. Siemens (2004) defined the characteristics of connectivism:

- Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known.
- Nurturing and maintaining connections is needed to facilitate continual learning. Ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.
- Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality.

connectivism is the thesis that knowledge is distributed across a network of connections, and therefore learning consists of the ability to construct and traverse those networks (Downes 2007)

Education 3.0 builds on and subsumes Education 2.0. It embraces more directly and comprehensively the idea that learning is personal, social and informal, as well as more formal notions of academic learning.

Education 3.0 is characterized by educational designs and opportunities provided by institutions where the learners themselves play a key role as creators of knowledge artefacts that are shared, and where social networking and social benefits play a strong role in learning. The distinction between artefacts, people and process becomes blurred, as do distinctions of space and time and the boundaries between professional learners (teachers) and student learners are blurred.

Education 3.0 subsumes the four Cs of Education 2.0 - communicating, contributing, collaborating and co-creating and also includes the additional C's of connecting, collectives and curating (the products of collective learning). It subsumes the constructivist principles of Education 2.0 and

adds in the emerging principles of connectivism. Learners are pro-active in authoring their own learning lives and in helping their peers author theirs.

Thomas and Seely Brown (2011) view the emergence of Education 3.0 from a cultural perspective.

The primary difference between the teaching-based approach to education (1.0) and the learning-based (2.0 & 3.0) approach is that in the first case the culture is the environment, while in the second case, the culture emerges from the environment - and grows with it. Thomas and Seely Brown (2011:37)

In the new culture of learning, people learn through their interaction and participation with one another in fluid relationships that are the result of shared interests and opportunity. In this environment participants all stand on equal ground - no-one is assigned the traditional role of teacher or student. Instead, anyone who has particular knowledge of, or experience with a given subject may take the role of mentor [or leader] at any time (ibid 50-1)

We call this environment a *collective* - a collection of people, skills and talent that produces a result greater than the sum of the parts. Collectives are not solely defined by shared intention, action, or purposes. Rather they are [also] defined by an active engagement with the process of learning. Communities derive their strength from creating a sense of belonging. Collectives derive their strength from active participation' (ibid 52)

At its logical best then Education 3.0 encourages and supports the conditions for a culture of collective inquiry.

In the new culture of learning, collectives, as we define them, become the medium in which participation takes shape. They are content-neutral platforms, waiting to be filled with interactions among participants. As such they are well defined to facilitate peer to peer learning, their *raison d'être* (ibid 52-3)

Finally, in the teaching-based approach [Education 1.0], students must prove that they have received the information transferred to them -

that they quite literally 'get it'. In the new culture of learning [Education 3.0] the point is to embrace what we don't know, come up with better questions about it, and continue asking those questions in order to learn more, both incrementally and exponentially. The goal is for each of us to take the world in and make it part of ourselves. In doing so, it turns out, we can re-create it (*ibid* 38)

### Learning ecologies 3.0

Taking the world in and making it part of ourselves is a powerful statement of ecological idea. In Education 3.0 learners create their own ecologies for learning and development and actively participate in the learning ecologies of other learners who share their interests and goals. Together these ecologies coalesce to form 'collectives'. In this way 'collectives' create composite ecologies for learning which benefit individuals but the group as a whole. Teachers are but one member of a collective and depending on the inquiry or problem being tackled they may or may not be an expert contributor. But what they might be expected to be good at is meddling, nudging, provoking, challenging, encouraging and hopefully inspiring as well as modelling responsible participation and revealing their own learning in the process.

In the 3.0 conceptual space learners create their own ecologies for their self-determined learning projects in study, work or other contexts outside formal education. Their learning is not driven by the need or desire for formal recognition, rather it is driven by deep intrinsic interests, curiosity and need. They determine goals, contexts, content, process, resources and relationships seeking advice from sources that they judge to have value. Learners may choose to incorporate Open Educational Resources and Open Educational Practices (like recording and reflective processes), offered by formal education providers, into their learning process but they are the architects of their own learning designs.

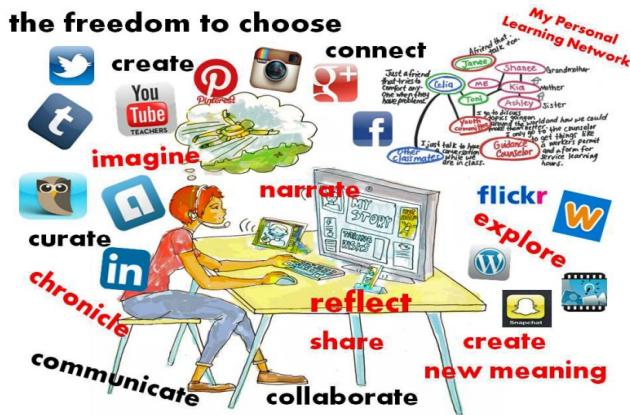
### Creativity 3.0

The idealised view of Education 3.0 contains the most affordance for individual and collective creativity since it is embraces the real world with all its uncertainty, ambiguity, authenticity, challenge and opportunity. Learning

and achievement are driven by intrinsic motivations, passions and needs of learners, rather than the extrinsic motivations of goals, intended learning outcomes and assessment practices determined by teachers.

The invention, adaptation and evolution of a learning ecology is the fundamental creative process on which individual and collective learning is founded. It's a process of imagining and making, and out of it emerges the opportunity for creating new meaning. Such evolving social situations provide endless affordance for creative ideas and creative actions to turn ideas into something meaningful. This is the fundamental nature of creativity 3.0 and it is embodied in Carl Rogers' conception of personal creativity, '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' (Rogers 1961).

**Figure 9.6** The wealth of tools and technologies available to learners in the Education & Learning Ecology 3.0 world.



## Concluding Remarks

The world gets ever more complex and complexity has been pushed to another level very quickly through the internet and the information and communications technologies that have grown with it. But this profound change in the way we communicate, share, exchange and produce information has expanded our ability to make use of resources in ways that I could not have imagined when I was student 45 years ago. In the space of

two generations technological innovations have changed the way we imagine, see, operate in and make sense of the world. They have also changed the way we construct and implement our ecologies for learning, developing and achieving.

The evolutionary pathway Education 1.0 to 3.0 outlined by Gerstein (2014), based on ideas by Keats and Schmidt (2007), provides a useful conceptual aid to imagine the changes that are taking place with each new developmental phase subsuming the one before so that all these educational approaches now co-exist. It is not a case of one scenario replacing another: we need all of them in an education system that prepares people for the complexities of their future lives. The challenge and the wisdom is in combining and integrating these approaches into the higher education experiences of learners in a relevant and meaningful way.

At the same time the broader learning ecosystem within which our education systems sit (macrosystem of Bronfenbrenner 1994) is changing - becoming richer, more diverse, more dynamic and more complex. The fundamental challenge to education of helping learners to prepare themselves for a lifetime of living and learning in a complex world becomes a challenge of empowering and enabling them to understand and appreciate this complex learning ecosystem. The challenge for higher education is to help people appreciate the ecological nature of their own learning and help them to develop the confidence, beliefs, orientations and self-regulating capabilities to use the learning ecosystem to create their own unique pathways to their own future.

### Acknowledgements

Jackie Gerstein grabbed my attention and stimulated my interest with her article Moving from Education 1.0 Through Education 2.0 Towards Education 3.0. In the spirit of the Social Age I remixed some of her ideas with some of my own. The lovely illustrations were drawn by Kiboko Hachiyon (9.1, 2, 3, 5 & 6) and Andres Ayerbe (9.4).

# CHAPTER 10

## The Future of Learning is Lifelong, Lifewide, Open and Ecological

### Introduction

This chapter sets out to show why an ecological perspective on learning is likely to be even more relevant in the future than it is today.

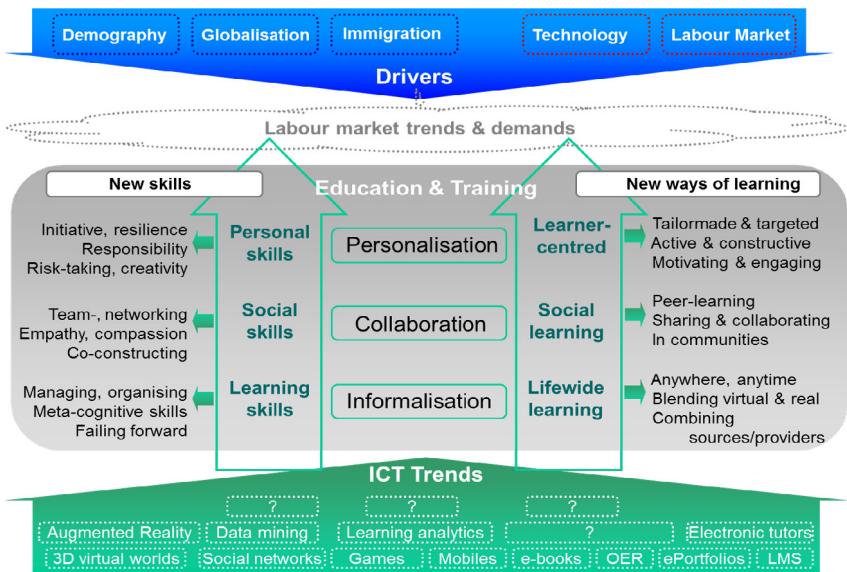
The chapter is based on two foresight studies undertaken by the Information Society Unit of the European Commission's Joint Research Centre IPTS in Seville (Redecker et al 2014, Munoz 2014) and a forecast by Knowledge Works (2013). The consistency between these future oriented studies leads me to think that the scenarios they depict are relevant and realistic and they offer a vision of the future that is consistent with the ecological narrative of learning, development and achievement offered in this book. The detail of how we get there is not so important, what is important is the direction of travel.

In an attempt to look over the horizon at what learning will be like in the future, the EU commissioned a foresight study in 2009. This study aimed to identify, understand and visualise major changes to learning in the future. It developed a descriptive vision of the future, based on existing trends and drivers, and

The overall vision [for the future of learning] is that personalisation, collaboration and informalisation (informal learning) will be at the core of learning in the future. These terms are not new in education and training but they will become the central guiding principle for organising learning and teaching. The central learning paradigm is thus characterised by lifelong and lifewide learning and shaped by the ubiquity of Information and Communication Technologies (ICT).  
(Redecker et al 2011:9-10)

a normative vision outlining how future learning opportunities could be developed to contribute to social cohesion, socio-economic inclusion and economic growth. Figure 10.1 summarises the most important components of this vision (Redecker et al 2011:9).

**Figure 10.1** Conceptual map of the future of learning (Redecker et al 2011:9)



In the context of this book it is worth drawing attention to the explicit role played by lifewide learning in this vision of future learning. Lifewide learning is connected to the ideas of learning anywhere/anytime by any means and for any purpose. In a digital world our learning is increasingly mediated by the personal technologies for communicating and exchanging information that we carry with us as we go about our daily lives. Lifewide learning embraces both learning in formal education environments and informal learning in work and other social spaces. It

requires the capabilities to plan, manage and self-regulate our own learning and development (important learning skills on the left hand side of Figure 10.1).

Such skills, attitudes and capacities will be key to being an effective learner in this vision of future learning. Lifewide learning is 'personal', driven by individual's needs, interests, responsibilities and ambitions, which emerge from the situations they inhabit. As Jackson shows lifewide learning provides a conceptual framework that enables the learner to view themselves, 'as the designer of an integrated, meaningful life experience. An experience that incorporates formal education as one component of a much richer set of experiences that embrace all the forms of learning and achievement that are necessary to sustain a meaningful life' (Jackson 2011c:115).

The foresight study was framed within the idea that our institutions and structures for formal education and learning will provide the foundational infrastructure for future adult learning - all formal, non-formal and informal learning after they have completed their initial education and training whether for professional reasons or for personal reasons (Castano et al 2014: 171). But to achieve this goal they will need to adapt to accommodate and support the diverse needs and interests of adult learners. The study hints at, but does not make explicit, the idea that learners will be pursuing their own self-determined goals and that education will be provided in a customised way to meet the particular needs and interests of particular learners. It's a provider- centred view of the world rather than the learner-centred view in which learner's own ecologies for learning drive the learning, development and achievement process.

### The paradox of education in a digital world

We are currently confronted with the paradox that although digital technologies are embedded in all facets of our lives and there is a worldwide expansion of on-line (open) educational resources that allow easy access to knowledge and learning, education systems have been so far unable to systematically exploit the potential of ICT to modernise

teaching and learning practices. The recent rise of Massive Open Online Courses (MOOCs) in particular has drawn attention to the fact that a vast range of high quality learning opportunities are available to (almost) everyone at virtually no cost.

Emerging from the Future of Learning study was growing awareness of the importance of information and communication technologies in expanding opportunities for 'open' learning in the context of more open forms of education.

Taking as a starting point the definition of open learning that gives the learner a degree of flexibility in the choice of topics, place, pace and/or method (CEDEFOP 2004)... open education is defined as the learning experience that gives the learner a degree of flexibility in the choice of what (topics), where (place), when (pace) and how (method) to learn/study (Castano et al 2014:172)

The great promise of "Open Education" is to provide every citizen with exactly the kind of learning s/he needs, when, where and how s/he needs it. This is a fundamental shift from most of formal education today where learners generally comply with the when, where and how an institution chooses to provide its educational opportunities.

To better understand how such an ideal education system could be developed for the medium-term future, a participative foresight study was conducted by the Joint Research Centre IPTS (Muñoz et al 2014). The process was 'open' to contributions from anyone who was interested in submitting their views and it involved engaging a significant number of knowledgeable experts in developing visions and scenarios for "Open Education 2030" for the three sectors: School Education, Higher Education, Adult Learning<sup>1</sup>. The aim of the study was to guide and direct policy making beyond the timeframe of 2020 and support current policy efforts at European level to Open Up Education<sup>2</sup>. It continues the work completed under the previous foresight study on "The Future of Learning" (Redecker et al 2011).

## A Vision for Open Education in 2030

So what might a world of open education resources and practices look like in 15-20 years time? Of course, there are many possible answers to this question one of which is 'it's not much different from today?' But wearing our optimistic hats and believing that the world will change and take our formal education institutions with it, we might envisage a future that builds on trends that are visible today. So that rather than only providing the education that higher education feels learners need our educational system as a whole might also provide individual learners with exactly the learning opportunities they believe they need when they need them in ways that best suit the circumstances of their lives. Fundamentally, this is a shift towards supporting learners' own ecologies for learning and personal development.

The optimistic vision for open education in 2030 might contain (Castano et al 2014:174):

- an abundance of OER in all languages
- knowledge and content will be free - however participants would pay for services such as support and assessment
- there will be a diversity of providers of OER and OEP (eg state and privately funded providers, experts, business, industry and third sector organisations, communities and specialist networks, publishers, and participating learners themselves)
- adult learners will be situated at the centre of their own learning process which they control themselves when they have the requisite skills  
social learning opportunities in communities and networks will be more abundant than today
- an abundance of data will be harnessed to inform educational designs
- pedagogic practices combined with technological aids will enable learning to be personalised
- learners will be able to move easily between educational contexts enabling them to combine educational opportunities in ways that best meets their needs.

- multiple mechanisms of assessment, recognition and certification will coexist.

**Figure 10.2** Customising education by unbundling of institutional functions and practices to create the package of affordances a particular learner requires (Redecker 2014)

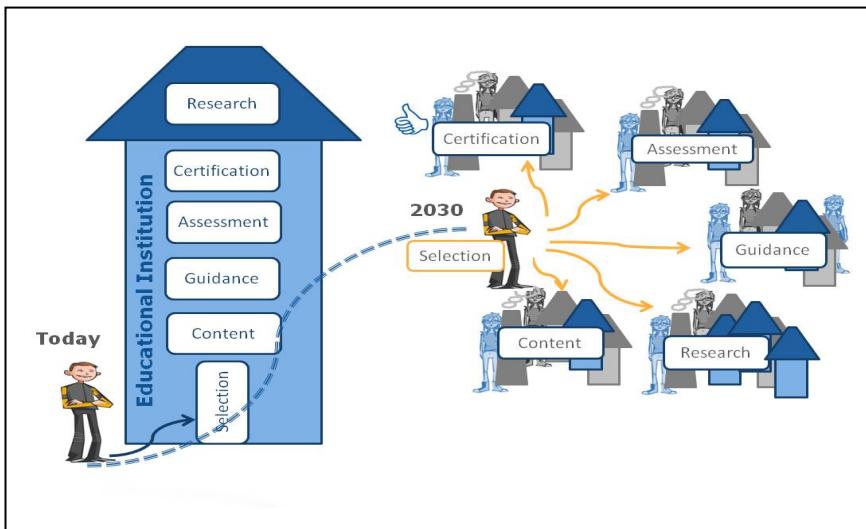
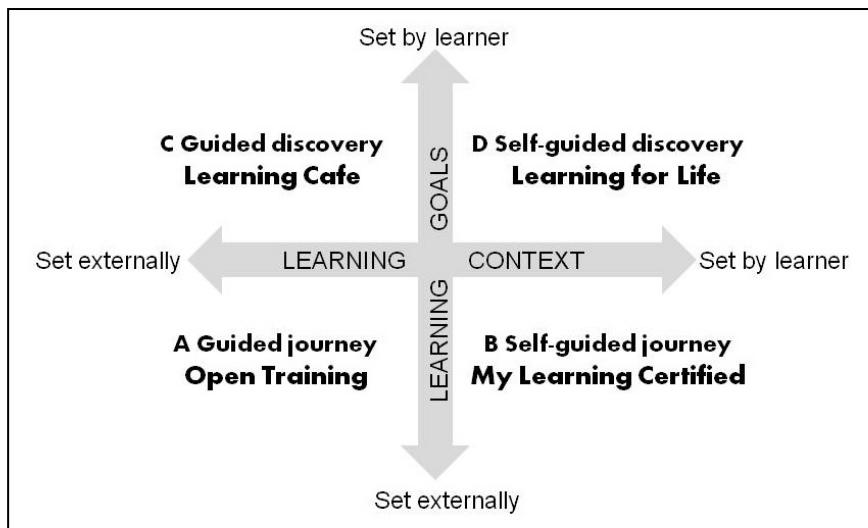


Figure 10.2 provides a vision for open learning and education that is very different to what currently exists. Current practice in the education and training sector is for learners to enroll with a designated educational provider like a school, a university, or a training centre and all the functions and practices relating to the educational opportunity are the responsibility of that provider (Figure 10.2 left hand side). The future might be very different through the unbundling of institutional functions and practices relating to the provision of educational opportunities (Figure 10.2 right side). In this way learners could design their own learning ecologies by connecting different (learning) opportunities, resources and assessment possibilities available within a system (rather than a single

provider) and combining them in a way that enables them to meet their particular learning, development and recognition needs. Learners would be able to learn what, when, where and how they want to learn (the "4W" of Open Education).

**Figure 10.3** Scenarios for Open Education 2030 (adapted from Figure 2 Redecker 2014 and Figure 1 Munoz et al 2014)



We might anticipate a number of challenges in moving towards such a vision. Figure 10.3 provides a conceptual framework within which to consider individuals' learning projects. The four quadrants of the framework reflect whether the learners goals/objectives/learning pathway is determined or negotiated by themselves or whether these things are determined externally, and secondly whether learning is guided by an agent or is self-guided -through a discovery mode of learning.

## Challenge 1 From programmes of study to ecologies for learning

The first pre-requisite for a global ecology that supports open learning and education is that learners themselves must have the confidence, skill, capability, motivation and self-belief to be able to operate in such an environment. Such a world of open affordances requires the learner to be not only self-directed and self-regulating (chapter 6) but also a designer of their own learning enterprise. It's a shift from the learner being provided with a study programme to the learner creating an ecology for their own learning containing all the components needed for successful study and the application of what has been learnt (Self-guided discovery Figure 10.3). Students currently enrolled in higher education will be the adult learners of tomorrow. By developing their capability for self-directed, self-regulated learning they are building their capacity to utilise the open learning ecosystem of the future.

## Challenge 2: Provision of guidance

Learners who are less able or willing or able to navigate through a universe of disaggregated learning resources to personalise their own learning journey will need guidance to identify suitable resources, for example through networks and learning communities (Guided discovery Figure 10.3), and/or enrol more formally in a structured course or class that will navigate them through the learning process, check on progress, provide feedback and motivate them (Guided journey Figure 10.3). Depending on learners' specific support needs, guidance will take many different forms, from documentation and peer collaboration through to targeted tutoring, mentoring and coaching.

## Challenge 3: Learning goals and recognition

Some learners are able to determine learning goals that grow out of their personal interests believing that there is intrinsic value in the learning and they do not need recognition for it. But other learners will want/need recognition for their achievements. For example a learner might need to develop particular knowledge and skill linked to their employability or advancement within a role or profession. In such cases,

there is a need to demonstrate the achievement of certain socially recognised and externally set goals and/or standards. There are a range of ways of gaining recognition from formal certification by education and training providers or professional bodies, trade associations etc. But there are also a growing number of experiments to recognise informal learning through peer recognition or endorsement (such as LinkedIn endorsements) and open badges (see for example the framework offered by Mozilla <http://openbadges.org/>).

These challenges to moving towards an open learning and education ecology underlie the conceptual framework provided in Figure 10.3.

## 2030 Scenarios for Open Learning and Education

We might imagine four different scenarios to explore the affordances of what Open Education Ecosystem in 2030 could look like (Figure 10.3). The four scenarios developed by Munoz et al (2014), spell out different options and manifestations for a common vision of Open Education 2030. In all four scenarios, the learning process is conceived as a personal endeavour that is led and designed by the learner which may or may not be guided and supported by others. The right hand side of Figure 10.3 requires learners to be capable and confident in directing and self-regulating their learning, while the conceptual spaces in the left hand side of the figure do not require these capabilities.

### Scenario A (Guided Journey - or Open Training )

This situation would accommodate people who were not able or willing to plan and organise their learning project by themselves. All the learner needs to do is identify their goal in general terms. With the aid of a guide, mentor or learning agent, they will be helped to sharpen their goal and select from the range of resources and opportunities available. The key characteristics of this scenario are an externally determined context and learning goals. The scenario is similar to what currently happens in education and training except the open learning environment will permit learners to select from a wide range of resources which may be adapted

to their particular needs. They will learn according to their preferences and the timing, pace and place of learning, and pedagogic approach will be adjusted to meet their needs (Munoz et al 2014: 179)

### Scenario B (Self-Guided Journey - My Certified Learning)

In cases where learners need to acquire and demonstrate competence in certain skills, for example for a particular role they are performing at work or to develop themselves for their future careers, they will want to receive formal recognition in the form of a qualification, certificate or badge. This scenario envisages the case where learners are confident and capable of identifying their learning needs and can plan and organise their own learning project to achieve a well defined goal with the help of open resources that prepare them in a structured and targeted way. Learners set their own goals, choose and implement appropriate learning strategies and learn in a self-regulated way, taking responsibility for self-monitoring, completion of set goals and their evaluation.

Such a process might for example be framed within the context of a MOOC and other open courses or resources that enable learners to achieve and demonstrate a set of competences in a targeted but flexible way. Another example would be a learner using the open resources of a professional body or trade association to prepare for examinations set by these bodies (Munoz et al 2014: 178).

### Scenario C (Guided Discovery - Learning Cafe)

In this scenario the learning process is driven by learners' need to understand but with no direct need for recognition or certification. Support and guidance are key to enabling learners to create and accomplish their learning project because they do not possess the confidence and self-regulatory skills, beliefs and attitudes to exploit available resources, and organise and complete their project by themselves. This scenario is for people who are overwhelmed by the information available, and/or are unable to find the specific information they need, who may also be unsure what or who to trust. The role of teachers, mentors, communities and peers who can act as guides and trusted advisors is essential to help

learners ask the right questions, identify suitable resources, designing a learning project, monitoring their progress, and validate their learning. In providing such support they are also helping learners develop the social capital and self-regulatory skills and behaviours that will be of benefit in their future learning projects (Munoz et al 2014: 177).

#### Scenario D (Self-Guided Discovery - Learning for Life)

In this scenario the learning process is completely led by the learner. They identify their learning needs and set their own goals, choose and create their own learning ecology through networking, collaboration, research and knowledge exchange, they monitor their own progress and create mechanisms to validate their learning. In their practices and behaviours they embody the self-directed, self-regulated learner. With or without the assistance of others, they identify human and material resources for learning, choose and implement appropriate learning strategies which may well involve other people and apply what they have learnt. In the process they will develop their personal learning networks and their own social capital for future learning projects. (Munoz et al 2014: 176-7).

This scenario relates to the idea that the affordances we have for learning, developing and achieving in all the domains of our life expand infinitely if we possess the awareness and capabilities to create our own ecologies for learning.

#### Implications of openness

If we look at this emerging landscape of learner-centred lifewide and lifelong learning, there are two important implications for policy making and these concern *curricula* (which currently specify learning goals and outcomes) and *institutions* (which traditionally provide the learning context and resources).

## Curricula

If informal learning becomes normal practice and learning goals are increasingly defined by the learners themselves, according to their learning needs, curricula remain relevant only in areas where there is a societal consensus that a central control over learning goals and outcomes is needed. However, even in these areas, curricula could be replaced by the accreditation mechanisms through which the corresponding achievements are certified. Thus, anyone who can produce evidence - by means of a range of possible validation formats - of having achieved the learning goals specified (in curricula or by the assessment formats employed) would be eligible for being accredited for these competences. Furthermore, curricula as such have to change and to open up as a means to foster experimentation, problem-solving, innovation, risk-taking, reflection and collaboration as key skills for Europe's future.

This insight is not necessarily new and is already reflected in recent policy initiatives. With the Council Recommendation on Key Competences for Lifelong Learning in 2009<sup>3</sup> a process was started that led many Member States to open up school curricula, by concentrating more holistically on competences, instead of knowledge, and by allowing for greater variety and choice. In the context of Enhanced European Cooperation, through the Bologna Process in Higher Education and the Copenhagen Process in the area of vocational education and training, first steps have been taken towards recognising skills and competences achieved under different curricula across borders. The credit transfer systems in place in both areas (ECTS<sup>4</sup>/ECVET<sup>5</sup>) further contribute to focusing curricula on the core competences relevant for a specific degree and for each specific level or step towards it. The recent Council Recommendation (2012)<sup>6</sup> on the validation of non-formal and informal learning goes a decisive step further by asking Members States to "have in place, no later than 2018 [...] arrangements for the validation of non-formal and informal learning"<sup>6</sup>.

In this respect the scenarios confirm that informal learning is already a reality and will become even more important in the future, so that

traditional validation and recognition mechanisms need to be adapted. The scenarios go a step further in highlighting that if recognition mechanisms become more open, this will have a backwash effect on curricula. If there are a range of alternative validation formats, curricula either have to reflect this variety, or they could become obsolete and be replaced by the corresponding validation mechanisms.

## Institutions

While there is a high level of awareness among policy makers, educators and researchers that recognition systems have to change, the other implication from the scenario development - the changing role of institutions - has not yet been given much attention.

Currently educational institutions serve multiple purposes. They provide tuition, career guidance, mentorship; they recommend resources, publish them, modify and adapt them; they assess, validate, certify and accredit competences; they provide a social environment of (peer) support; they serve different learning goals at the same time, such as skills training in view of labour market needs with cultural, social, and soft skills development; they tend to holistically foster the progress and well-being of their learners by offering miscellaneous services, such as sports facilities and events, libraries, social clubs, and social and cultural events, and last, but not least, they are places that generate a feeling of belonging to a special social community, they are the learners' home and family.

These are normal functions for an educational institution and it is very difficult to imagine an institution differently because they have always been this way. However, the scenarios developed illustrate that in the future these different services could be unbundled if they want to participate in this more open world of learning and education. In doing so they would become more agile in order to accommodate learner driven interests and needs.

If enough institutions adopt this mode of working, we might speculate that some institutions will become hubs for open learning offering guidance to those learners that choose a guided context for their learning,

i.e. the two scenarios on the left of figure 10.3. Other institutions may concentrate on content production, networking, research or on assessment, certification and accreditation. Some could even be reduced to brands or labels that convey a certain level of quality for the content offered or for the certification awarded ie they fulfil a quality assurance role. With this level of customisation towards learners' own goals and circumstances we might also anticipate that learners will negotiate and enter into learning contracts against which their eventual certification or accreditation might be determined.

## Regenerating the Learning Ecosystem

In imagining the future world of education and learning we must think beyond the institution-based, learning ecosystems which sit within a much larger dynamic ecosystem for learning. The 'Knowledge Works' forecast (Knowledge Works 2013) for 3.0 education and learning (chapter 9) is consistent with and complements the JRC IPTS foresight study which focuses on education and training providers.

The Knowledge Works forecast also recognises that the tightly bound relationships and resource flows that used to deliver education, develop curriculum, perform assessment, award qualifications, and provide professional development are dissolving. Teaching and learning are beginning to become uncoupled from traditional educational institutions and the next decade promises to bring extensive *recombination* to education. Recombining means new ways of reassembling what seem like disparate pieces and of incorporating new kinds of inputs 'to usher in a world of learning that provides rich personalisation for every learner throughout their lifetime'. At its best this process of combining the assets, capacities and affordances of this massive global ecosystem will lead to new organizational forms and learning formats that enable and facilitate student-centred, self-directed and self-determined learning by integrating talent, community assets, tools and technologies and global resources. The Knowledge Works 3.0 forecast identifies three domains in need of development in order to realise the potential of the learning ecosystem

## The need for resourceful self-regulating learners

As the learning ecosystem regenerates, learners who possess the attitudes and self-regulatory capabilities to self-direct their own learning and create their own ecologies for learning, who have the technological means to navigate diverse resources and opportunities, will be able to create highly personalised learning pathways with the help and support of learning agents. Learners and learning agents will be mutually responsible for seeking out the support of learning experts and maintaining robust personal learning networks. To realise the potential of this learning ecosystem learners will need to be able to:

- Use personal performance feedback from multiple digital data streams and dashboards to inform their own learning and development
- Draw upon their intrinsic motivation to take responsibility for evaluating available learning opportunities and for co-designing their unique learning pathways with learning agents
- Seek out and work with mentors, peer learning groups, and digital and human learning agents to support and further their learning experiences
- Use those same resources to navigate the array of choices offered by the learning ecosystem
- Engage with a wide variety of learning tools, resources, and learning formats to acquire and apply core knowledge and essential skills such as collaboration, initiative, global awareness, creativity, critical thinking, and perseverance
- Demonstrate mastery of core knowledge and essential skills through performance-based assessment.

## The need for learning agents

There will be a need for a new form of agency to help people navigate the resources and opportunities the regenerated learning ecosystem affords. The number and type of learning agents will expand dramatically. Existing educators will redefine their professional roles and new agents with skills to advise and connect people to the resources they need will emerge. Developers, entrepreneurs, and technologists all have a role to play in the new learning economy. Successful learning agents will:

- Use and create multi-layered visual dashboards to discern meaning from learning analytics that guide instruction and communicate progress
- Integrate technology to customize learning on a continuous basis and to make performance predictions that allow for early interventions designed to prevent failures and drop-outs
- Collaborate with other learning agents and use community and global resources to facilitate engaged learning that ignites students' intrinsic motivation and builds students' core knowledge and essential skills
- Integrate performance-based assessments and guide learners in building digital portfolios that represent their unique potential to the world
- Cultivate their own entrepreneurial skills in using public and private resources to develop customized learning pathways for all students
- Re-envision their own roles by exploring new ways of blending digital learning tools with other services and resources to leverage their professional strengths and passions in working directly or indirectly with learners
- Establish professional peer communities to develop their knowledge about deepening and accelerating student learning and closing achievement gaps
- Use digital portfolios to manage and represent their own continuous learning.

### **Learning ecosystem development**

To achieve consistent regeneration of the learning ecosystem where the needs of all learners are met, stakeholders will need to:

- Develop interoperability across programmes, services, data-scapes, and learning platforms
- Support the development of public-private partnerships and harness social innovations that can expand the array of resources, organizational formats for “school,” and opportunities available to all students
- Lead the process of articulating what learners will need to know and be able to do in a dynamic world where knowledge is a commodity

- Create and cultivate socialstructs by using mechanisms such as community design, game mechanics, diverse pay and reward structures, and intrinsic motivation to encourage collaboration
- Allocate resources and attention to research and development efforts and communicate about successful edu-preneurial activities, advocating for public policy and partnering with others to encourage innovations to scale
- Establish transparent, meaningful, and accessible reporting of formative and summative performance data at all levels of the learning ecosystem
- Ensure that everyone in the learning ecosystem has access to, and the capacity to use, the data needed to make effective decisions about learners
- Integrate knowledge from the expanded and diverse range of professionals entering the learning ecosystem and reconsider the most effective definitions of roles for a variety of learning agents
- Collaborate with stakeholders across the learning ecosystem to identify ways of evaluating the quality of diverse learning agents and learning providers
- Create rigorous and meaningful learning experiences that support learning agents in continuously improving their effectiveness
- Track and address any new inequities that emerge within the learning ecosystem.

## Conclusions

So what conclusions might be drawn from these future-oriented perspectives? It is likely that by 2030, opportunities for learning in an educational sense will be much greater than what is currently being offered by the collection of institutions and training providers that make up the current ecosystem for learning. Here are some speculative conclusions that might be drawn.

*education will embrace individuals' lifelong - lifewide learning*

Education will be spread across different formal and informal networks and communities. It will involve many different public and private players and will be intertwined with other activities - work, leisure, personal interest and personal relationships. It will be truly lifewide and people will participate throughout their lives. The sum of these relevant interactions and activities can become proxy for achievement and performance and may ultimately replace more formally obtained degrees or certificates. Current trends such as open badges and peer or expert endorsement show how it could be possible to receive recognition for skills and expertise displayed in practical and work related contexts. In the UK, the movement of higher education institutions towards a lifewide curriculum (Jackson 2011c).

*everything and anything we learn counts...*

Whatever we learn or achieve over the course of our lifetimes is relevant for us and others and can be documented in such a way as to help us exploit career opportunities or raise employability prospects. The capabilities to record our learning and extract meaning from experience are key.

*.. "fluidity" between educational and other learning contexts and scenarios..*

Learners who initially engage with a topic out of personal interest, either freely and self-directedly or by engaging in a community of interest or practice, can, for example, later decide to convert the expertise they acquire into labour-market relevant credits, badges or qualifications. Again the keeping of records of learning, development and achievement are crucial to providing evidence for such recognition.

*...and for new validation and recognition mechanisms...*

In order to better exploit this fluidity, in 2030 multiple mechanisms of assessment, recognition and certification will coexist, which allow learners to convert any kind of relevant learning experience into a

valuable asset. The issue for learners is to decide the most appropriate forms of recognition for their purposes.

*...embedded in a new open education culture which values informal learning.*

Changing mind-sets and recognising that learning outside of the formal context is important is a key issue in achieving full implementation of Open Education. Learners need to understand the nature of open learning and to develop the capabilities, attitudes, self-directing and self-regulating study skills to exploit the abundance of opportunity provided and document and extract meaning from their lifewide learning and educational experiences. Helping individuals understand and appreciate their own ecologies for learning will also contribute to a culture that values self-determined, self-directed learning.

For Open Education 2030 to become a reality, these key ingredients are necessary (Redecker 2014):

- The abundance of a variety of high quality, specific, adaptable, instructionally designed and openly available learning resources; that can be adapted as well as be used without adaptation, and the capabilities to generate such resources as and when required by learners
- An open learning culture, with new learning strategies, pedagogies, collaboration patterns and validation mechanisms. This change not only require institutions to refocus their strategies, but also learners to develop the necessary learning to learn skills. An open learning culture must also permit and accommodate new learning agents (organisations, people, networks and communities) who are not traditional educational providers.
- Open curricula accompanied by new recognition mechanisms including micro-credentialing, automatic credit transfer and external certification, which allow learners to receive full official recognition for self-directed learning activities.

- Learners need to develop 'Open Education Competences' (Castano et al 2014). They must develop the dispositions and self-regulatory orientations and capacities to engage effectively with the new ecosystem and be willing to seek out agents who can advise and help them when planning their own ecologies for learning.

The seeds of this future have already been planted and the changes that are taking place in many universities to encourage learners to develop themselves through all the affordances they have for learning across their lives are reshaping UK higher education in ways that are consistent with a world of self-directed open learning. It seems that UK higher education is slowly but surely moving towards a future where learning is viewed as lifelong, lifewide, open and ecological (Jackson 2014).

## The Ecological University

Surely, then it is time for universities to visualise themselves as ecological entities and embrace, as part of their educational mission, the development of learners as creators of their own ecologies for learning, personal development and achievement. Universities might justifiably argue that they have always been important in the learning and knowledge ecologies of people and society, although ironically they have, in their designs for learning, generally failed to recognise that learning is fundamentally an ecological process. Ron Barnett has done much to encourage universities to reflect on what being an ecological university might mean (Barnett 2013a & b).

The modern university is necessarily a networked university. Such networks can be considered to constitute a constellation of ecologies: knowledge ecologies, economic ecologies, political ecologies, institutional ecologies and cultural ecologies. The university is embedded in all these and other ecologies which must be nourished and nurtured if they are to flourish. Barnett suggests that the ecological university has the following features (Barnett 2013:136-7):

- The ecological university understands its situation, and its unfolding, within multiple ecologies, including knowledge ecologies. It has a concern for the sustainability and the self-generational capacities of these ecologies. It is sensitive to the idea of 'deep ecology' (Moog 2009) in that it understands itself to be embedded in these ecologies and not separate from them; although it considers, too that it has pools of freedom to exercise in relation to these ecologies.
- The ecological university has an interest not merely in sustainability, but in wellbeing. Whereas sustainability looks to maintain a given state of equilibrium, wellbeing looks to a continuous flourishing of the many ecologies that intersect with it. Certainly, what is to count as flourishing is itself open to debate but the ecological university understands too that it itself constitutes a space in which debate as to what is to flourish should be conducted.
- The ecological university therefore has a care or concern for the world. Unlike the research university (which is a university-in-itself) and unlike the entrepreneurial university (which is a university-for-itself) the ecological university is a university-for-the-other. It has a profound sense of the whole world (both within itself and beyond itself), having large claims on it, and it is intent on contributing to the world in ethically justifiable ways.
- The ecological university is engaged with the world. It reaches out into the world, but is sensitive to the ecological balances at work and to its own responsibilities in the world.
- The ecological university puts its resources into play such that they serve the world. The ecological university does not *directly* serve the world; it does not simply serve the interests the world as defined by the world but additionally it contributes to the definition of the interests of the world. Part of its serving the world is be active in shaping the interests of the world. As stated, it has a concern for the sustainability

of the world (which include its own sustainability) but as a necessary condition of its living out its concern with wellbeing and flourishing.

How does all this bear on individual's own ecologies for learning? If the ecological university lives out fully the principles and values of the ecological, it not only looks to sustain the world in all its inter-related complexity it also seeks to develop and improve the world. An ecological university should therefore be concerned with contributing to and developing all the constellation of ecologies with which it is connected. Most importantly from a learner's perspective this includes the affordances it provides for learning and developing themselves so that they can contribute fully to their own lifeworld.

The ecological university opens spaces for learning: space in which task-oriented learning can, with more self-awareness, become learning-conscious learning (Barnett 2013b). It provides a context: an environment for learning in which it is safe to try out new ways of thinking and being, where new social structures and relationships can be developed for the explicit purpose of learning, where resources and technologies can be found to support learning. In its learning spaces, processes for self-directed, self-regulated learning can be systematically orchestrated and supported so that learners develop the self-awareness, skills and habits necessary to create their own ecologies for dealing with the complex problems and challenges they will face in their future lifeworld.

It cannot be said that the ecological university is necessary for lifewide learning [or for students to create their own ecologies for learning], but it can most assuredly be said that the ecological university can do much to enhance [these things]. In coming to care about lifewide learning, the ecological university can help to reduce the fragility of the personal ecologies present here (those attaching to individuals' learning projects through life) and so aid their sustainability (Barnett 2013b 25).

## End Notes

- 1 For more information on the methodology, inputs and findings, see:  
<http://blogs.ec.europa.eu/openeducation2030/>.
- 2 The study on Open Education 2030 was completed by the OER team at IPTS: Christine Redecker, Yves Punie, Jonatan Castaño, Andreia Inamorato dos Santos & Riina Vuorikari. cf.  
<http://ec.europa.eu/education/policy/strategic-framework/education-technology.htm>.
- 3 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:394:0010:0018:en:PDF>.
- 4 cf. [http://ec.europa.eu/education/tools/ects\\_en.htm](http://ec.europa.eu/education/tools/ects_en.htm).
- 5 cf. <http://www.ecvet-toolkit.eu/site/home>.
- 6 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:398:0001:0005:EN:PDF>

# CHAPTER 11

## Ecology of Developing an Idea

### Introduction

This narrative explores the ecological process of developing an idea and the proposition that our personal creativity is integral to our ecologies for learning, developing and achieving. It recounts the unfolding story of how I have tried to develop and apply the idea of learning ecologies over the last 3 years. It is based on a number of ecologies I developed to learn and achieve something, through which I developed myself and my understandings and in the process created entirely new performances, relationships and resources. I could have told more stories but the ones I have chosen serve to illustrate the idea of how learning ecologies are themselves a product of our creativity and provide the context for our creative self-expression.

'Creativity is a developmental process and development is a creative process' (Enrico Coen cited by Diggle 2000).

### Creating

At the outset I should declare my beliefs about creativity as my interpretations of what counts as creativity reflect these beliefs. Fundamentally, my creativity enables me to bring things that are new to me into existence. These things might be ideas, objects or products, processes, events, relationships, performances or practices. But I also appreciate that a creative outcome is often a combination of my creativity and someone else's. For example, many of the illustrations in this book have been drawn by artist Kiboko Hachiyon but the ideas for the composition were usually provided by me. Together we shaped the visual narrative and the picture would not have come into existence if either one

of us was not involved. Similarly, many of the ideas on which this book is based began their life in someone else's head. I used my creativity to provide a new context for exploring the idea and in the process of developing the idea gave it new meaning. I don't claim originality because the idea existed before, but I might claim novelty in the way I have personalised ideas by connecting, interpreting and weaving them into a narrative that has relevance to the educational world.

As a student of creativity I am aware of many definitions. The idea that creativity involves the production of new ideas that have value, underlies most definitions. Also many definitions implicitly or explicitly indicate that creativity involves a process of turning imagination into something real and tangible.

#### Some definitions of creativity

- Creativity is the production of novel and useful ideas in any domain (Amabile 1996)
- Creativity is the process of having original ideas that have value (Robinson 2013)
- Creativity is the act of turning new and imaginative ideas into reality. It involves two processes: thinking then producing. Innovation is the production or implementation of an idea. If you have an idea but don't act on it, you are imaginative but not creative (Naiman 2014)
- Creativity is the entire process by which ideas are generated, developed and transformed into value. (Kao 1997)

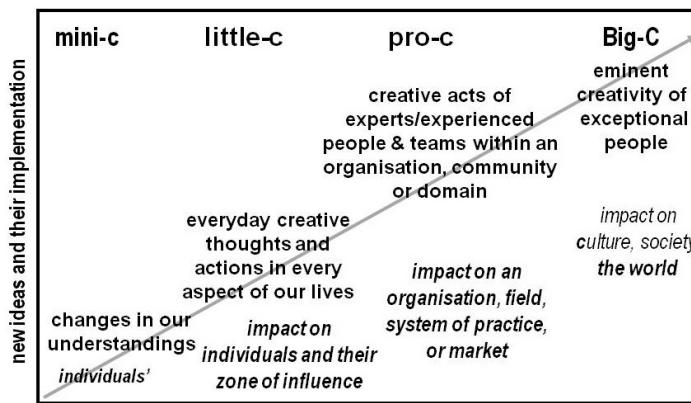
According to Barron (1969) any creative act must satisfy two fundamental criteria namely: *originality* - something that is new like an idea, behaviour or something we have made, and *meaningfulness* - the act or result has meaning and is significant to us. The issue then is who judges something is original and meaningful, and at what level is it original - to an individual, a team, an organisation or disciplinary field, a market or mankind?

All these definitions frame creativity in a particular way. They differ in their scope and inclusivity. I struggle with conceptions of creativity that are elitist and suggest it must be limited to what other people think is creative. At the most basic level I agree with the great Lev Vygotsky (1930) who asserts that any human act that gives rise to something new is a creative act regardless of whether that was a physical object or some

mental or emotional construct that lives within the person and is known only to him. I love this concept for its humanity and its significance for learning and education.

For a long time I struggled with the idea of level - that creativity spans the results of thinking and action from Einstein, Mozart, Brunel or Jobs to my own paltry efforts. Then I came across the 4C model of creativity developed by Kaufman and Beghetto (2009 and Figure 11.1) which explains the nature, scope and influence of individuals' creativity. These authors refer to '*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.

**Figure 11.1** Four-C model of creativity proposed by Kaufman and Beghetto (2009). Source of diagram Jackson (2012)



significance and impact of a development/innovation (1-3)

Both mini-c and little-c forms of creativity are relevant to everyone and are particularly relevant to higher education. One might speculate that participation in these forms of creativity are pre-requisite for pro-c and Big-C creativity in later life: if we want creative professionals then we should be encouraging 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 *eminent* creativity (*ibid*:6) that is beyond the reach of most people. 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 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.

I find this model of personal creativity liberating because I can relate my own creativity to three of the categories and it accommodates the concept of creativity that I find most useful namely, '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' (Rogers 1961). I also think the same definition with a minor alteration (replacing the word novel with new) can be applied to a person's learning and their development and the definition provides me with a conceptual tool that unlocks the process of learning, development and creativity within the conceptual framework of a learning ecology (Figure 11.3).

## Developing

The most important challenge facing all human beings is fundamentally a *developmental challenge* focused on the question of how we learn to deal with and make the most of the situations and opportunities in our lives, or the affordances that exist within our environment. Development holds the possibilities for our very existence since it is through a multitude of developmental processes that enable mankind to pool and combine his ingenuity to solve the most intractable

problems. Exploring how creativity features in development is therefore worthy of exploration.

That people develop is self-evident: we can see them grow from a baby through childhood adolescence to adulthood. The *development of a person* involves progression or movement from a simpler or lower state of being to more advanced or complex forms of being. For the person involved in development it always involves the process of becoming different which invariably means learning new things by adding to existing knowledge or skill, or replacing something which I already have or unlearning something that is no longer relevant or appropriate. In this way development is integral to our daily project of perpetually becoming.

Development is about *creating difference*. It involves change along a trajectory in which the amount of change may be the result of the accumulation of many small incremental changes or it might be the effect of one or more significant changes, or a combination of smaller and larger changes as is the normal case. But the end result of development is either that something is quantitatively different to what existed before and/or something new has been brought into existence.

Motivation for creating difference or newness is grounded in the continuous search for something better which improves what exists or does something which currently can't be done. The desire to improve ourselves so that we achieve our ambitions and goals, and / or improve some aspect of the world we inhabit, are the universal motivational forces underlying our personal and professional development.

Development seems to provide a good conceptual explanation for many of the things we get involved in. We start with a problem or a situation and have to work with it or at it to understand and resolve it. All the stuff we do between the starting and end points can be called development although this seems to imply tangible and quantifiable things which might not be the case. The challenge, when faced with complex and / or uncertain situations requiring new development needs, is to know what to do and in such situations we often don't know what we need to do beyond trying to move in a certain direction.

## Creativity in developing

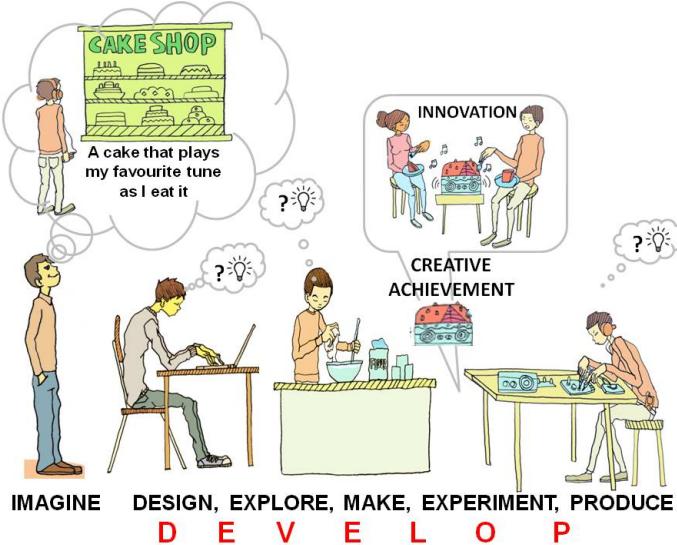
Any discussion of developing an idea with its intended purpose or unanticipated consequence of creating difference, transforming something that already exists or inventing something new must necessarily involve the idea of creativity since creativity is the concept we use when we talk about bringing new ideas, material or virtual objects, or practices and performances into existence. But where is creativity in development?

Is creativity a quality of persons, processes or products? According to Teresa Amabile (1997:3) 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. In other words creativity can be anywhere and everywhere! We might illustrate the way creativity features in a 'well structured' developmental process with a narrative describing the imaginary invention of a musical cake (Figure 11.2 co-created by Kiboko Hachiyon)

## Creativity in Development Narrative

A young man who enjoys listening to music and eating cakes is standing in front of a bakers shop looking at the cakes while listening to his favourite singer on his ipod. As he looked at the cakes and listened to his music, he had the novel, idea of a cake that plays music while you are eating it. The idea is new to him and although other people may have thought about it before, no musical cake has ever been brought into existence. This part of the story illustrates the initial creative thought that emerges in the mind of person whose interests and circumstances cause him to have this thought.

**Figure 11.2** Narrative illustrating creativity in a developmental process



He starts designing and making his musical cake. It requires much experimentation and involves many set-backs. He enlists the help of the local bakery and a small electronics company. People in these businesses liked his idea and are willing to help build a prototype which can then be pitched to potential investors. The whole developmental process involves continuously solving problems and seeing opportunities in which the young man's creative and analytical thinking comes into play. Every new idea or possible solution is evaluated and judged in the search for possible right answers. Creativity flourishes in a developmental process where individuals and groups are inspired to bring something new into existence and they work together sharing an innovation if it is significantly different to anything that has existed before.

The young man sees the value and opportunity in his idea and becomes motivated to try to make a musical cake with little regard for the

technical difficulty of doing so. He is convinced that he could make such a cake and sell it. So he sets about *developing his idea* and investing it with practical meaning. Using the resources he finds on the internet, he explores the possible ways in which he might create the music mindful of the costs and the potential health risks of integrating electrical devices into a cake. He hits on the idea of putting a small edible chip which he has read about, in the base of the cake, which sends a pre-recorded message or tune to a mobile phone which then plays the tune.

### Creativity within integrative thinking

This hypothetical narrative shows that while the initial idea might be truly original the hard work of creativity is to turn an idea that inspires you into something real - whether it be a process, product, virtual object, performance or anything else. This normally requires a process involving much uncertainty through which ideas are questioned, affordances are identified, problems are solved, resources are found and obstacles are overcome. This developmental process requires us to be able to imagine the problem we are working with and also to apply our analytical skills to evaluating and solving the problem.

When we think of creativity we tend to think of moments when new and novel ideas come into our heads for the first time and separate out such moments from a complex thinking process. But when we tackle a problem or challenge, or explore how we might use an opportunity, we use both our imagination and more critical ways of thinking in a complex synergistic interplay. This is especially the case when we engage in a sustained process of developing ideas over a significant period of time. Puccio, Murdock, and Mance (2005) provide a tool for relating the two forms of thinking in a hypothetical problem solving scenario (Table 11.1 Figure 11.3).

According to Puccio, Murdock, and Mance (2005) specific cognitive and affective domains are activated as the process moves from start to finish. For instance, in the early stages the individual assessing the situation, is driven by their curiosity and imagination to comprehend the problem but also uses diagnostic skills such as analyzing, describing, and

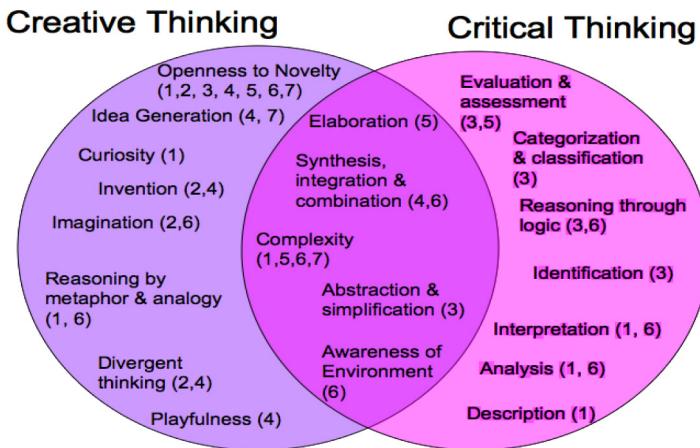
selecting. Puccio et al note that openness to novelty, tolerance for ambiguity, and tolerance for complexity underlie all stages of creative problem solving.

**Table 11.1** Representation of a problem-solving thought process which integrates creative thinking and critical thinking Puccio, Murdock, and Mance (2005),

Hypothetical steps in a problem solving scenario						
1	2	3	4	5	6	7
Assessing Situation	Exploring a Vision	Formulating Challenges	Exploring Ideas	Formulating Solutions	Exploring Acceptance	Formulating a Plan
<i>Cognitive Skills</i>						
Diagnostic	Visionary	Strategic	Ideational	Evaluative	Contextual	Tactical
<i>Affective Skills</i>						
Curiosity	Imagining Dreaming	Sensing Gaps	Playfulness	Avoiding Premature Closure	Sensitivity to Environment	Tolerance for Risks

The Ven diagram (Figure 11. ) illustrates how and when certain characteristics and behaviors of creative and critical thinking might manifest themselves. The numbers beside each text block refer to the steps identified above: For instance, “Openness to Novelty,” generally considered a quality of a creative thinking, can be associated with all seven steps; “Imagination” may dominate in steps 2 and 6; “Reasoning Through Logic” in 3 and 6. The diagram is intended to represent only illustrative patterns of thinking it is not intended to generalize across populations, contexts, or particular problem-solving events, except to illustrate the dynamic and complex nature of how we combine and integrate different thought processes.

**Figure 11.3** Integration of creative and critical thinking in problem solving based on the model proposed by Puccio, Murdock, and Mance (2005) <http://www3.wooster.edu/teagle/vendiagram.php>



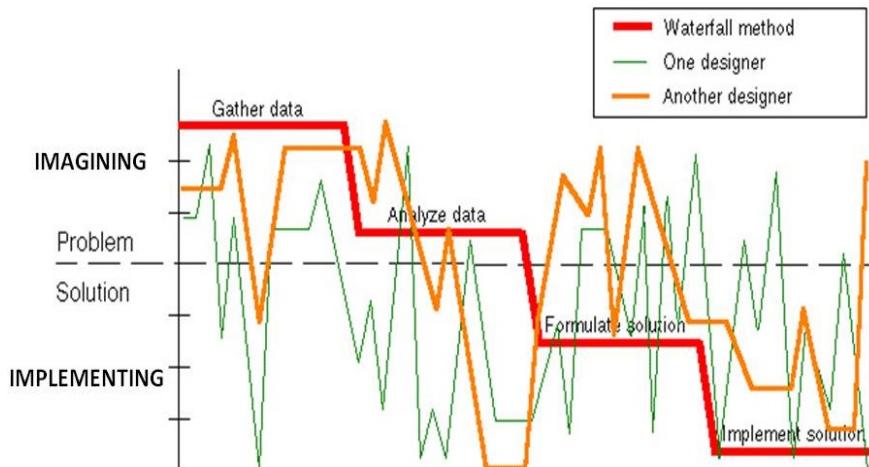
Conklin (2005) cites a study by Rittel and Webber (1973) which provides an illustration of this type of integrative thinking process in action. In a study in the 1980's at the Microelectronics and Computer Technology Corporation (MCC) Rittel and Webber (*ibid*) looked into how a group of engineers solved a problem. Their challenge was to design an elevator control system for an office building. All of the participants in the study were experienced and expert integrated- circuit designers, but they had never worked on elevator systems before. Each participant was asked to think out loud while they worked on the problem. The sessions were videotaped and analyzed in great detail.

The analysis showed, not surprisingly, that these designers worked simultaneously *on understanding the problem and formulating a solution*. They exhibited two ways of trying to understand the problem: 1) they tried to understand the requirements for the system (from a one page problem statement they were given at the beginning of the session); and 2) they

created mental models and simulations (e.g. “Let’s see, I’m on the second floor and the elevator is on the third floor and I push the ‘Up’ button. That’s going to create this situation....”).

On the solution side, their activities were classified into high, medium, and low levels of design, with high-level design being general ideas, and low being details at the implementation level. These levels are analogous to an architect’s sketch, working drawings, and a detailed blueprint and materials list for a house. Traditional thinking, cognitive studies, and the prevailing design methods all predicted that the best way to work on a problem like this was to follow an orderly and linear ‘top down’ process, working from the problem to the solution. This logic is familiar to all of us. You begin by understanding the problem. This often includes gathering and analyzing ‘requirements’ from customers or users. Once you have the problem specified and the requirements analyzed, you are ready to formulate a solution, and eventually to implement that solution.

**Figure 11.4** Patterns of thinking exhibited by life design engineers  
Conklin 2005:6



However, the subjects in the elevator experiment did not follow a waterfall type pattern. They would start by trying to understand the problem, but they would immediately jump into formulating potential solutions. Then they would jump back up to refining their understanding of the problem. Rather than being orderly and linear, the line plotting the course of their thinking looks more like a seismograph for a major earthquake, as illustrated in Figure 11.4.

This jagged-line pattern is typical of opportunity-driven learning, because in each moment the designers are seeking the best opportunity for progress toward a solution. It is precisely because these expert designers are being creative and because they are learning rapidly that the trace of their thinking pattern is full of unpredictable leaps.

The study demonstrated that, faced with a novel and complex problem, human beings do not simply start by gathering and analyzing data about the problem. Cognition does not naturally form a pure and abstract understanding of 'the problem.' The subjects in the elevator experiment jumped immediately into thinking about what kind of processors to use in the elevator controller, and how to connect them, and how to deal with unexpected situations, such as if one processor failed. These are detailed solution elements. These experienced designers illustrated that problem understanding can only come from creating possible solutions and considering how they might work. Indeed, the problem often can best be described in terms of solution elements.

Figure 11.4 illustrates another feature of solving a complex problem namely, trying to understand the problem continues to evolve until the very end of the process. Even late in the process the engineers returned to problem understanding, the upper part of the graph. In fact this is what is happening now as I add this section to the book only a week before I publish it!

The natural pattern of problem solving behavior may appear chaotic on the surface, but it is the chaos of an earthquake or the breaking of an ocean wave - it reflects a deeper order in the cognitive process. The non-linear pattern of activity that experts go through gives us fresh insight into what is happening when we are working on a complex and novel

problem. It reveals that the feeling that we are ‘wandering all over’ is not a mark of stupidity or lack of training. This non-linear process is not a defect, but rather the mark of an intelligent and creative learning process. The jagged line of opportunity-driven problem solving is a picture of learning and developing ideas involving the integration of critical and creative thinking. This is the way creativity emerges when tackling novel and challenging problems in a particular context and I will claim that taken over the period of time I have been thinking about learning ecologies this pattern reflects my own process of thinking and action.

## Developing an idea

Both of the narratives explain how an idea is turned into a product which can be used by others. In the process of producing the product the idea evolves and is tested and more and more ideas are connected to the original idea until the idea is realised. This is what happens in any developmental process and a similar process underlies the production of a book through which a core idea is explored and meaning is developed by connecting more and more ideas and contextualising, applying, evaluating, adapting and refining the ideas.

I am interested in how my ideas evolve. The academic in me enjoys engaging in things that I know are likely to lead to the development of new understanding and this often becomes an important reason for me to involve myself in something. I also like looking back to make sense of how something has evolved. Developmental narratives are often nested stories in which one development process lays the foundations for and connects to the next part of the developmental process. The set of developmental stories on which this chapter is based traces some significant parts of my journey as I have tried to develop my understanding of the idea of learning ecologies. In this context I would like to frame the idea of creativity using four main conceptions. The first is intellectual.

1 Creativity is the desire and ability to use imagination, insight, intellect, feeling and emotion to move an idea from one state to an alternative, previously unexplored state (Dellas and Gaier's 1970)

The second is ecological.

2 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 (Rogers 1961).

The third is concerned with impact or influence - my creativity embraces three of the four domains in Kaufman and Beghetto (2009 and Figure 11.1) 4C model of creativity namely, '*mini-c*' the novel and personally meaningful interpretation of experiences, actions and events made by individuals, '*little-c*' creativity - the everyday creative acts of individuals who are not particularly expert in a situation and '*pro-c*' creativity associated with the creative acts of people who have developed considerable understanding of a field or domain.

The fourth is developmental: creativity emerges through a process that is broadly consistent with the pattern of thinking and action depicted in Figure 11.2 namely: imagine, explore/design, make/experiment/test /refine, produce and share. Furthermore this pattern is one of integrating imagination and critical thinking or divergent and convergent ways of thinking if you prefer (Figure 11.3 and 11.4) in a manner that is consistent with Dellas and Gaier's (1970) concept of creativity.

## My Ecology for Developing and Applying an Idea

There was no shop window moment for I suddenly thought I want to explore the idea of learning ecologies and I claim no credit for imagining the idea. I have probably been aware of the general idea for at least ten years and I knew that there was a considerable body of literature that had already developed and used the idea. There was no eureka moment, just

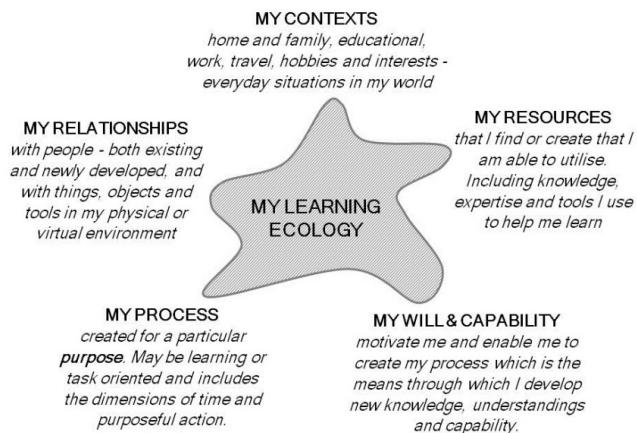
a sense of its time to do something with this idea'. So my first thought is that, like most academics setting out to write a book or article, I am standing on the shoulders of those who have gone before and any newness and originality I can bring to the idea is therefore contextual: situated in my desire to explore, develop and apply the idea of learning ecologies within the broader knowledge development task I'm involved in associated with lifewide learning and education and my interests in creativity. My proposition is that within the ecologies I create to explore the idea I will use my imagination, insight, intellect, feeling and emotion to move the idea from one state to an alternative, previously unexplored state (Dellas and Gaier's 1970). What will emerge from this process of using the affordances I have to explore the idea, is my book - which I interpret as a novel relational product growing out of my uniqueness and the materials, events, people and circumstances of my life: and in accordance Rogers (1961).

### March-September 2013 - Initial exploration and publication

Three years ago, in March 2013, I began to actively explore the idea of learning ecologies. I created a purpose and a goal to write a chapter for the Lifewide Education e-book and from this developed a second goal - to produce the September Issue of Lifewide Magazine on the theme of learning ecologies. I created an ecology to learn and develop my understanding drawing on what I already knew including knowledge I had gained from inquiry and research I had undertaken previously. I involved many people including family, friends, peers I knew and peers I didn't know.

In July 2013 I published my first article outlining the concept of learning ecologies and offering my initial definition '*the process(es) / create in a particular context for a particular purpose that provide me with opportunities, relationships and resources for learning, development and achievement*'(Jackson 2013a). I created a visual aid to help explain the dimensions of my learning ecology as I understood it at that time (Figure 11.5).

**Figure 11.5 Components of an individual's learning ecology (Jackson 2013)**

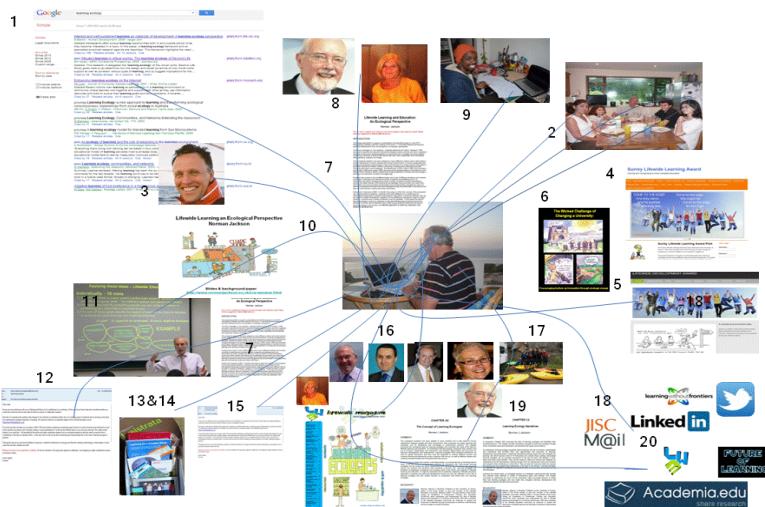


The illustration is heuristic rather than hierarchic. It represents the integration and interdependence of the elements of *context, relationships, resources, (the most important being knowledge)*

and tools to aid thinking), and an individuals will and capability to create a learning process or learning ecology for a particular purpose. Such actions may be directed explicitly to learning or mastering something but more likely they will primarily be concerned with performing a task, resolving an issue, solving a problem, or making the most of a new opportunity.

I published a second article in December 2013 (Jackson 2013b) in which I illustrated the idea of learning ecologies through a series of narratives (chapter 3 is based on this article). It included my own narrative of learning about learning ecologies. Figure 11. summarises key aspects of this narrative. It reveals my process for learning and the sequence of events and activities through which learning and development took place, the people who were involved in my learning, and the new resources I created in the process. This visual aid became my tool for codifying a learning ecology and a mediating artefact to help me explain my understanding to others.

**Figure 11.6** My learning ecology for learning about learning ecologies. March–December 2013. Numbers refer to specific parts of my learning process (see Jackson 2013b and chapter 3).



So where did creativity emerge in this initial process of developing the idea? Was it in the creation of a simple conceptual framework (Figure 11.5) and/or visualisation and representation of my learning ecology (Figure 11.6) which contextualised and gave concrete meaning to the conceptual framework? Or was it embedded in the way I brought my process for learning into existence finding and using the affordances that were available to me in the environment? Or in the new products that arose from the process - the articles and magazine? Or in my changes in understanding brought about by my efforts to learn? Was it none or in all of these things? My sense is that it is in all of these things given the reference points for creativity I am using. Judgements as to whether my creativity lies in the pro-c field of Kaufman and Beghetto's (2009) 4C

model of creativity I leave to my peers. It probably requires a period of time to elapse in order to show whether the ideas have value.

### Applying the idea to students' development

There was little point in developing the idea of learning ecologies if it had little relevance to students' learning and their behaviours. Between 2006-11 while working at the University of Surrey I interviewed many students and gathered written stories of their learning and development. Armed with my initial ideas about learning ecologies I could now (in 2013) try to make sense of these narratives through the idea of learning ecologies.

**Figure 11.7** Michael's learning ecology to become the archaeologist he wanted to be

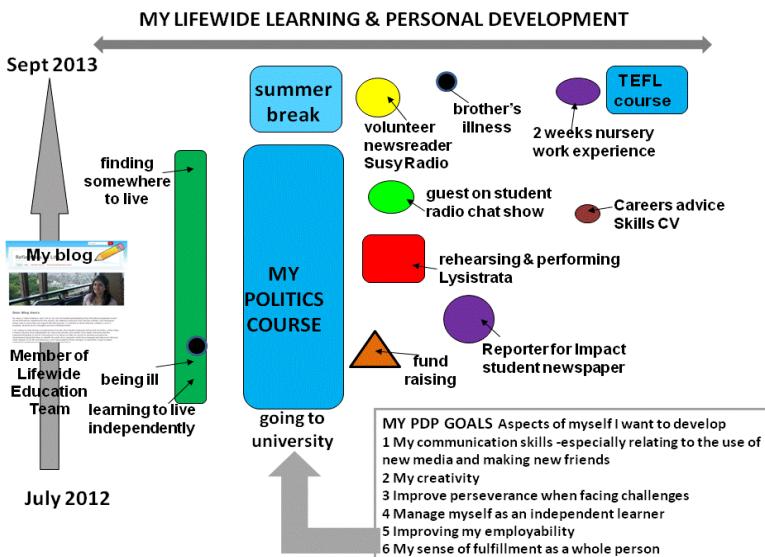


I experienced an ah ah! moment when interviewing an archaeology student. The story he told (reported in chapter 3) of what he did to develop himself into the archaeologist he wanted to be gave me a new and inspiring perspective on what a learning ecology might mean to a

higher education student. He readily grasped the idea and together we co-created a map of his learning ecology (Figure 11.7) that I use in many of my talks to explain the idea from a students' perspective

I wanted to demonstrate how learners might be encouraged and helped to recognise their own ecologies for learning. The opportunity arose (the affordance in my life) when Natasha, one of Lifewide Education's student volunteers, piloted the Lifewide Development Award <http://www.lifewideaward.com/> over a 15 month period. During this time she maintained a Personal Development Plan and a blog to keep a record of the more important learning experiences which became the resource for reflecting on her own development. Her synthesis <http://lifewider1.weebly.com/> included a map (Figure 11.8) which showed all the experiences she felt had enabled her to develop in line with her own personal development goals.

**Figure 11.8** the learning ecology Natasha created to achieve her personal development goals



So how was my creativity involved here? I conducted interviews with the students and recognised the value of the idea of a learning ecology in interpreting their narratives. I also saw the value in representing complex stories as a map of interconnected experiences (perhaps this is connected to my training as a geologist!) and helped the students produce the illustrations that synthesised the experiences they described. These images became important mediating artefacts very useful in helping me understand the idea of learning ecologies (create meaning) from the students' narratives.

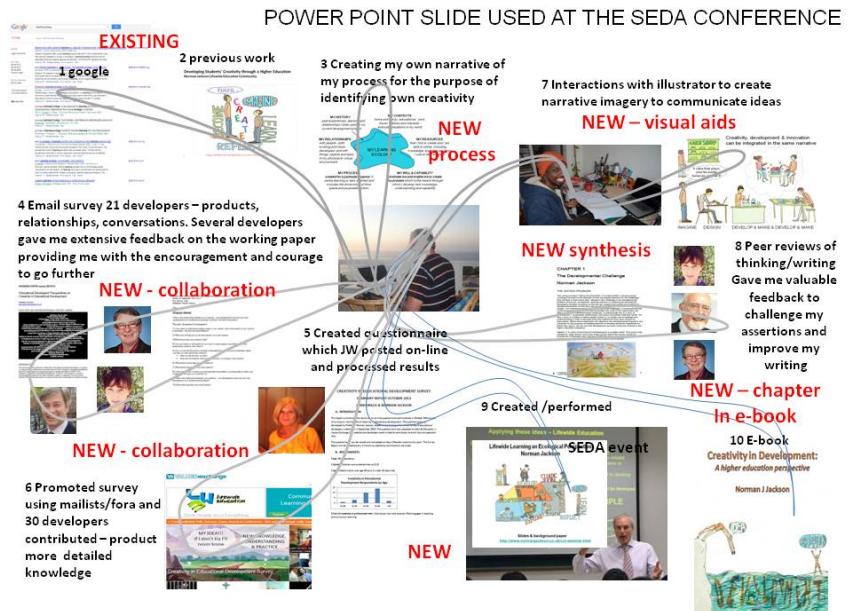
### Testing the idea with educational developers

In November 2013 I gave a keynote talk at the annual SEDA conference in which I presented my ideas on learning ecologies. Prior to the conference I had spent several months working with members of the educational development community to develop the knowledge for my presentation using email and on-line surveys. I summarised these in a working paper that later became a chapter in an e-book. I used the same tool to represent the way I had created an ecology for learning with members of the educational developer community (Figure 11.9). In this way I shared my ideas with other educational developers and through the feedback I received gained confidence in the idea. In mapping and accounting for the activities I had undertaken in order to learn and develop myself, the resources I had used, and the relationships I had formed. It codified the process of learning and developing something which is often difficult to capture and appreciate. I made the point during my talk that I believed the formation of an ecology for learning and developing something was a creative act in its own right as it brought something that did not exist before - my process for learning and subsequently my learning and the products of learning (eg presentation, articles) into existence.

How was my creativity involved in this process? I indicated on my slide all the areas where newness was involved: where things that did not exist before were brought into existence. These included new relationships, new survey tools, new syntheses which became chapters,

and new illustrations (working with a talented artist we produced Figure 11.2 to explain creativity in development). These were bound together in a process (a learning ecology) that was created for the specific purpose of delivering the SEDA talk. My sense is that my creativity was involved in recognising the affordance for learning in the SEDA event, and the subsequent imaginings, synthesising, producing and performing activities through which new things were brought into existence. Judgements as to whether my creativity warrants a pro-c label (Kaufman and Beghetto's 2009) I leave to my peers.

**Figure 11.9** The ecology I created to develop the knowledge for my presentation at the SEDA conference.



## Applying the idea to the higher education curriculum

Developing ideas and practices relating to the idea, are never ending projects and the imagination is always searching for new

opportunities to apply the idea and develop new understandings. From my current understandings I now appreciate this as a search for and recognition of affordances (chapter 2) that emerge through the circumstances of my life.

In April 2014 I was invited to teach/facilitate the 'Scholarly Innovation and Creativity Module' at the University of Limerick. The module is part of the 'Specialist Diploma in Teaching, Learning and Scholarship' offered by the University's Centre for Teaching and Learning. The Diploma is intended to align with the professional activities of early career academics and doctoral candidates in order to provide an accredited programme for developing high level, evidence-based competence in teaching, learning, scholarship and innovation in higher education settings.

The story of my involvement began in February 2014 when I was contacted by a senior manager at the University of Limerick to see if I could deliver the module which was scheduled for early April. I agreed in principle but wanted more information about the module before committing. Unfortunately I was only sent information about the course the week before it was due to be delivered but we proceeded on a basis of trust. I was trusted to deliver the module but I was able to make changes to the process and content as long as the generic outcomes were honoured.

I could see that the module would provide me with affordance to not only present and test my ideas on learning ecologies but also to involve participants in using their own creativity to apply my ideas to their own teaching and learning contexts. In essence I created an ecology to encourage the members of the group to share their beliefs and understandings of the meanings of creativity and my role was to stimulate thinking and record participants' perspectives. I also collated and curated these knowledge assets and incorporated them into the teaching and learning process. I had done this sort of thing before so this process was not new for me. What was new was that I introduced the idea of learning ecologies and then facilitated a process whereby the participants imagined and designed a course they were teaching so that

it empowered and enabled learners to create their own learning ecologies. The net effects was to generate 16 designs that the participants presented to the group. In doing so they demonstrated the feasibility of designing a curriculum that was more supportive of students' own ecologies for learning. These designs were then developed further in a post course assignment. While it's fair to say that not all participants fully grasped the challenge the process resulted in many good and some excellent designs an example is given below.

**Figure 11.10** Example module design to encourage students to create their own ecology for learning. In this 3rd year radio documentary module students develop and produce a 30 minute documentary. Students have to identify a real world theme for their documentary, plan, research and record it then produce the radio broadcast. The whole process is self-directed and self-regulated and involves self and peer assessment.



So where did my creativity lie in this process? I would say that in this example my creativity was in seeing the affordance in the teaching situation to develop further the idea of learning ecologies by helping

participants relate and apply the ideas to their own teaching and learning contexts. This led to thoughtful and meaningful designs that were shared and then reflected upon and refined after the course had finished. The process enabled me, and the group of higher education teachers, to see how the idea of learning ecologies could be meaningfully utilised in a range of disciplinary teaching and learning contexts.

### Applying the idea to personal and professional development

There are defining moments in the history of an idea and for me an important moment was when Sheffield Hallam university took the idea of learning ecology seriously enough to invite me to give the keynote talk at the annual teaching and learning conference. After the keynote they planned to run 8 parallel workshops on the theme of personal and professional learning ecologies. The affordance this event offered was huge: I don't think I had ever been offered the chance of presenting and then having a whole conference involved in applying the idea. I had several discussions with the organisers about how this might work including a face to face meeting in Sheffield and a 'training' event for the people who would be facilitating the parallel workshops.

The learning ecology concept for your keynote is really very timely..... We will run up to 8 parallel workshops for those breakouts. They allow us to directly respond to your keynote and the findings from the survey you have in mind. A.M. (email from conference organiser)

The purpose of the workshop was to examine how the idea of an ecology might be applied to particular personal and professional development scenarios experienced by participants. Participants were invited to identify a significant experience that they had been involved in that was driven by their own interests or need, through which they had changed and developed as a person. Individually, they had to annotate a learning ecology template that was provided and create a narrative that:

- explained the contexts and any challenge(s) they were addressing and identified the goals

- described the process they created or got involved in
- identified what they did to develop/achieve/cope/survive
- identified the people/relationships that were important in their experience
- identified resources that were used or created
- summarised the ways in which this experience changed/developed you
- identified any ways in which they used their creativity

In pairs participants had to share and discuss their narratives of learning, development, achievement & creativity and using the ecological metaphor - identify three important characteristics that they could recognise in their developmental processes. The outcomes from this process were shared and discussed with the whole group. Participants engaged with the task and feedback from participants and workshop facilitators indicated that the process worked as a way of representing and making sense of personal experiences and some of the stories told were extremely powerful.

**Figure 11.11** The learning ecology I created for the Sheffield Hallam University conference and workshops.

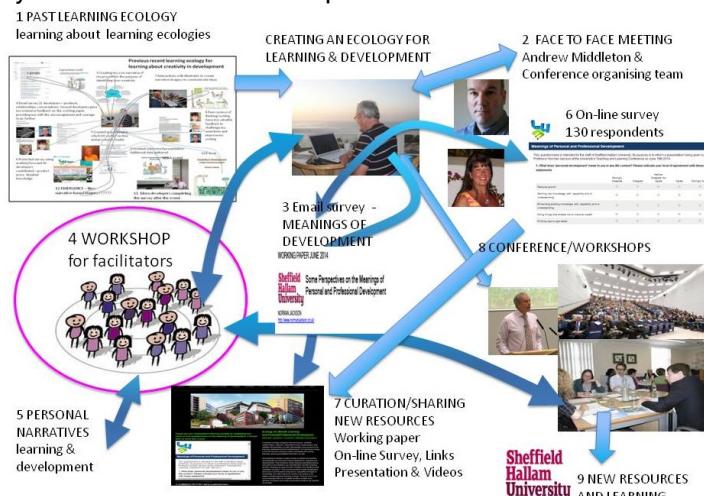


Figure 11.11 shows the learning ecology I created for the conference. It is similar to others I have created whereby I seek to engage participants before the conference via email and on-line surveys and then include the survey data in my presentations. In this example my creativity was involved in designing and creating the overall process, in designing the workshop and on-line surveys, in researching with participants, their perspectives and in synthesising and presenting the results. In this enterprise I was assisted greatly by the organisers of the conference.

## Personal Learning Networks

In April 2015 I began building a Personal Learning Network (PLN) to explore the idea of PLNs and produce a thematic issue of Lifewide Magazine in the belief that PLN's are an essential component of a learning ecology (Jackson, Rajagopal and Willis 2015). I set out to find a leading authority on PLN's, someone who had considerable research-

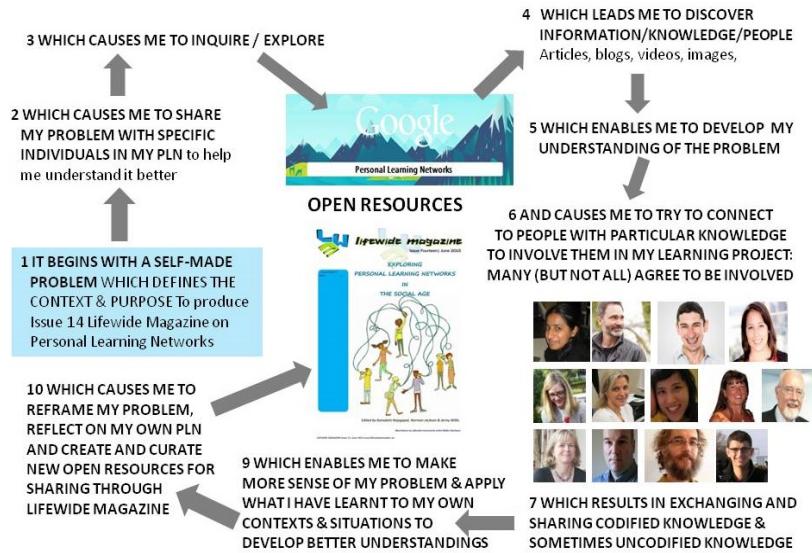
PLNs are like the blood vessels in our body or the roots and capillary vessels of a tree. They provide the structure and means of connecting to others and the means of tapping into the medium and nutrients for learning - the flow of information, knowledge and wisdom within our learning ecology. They connect our ecology for learning with the ecologies developed by others for their learning

based knowledge and found our Guest Editor Kamakshi Rajagopal. Her contribution was vital to the success of our knowledge building project. In my own contribution I explained the process of developing a PLN specifically for the purpose of exploring the idea and producing the magazine (Figure 11.12). The insights gained enriched my understanding of the way in which PLN's feature in our learning ecologies and the way in which our creativity was involved.

I believe that our creativity is involved in the way we find and develop relationships and find and using the affordance in the relationship to achieve goals that are of mutual benefit. Our creativity is in

the way we communicate, how we present, sell and negotiate ideas so that individuals are persuaded to collaborate.

**Figure 11.12** Explanation of the process of PLN formation in order to produce the PLN issue of Lifewide Magazine (Jackson 2015)

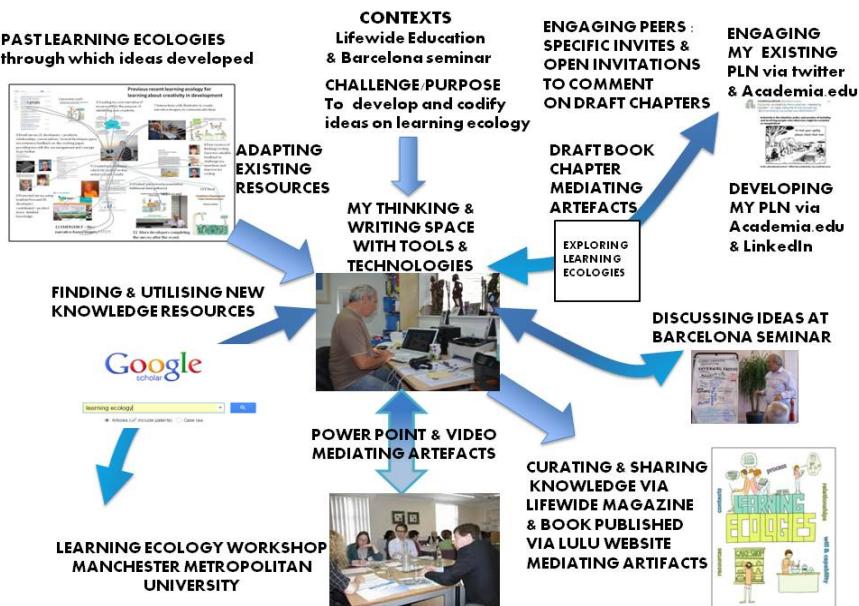


### Production of this book

We have now reached the point in this sequence of connected learning ecologies when the idea of a book came into existence. In April 2015 I received an email inviting me to participate in a seminar formed around Lifelong Learning Ecologies. I was of course delighted to accept and carried on with the rest of my life until about 10 weeks before the seminar I decided to do something to prepare. I saw the affordance in the situation and decided to bring all my past thinking and writings together into a book. I began work on the book on August 20th and my plan was to start by collating and reviewing what I had already written to identify gaps and work out some sort of structure. But once initiated the project took on

a life of its own. I would expect nothing less: you cannot produce a book without a substantial ecology for learning. One thing to note was that planning and implementing the project occurred simultaneously and ideas began to emerge immediately. For example in the first few days I decided to set up a web page and publish my draft chapters and invite people who were interested to read them and provide me with feedback. I managed to get the first couple of draft chapters on-line by the end of August. It took me a while to go from the known (which is not so interesting or engaging) into the unknown (which is interesting and engaging) but when it happens a new feeling of energy, interest and enthusiasm for the project takes hold. Figure 11.13 provides a sense of the journey I have undertaken and shows the salient features of my conception of my learning ecology.

**Figure 11.13** The learning ecology I created for this book.



I will use my conceptual framework for a learning ecology (Figure 11.14 and chapter 2) to identify and describe the key features of my ecology for producing the book. In this type of project the product (the book) and my learning are inseparable.

**Figure 11.14** My representation of a learning ecology



My ambition to produce the book was motivated by my *proximal goals* to prepare for the Barcelona seminar and my desire to provide something new and useful to seminar participants. Both provided affordance to communicate ideas. Ten weeks separate the starting and end points in Figure 11.14. But I could extend this into the past to connect with other ecologies for learning about learning ecologies over the last two and half years and even further back to connect to ecologies where I have explored ideas relating to lifewide learning. I could also extend this into the future as in the following three months I participated in a number of events that also informed my thinking and I undertook the editing and revision of what I had written and added new material, like this chapter.

My ecology for achievement (the production of the book) was formed in the context of my ongoing involvement in lifewide education and my proximal goal of preparing for the Barcelona seminar and other things I'm involved in during this period of time eg facilitation of a university workshop on the theme of self-directed self-regulated learning and participation in a mini mooc on the theme of Creativity for Learning in Higher Education. These event-based contexts all provided *affordance* for me to engage in ways that helped me develop, test and evaluate the idea of learning ecologies and the way creativity featured in them..

At the heart of my learning ecology is the *space* I created for thinking, inquiring, developing, reflecting, imagining, writing, sharing and discussing my ideas, and for finding and incorporating the ideas of other people through the book, which constitutes the principal (but not the only) *mediating artifact* created through the process. This thinking space is liminal or transitional - in the sense it represents the space 'betwixt and between' past ecologies through which I have developed my understanding and the new representations that were emerging through the book.

The central activities throughout the process are thinking, I like to think it involved combining in an integrative way imagination, which I used to visualise and conceptualise and critical thinking, which I used to evaluate my visualisations and conceptualisations. These thinking processes fed into my writing and the illustrations I produced based on the drawings of Kiboko Hachiyon. Writing was the most important activity I undertook in this ecology it was my process for organising, connecting, synthesising, representing and curating my thoughts. I was assisted and enabled through this process by a range of *technological tools* - my laptop with word processing, diagramming and picture editing software, email, google and the internet, and eventually LULU the on-line publisher. During the initial part of my process I abandoned social media like Twitter and LinkedIn in order to focus on the core writing task but I then I began to use social media - academia.edu, LinkedIn and Twitter to gain feedback on ideas.

My habitation of this space began by assembling and stitching together the thinking and writing I had already done in the form of e-book chapters, magazine articles, blogs, and power point presentations. This was a fairly mechanical exercise but as writing and thinking progressed a new sort of space began to form as imagination was fired, flaws and gaps were identified, new questions and perplexity emerged. This space was created by a curious and inquiring and often perplexed mind, open to new ideas and influences. It is this liminal state of uncertainty, perplexity and excitement that keeps me engaged and searching for the new ideas and stories that enable me to come to know differently to what I knew before.

As the representation of ideas took shape through the writing process I reach a point where I want and need to share what I have written with interested people and peers to gain feedback. I need to create space for discussion and conversation. Whether ideas are accepted or not does not matter so much: although of course I hope that readers see value in them. What really matters to me is the feedback I receive and the conversations I have that enable me to think some more about these ideas or open up entirely new thinking. I began by inviting people I know and trust from my personal learning network to comment on my thinking, and posting my drafts online so that anyone can read and comment. But soon I began to circulate invitations more widely through the professional networking sites LinkedIn and academia.edu and through invitations via Twitter. Unfortunately, I received little feedback through this open invitation although I could see that the chapters had been viewed and downloaded many times.

In mid September I facilitated a workshop at Manchester Metropolitan University on the theme of new perspectives on curriculum designs so I incorporated some of my ideas on learning ecologies into the presentation and workshop activities to gain feedback from a group of academics. The process of putting my powerpoint presentation together made me think about the way I was presenting the idea of a learning ecology and the presentation provided me with a useful mediating artifact to communicate and invite discussion about ideas. The person who

organised the event (who happened to be an ecologist!) provided me with some useful written feedback on two of the draft chapters.

My aim was to have the book ready in advance of the Barcelona seminar so that it could provide an underpinning resource for my contribution. I 'finished' most of the writing in mid October and uploaded 10 draft chapters to my website and sent a notice to participants inviting them to read whatever interested them and let me have any feedback. I did not receive any feedback but during the seminar I did try to connect my ideas to the work that the OU University of Catalonia were involved in with on-line learning. The seminar itself informed me of some of the research being undertaken in Spain on the ITC enabled learning ecologies of primary school teachers and I made some valuable contacts for my PLN and my future learning.

## My Learning Ecology

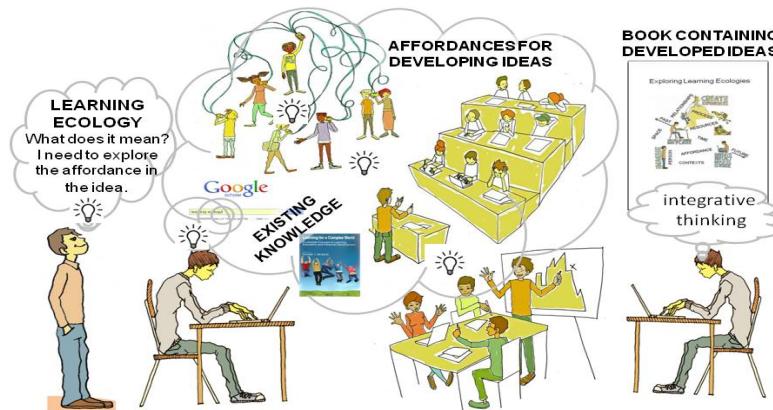
I have used this chapter to outline my journey with an idea and to share my understandings of how I tried to develop the idea of a learning ecology by using the idea itself to describe my journey. It's not a journey that was planned, rather it was a journey where affordance for learning and developing ideas emerged along the way and grew from the circumstances of my life my *contexts* my purposes and my goals.

Over a three year period of time I recognised *affordances* that held potential for action. Driven by my desire to explore this idea I devoted time, energy and effort to creating a *sequence of learning ecologies* that I have connected in order to develop the idea to a previously unexplored state.

I used a lot of *existing resources* and I produced *new resources* like magazines, illustrations, blog posts and a book, which all emerged from the actions I undertook. They were unique to me and related to the materials, events, people and circumstances of my life, my purposes and the particular goals I set for myself. But I was helped and enabled to produce these things through *relationships* I had formed with people, with events and with myself. The relationship with myself was particularly

important in this exploration as I drew heavily on my own life experiences to imagine and interpret the idea. Relationships with people close to me were also very important as I could observe in real time events in their lives that I could also draw on in my imaginings.

**Figure 11.15** Representation of my development process suggesting that my creativity was in the affordances I recognised for developing the idea and the ways and means I realised these affordances to achieve my goal



At the start of this chapter I showed a representation (Figure 11.2) of a developmental process through which an original idea was turned into an innovative product. Figure 11.15 attempts to symbolically represent my developmental process to explore my idea and create an entirely new and original product that embodies the ideas I explored. I suggested that creativity emerges through a developmental process that is broadly consistent with the pattern of thinking and action depicted in Figure 11.2 namely: imagine, explore/design, make /experiment/ test /refine, produce and share. Figure 11.15 attempts to symbolically represent my developmental process I believe that this pattern of thinking, action and emergent creativity was evident in the developmental process for this

book (Figure 11.15). The process that resulted in a book was not imagined in April 2013 when I set my mind to exploring the idea. How could it? to explore an idea means that you go where the idea takes you. As I look back I now realise that I developed the idea through the affordances I recognised and acted upon as they emerged through the circumstances of my life.

I am many things but one of them is a writer and my medium for creative self-expression is my writing. When I immerse myself in writing I lose myself, often listening to my favourite musicians and composers which heighten my pleasure. While there is undoubtedly slog there is also joy and the result always feels creative. Within my unplanned *emergent process* I believe that my creativity embraced three of the four categories that Kaufman and Beghetto (2009 and Figure 11.1) describe namely: '*mini-c*' the novel and personally meaningful interpretation of experiences, actions and events I have created or been involved in, '*little-c*' creativity my everyday creative acts that like seeing affordance in a particular situation and in the decisions and actions I take to imagine and make things happen, and '*pro-c*'creativity which I believe is in the development of idea through the *making of the book*, through this constellation of learning ecologies. But recognition of the value of this work as a creative product rests with my peers in the field of education and learning sciences.

A few weeks before I finalised the book manuscript I helped facilitate a conversation involving higher education professionals which explored the way our creativity features in our developmental processes.<sup>(1)</sup> It caused me to reflect on my own development process and I came to see my own creativity as *seeing* the affordance for something in a situation. This idea fits well my experience of developing ideas for this book. Over the last three years, I have repeatedly seen the affordance in my life for exploring the idea. I knew that through my interests and commitment I would find ways of applying and developing the idea eg through production of a magazine, presentations, workshops and teaching situations, life more generally and ultimately this book. The ecologies I

create to learn and develop the idea are the means to exploit and realise the affordance.

My developmental process brought new tangible products into existence - a book, book chapters, magazines, presentations, teaching and learning strategies, survey tools, working papers and website content including blog posts. My hope is that these products of my creativity also have within them affordance in the sense of inviting people who read them to assimilate, adapt, contextualise and utilise ideas in their own educational contexts and practices. That is the real creativity in this sort of product: it's in the affordance that fires the imaginations of others and causes effects that cannot be imagined.

Development is a never ending journey. Never ending because even when I hang my pen up so to speak, and write no more about these things, there will always be someone else to pick up the ideas and begin their own journey to move an idea from one state to a previously unexplored state. That is the way ideas develop and how they travel through the minds and practices of people, across cultures and throughout the history of human existence. My ecology for learning how to develop an idea is simply one small contribution to the ecology of learning involving all mankind.

### Post script

Writing and producing a book is undoubtedly a labour of love. You care so much about what you are doing that for a while it becomes the most important purpose in your life. The ecological process you have engaged in means you have formed a deep relationships with and attachments to your ideas and the meanings you have invested in them: and this can be dangerous. A few days before this book was published I had a conversation with Maha Bali in which she told me that she hated frameworks and drew my attention to an article she had written critiquing their uncritical use.

Using frameworks to study the social world is like looking at a still image through tinted glasses – making our perspective limited and color-blind – when the reality is complex and dynamic with colors and sights and sounds and smells and subtleties that cannot be captured in a frame. Frameworks attempt to make chaos legible, but by doing so, they can distort our perspective on the chaos, often reducing it into something unrecognizably neat and comprehensible (Bali 2015).

I agreed with much of what she had said and felt I needed to acknowledge that my whole book had been formed around an idea that I had tried to explain through a conceptual framework that made sense to me when I applied it to the ridiculously complex emergent phenomenon of living and learning: a framework that might make little or no sense to others. I felt it entirely appropriate to finish this book by citing the excellent advice she gives.

as researchers [and teachers], let's challenge, mess up, allow emergence and ignore when appropriate; as educators, let's make sure our students do not treat them as something to "follow" but something to look at occasionally and maybe get inspired by, but never get bogged down by (Bali 2015).

#### Note

- 1) #LTHEchat 43 Exploring Creativity in [my own] Development Blog post  
22/1/16 <http://www.normanjackson.co.uk/scraps-of-life-blog>

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## Lifewide Education

This book is part of a strategy to explore the ideas and practice implications of a lifewide approach to learning, development and achievement in higher education. The project is being implemented by Lifewide Education, a not for profit, community-based, educational enterprise whose purpose is to champion and support a lifewide approach to learning, personal development and education. Our vision for a more complete education is captured in the words of Eduard Lindeman 'the whole of life is learning therefore education can have no ending.' A more complete education unites and integrates formal education with learners' own attempts to develop themselves through their lifewide experiences.

Our community is open to anyone who is interested in these ideas. You join the Lifewide Education community by subscribing on the home page of our website.

Further information, including our magazines and books can be found at <http://www.lifewideeducation.uk/>

All proceeds from the sale of this book are used to support the Lifewide Education & Creative Academic <http://www.creativeacademic.uk/> open education enterprises.

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