Lifewide Learning and Education: An Ecological Perspective

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INTRODUCTION

This essay was written to support presentations and workshops given in June 2013 on the theme of learning ecologies. It examines lifewide learning and personal development from an ecological or ecosystem perspective.

The terms 'ecologies' or 'eco-systems', originally defined by Sir Arthur Tansley in 1935, are used to describe the dynamic interactions between plants, animals and micro-organisms and their environment, working together as a functional unit. Ecologies are living systems containing a diversity of factors that interact with each other organically; that are partially self-organising, adaptive and fragile.

The ecological metaphor has been adapted to many different contexts and is well suited to human interactions in social, physical and virtual environments. In human ecosystems the ecological perspective views people in their environments as a unitary system living within a particular cultural and historic context consuming, recycling and producing resources, including information and knowledge. Bronfenbrenner (1979), Capra (1997) and Davenport, and Prusak (1997) and Lemke (1997) are some of the leading thinkers in this field but John Seeley-Brown (2000) is widely credited with drawing attention to the idea that the ecology of learning is an important concept in the digital age.

Knowing how to learn in lots of different ways and in lots of different situations and contexts is the key to individual and collective survival, prosperity and wellbeing and in an information-rich world, knowing how to learn to solve a problem involves being able to access and utilise relevant informational and knowledge resources when you need them. Information and communication technologies have fundamentally changed the nature of learning ecosystems because they have changed the way we participate in learning and the way we communicate, access and share information.

Pickett and Cadenasso (2002: 1) identify three ways in which the concept of the ecosystem can be used namely metaphor, meaning and model. Metaphor is a creative tool for stimulating thinking about complex living systems. Meaning is a technical definition that can be used in a variety of situations. However, for the definition to actually be used in a given situation, a domain and a variety of features must be specified. In this essay the idea of learning ecology is used as a metaphor to stimulate thinking about learning across the domains of our life, but an attempt is also made to give practical meaning to the idea of learning ecology in the context of a lifewide approach to learning, education and personal development.

Institutional and Lifewide Learning Ecologies

Richardson (2002) offers a simple conceptual tool to enable us to think about learning ecologies in institutional and wider life settings (Figure 1).

Figure 1 Conceptual tool to aid thinking about learning ecologies (Richardson 2002:49). The learning ecology (shaded) is populated with activities that are typical of a university course.
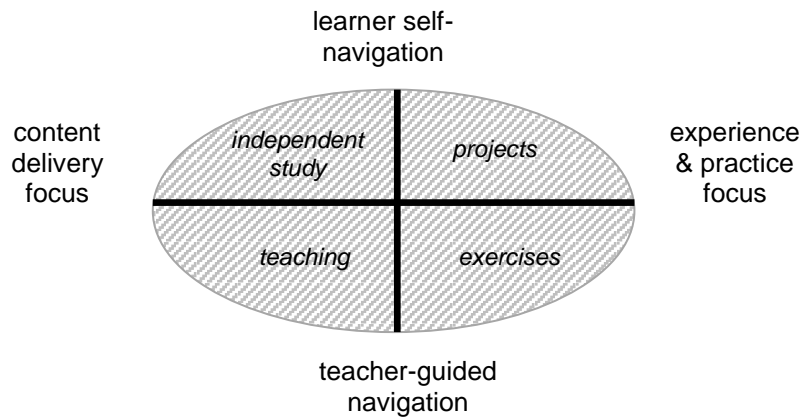

A traditional face-to-face university course creates an ecology for learning (Figure 1) that is designed, organised and implemented by a team of academics who have both disciplinary and pedagogic expertise working within an institutional environment that is full of support and resources to aid learning. There is a structure determined by the designers with objectives, content, resources and processes that engage learners in activities through which they learn and some of their learning is assessed. There is a supportive infrastructure within the institutional environment and teachers and learners, and learners and learners interact and the institutional spaces and technologies are used to facilitate interaction. The institutional-determined ecology for learning includes people - learners, teachers and others who help learners a physical environment including classroom spaces, social spaces, resources centre and perhaps virtual spaces where learners and teachers interact for the purpose of learning. The activities in such a learning ecology are explicitly dedicated to learning - ie learning is the objective of this ecosocial system.

Lifewide education (Jackson 2011, Barnett 2011) provides a different ecological environment. Here the ecosocial system incorporates activities whose purpose is not primarily for the purpose of learning and tries to raise learners' awareness of the learning and development they are gaining through such activities. Educational designs focus attention on the learner's own purposes and understandings of how they want to develop themselves to achieve their purposes. The emphasis is on self-organised and self-managed learning. The learner determines their pathway for development and they draw on their own experiences and the people they interact with as their main resource for learning. Each learning and development project requires learners to utilise and develop further their own learning ecology. The ecosystem is based on *the learner's* own purposes, life experiences and opportunities and it develops in ways that the learner primarily determines. The significant others in this ecological framework are mentors, whose role is to facilitate planning, decision making and reflection, and the people that learners themselves incorporate into their ecology for learning.

Lifewide education encourages learners to be more aware of their ecosystem for learning and developing themselves across the full breadth of their lives. The learner is viewed as the designer and implementer of *their* own integrated and meaningful life experience. An experience that incorporates *their* formal education as one component of a much richer set

of experiences that embrace all the forms of learning and achievement that *they* believe are necessary to live a meaningful and fulfilled life.

Figure 2 Conceptual tool to aid thinking about learning ecologies (adapted from Richardson 2002:49). The diagram is populated with activities that are typical for a learner engaged in lifewide learning in a lifewide educational context.
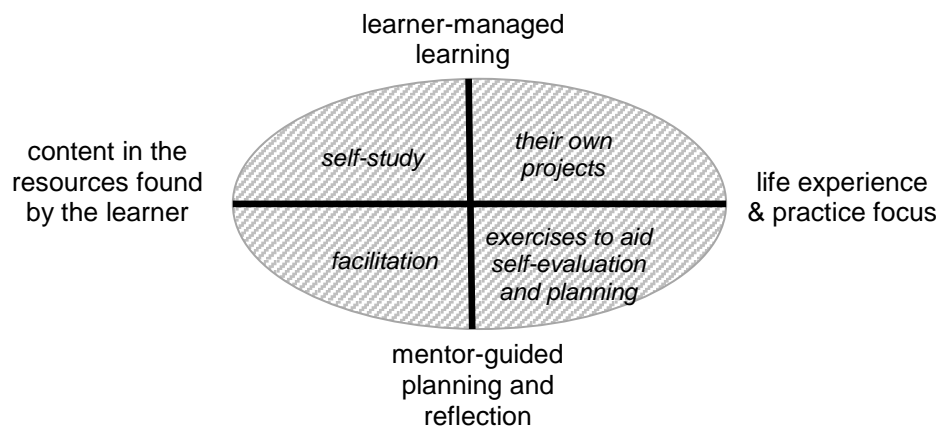
Learning ecologies and ecosystems

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.

All of these things are also true of a learning ecology, but with a massively important addition: cognitive reflexivity. The learning ecology collectively and individually thinks about itself and its habits and is able to learn from experience. Individuals represent themselves and the ecology (as they see it). They actively create, modify and destroy territories and niches (learning spaces *[and opportunities]* in every sense)[1]

In human ecosystems the ecological perspective views people in their environments as a unitary system living within a particular cultural and historic context. Both person and environment can be fully understood only in terms of their relationship, in which each continually influences the other within a particular context. Hence, all concepts derived from the ecological metaphor refer not to environment alone or person alone; rather, each concept expresses a particular person in their environment relationship (Germain and Gitterman 1994) an environment that includes social as well as physical and virtual relationships.

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

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[1] Open Space Learning Blog available at: http://www2.warwick.ac.uk/fac/cross_fac/iatl/activities/projects/osl-final/technology/ecology/

create. In fact, we should define it now as an <u>ecosocial system</u> (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 <u>mean</u> for us (Lemke 1997:40)

Our individual ecologies provide the contexts in which we create meaning from our lives. An individual's ecology responds to local environmental changes and social interactions. We are familiar and comfortable with our ecologies because they are embedded in our life.

> We can all name the ecologies we belong to and participate in. In an ecology, we are not cogs in sweeping sociological processes. Instead, we are individuals with real relationships to other individuals. The scale of an ecology allows us to find individual points of leverage, ways into the system, and avenues of intervention.

Locality (place, space, time) are particularly important attributes of ecologies. We all have special knowledge and understanding about our own local ecologies that is inaccessible to anyone outside them. Along with knowledge, we have influence. While it may be difficult or impossible to make an impact on the societies or organisations in which we live and work it is entirely possible to influence and change the world we can affect within our own ecology. Our sites of local participation provide us with affordances that we can act on if we have the knowledge and capability to do so.

Sasha and Barab (2006) argue for an ecological perspective on what it means to know.

> Such a theory acknowledges the world as being structured to support goal-directed behaviors, while at the same time placing the realization of these meanings as part of the individual-environment relation. We view the environment as meaningfully structured; that is, functionally bound in a manner that supports and even specifies numerous possibilities for action for those individuals with the requisite experiences and intentions (Sasha and Barab: 2006:3)

In their view individuals' ecologies for knowing and being in the world combine the idea of *affordance* - the possibilities they have for action in their life-world, with *effectivity* (or agency) - the behaviours an individual can produce so as to realise these possibilities. Their key ecological concept is formed around the idea of affordance networks 'the collection of facts, concepts, tools, methods, practices, agendas, commitments, and even people, taken with respect to an individual, that are distributed across time and space and are viewed as necessary for the satisfaction of particular goal sets.' (Sasha and Roth 2006:5).

Personal ecology mapping

Personal ecology mapping (ecomapping) is a technique used in social work to gain deeper understandings of individuals and their relationships to the social and physical world they inhabit. The ecosystems perspective in social work is a way of seeing case phenomena (the person and the environment) in their interconnected and multilayered reality, to order and comprehend complexity, and avoid oversimplification and reductionism. It is a way of placing conceptual boundaries around cases to provide limits and define the parameters of practice with individuals, families, groups, and communities. It can be visualised as an ecomap (Figure 3) a graphical device for viewing the relevant, connected case elements together, within a boundary that clarifies for the practitioner the case system as the focus of work.

A fundamental purpose of all professional practice, including social work, is to individualize the case. In the case of social work, this individualising process applies to individual persons, families, groups, and communities. Because no person can be understood apart from his or her defining social context, the ecomap presents the field of elements in which the person is embedded. The use of the ecomap makes it virtually impossible to separate the person and his or her environment in one's perception of the case phenomena. The use of such maps encourages the user to appreciate the transactional complexity involved in cases (Mattaini and Meyer 1995:2-3).

Figure 3 A typical ecomap of a case in social work practice (Mattaini and Meyer 1995:2)
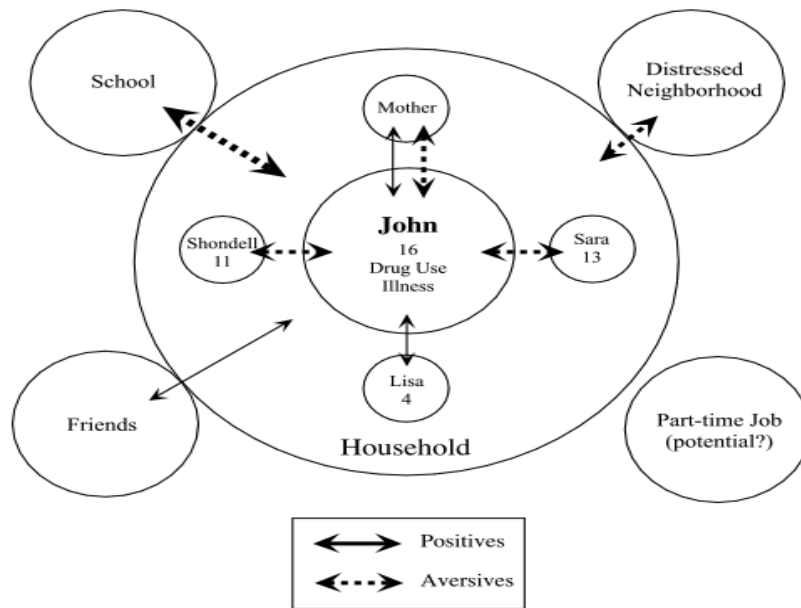
The core argument in this paper is that in the context of lifewide learning and education, ecological mapping can help learners individualise their own learning process and enable them to gain deeper understandings of the relationship between themselves, their learning and the social, physical and virtual world they inhabit.

Why an ecological perspective on learning is important?

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 as an ecological process we have the potential to raise learners' awareness of the ecological world they inhabit and co-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 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 appear to have been adopted by the EU Future of Learning researchers 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. The value it adds to this abstract list of learning to learn characteristics is that it embeds them in the specific social contexts, relationships and situations in our own everyday life. It gives them meaning and significance in the contexts of our purposes, values, beliefs and the routine and unusual activities we engage in.

The big question for EU educational and social policy makers is - how do we prepare and enable EU citizens to inhabit this future world in ways a future world where knowing and learning how to learn are essential life skills and much learning is personal, collaborative, informal and lifewide? Encouragement for people to view their own learning as an ecological process within a lifewide-lifelong conception of learning might bridge the gap between the current learning and education paradigm and the future paradigm outlined in the Foresight work.

Holistic view of learning and development

An ecological perspective implies a holistic systems view of learning and demands a comprehensive view of what learning is. Learning is a complex phenomenon. It emerges through our physical, intellectual, emotional and spiritual engagement with experiences involving the human, natural and material worlds. In 1979 Säljö found that five categories were sufficient to describe the views on learning prevalent within a heterogeneous group of respondents aged 15 to 73 namely:

1) Learning as the increase of knowledge.
2) Learning as memorising.
3) Learning as the acquisition of facts, procedures etcetera, which can be retained and/or utilised in practice.
4) Learning as the abstraction of meaning.
5) Learning as an interpretative process aimed at the understanding of reality.

There is a fundamental change in perception as we move to the idea that *learning as making meaning.* At this level of thinking the focus shifts from taking in ready-made things

(facts, procedures) existing 'out there' to constructing meaning. Säljö (1979:16) describes this shift as 'Learning is no longer conceived of as an activity of reproducing, but instead as a process of abstracting meaning from what you read or hear'. The object of reflection here is understanding the subjects studied.

> The activity of being a person is the activity of meaning-making. There is no feeling, no experience, no thought, no perception, independent of a meaning-making context in which it *becomes* a feeling, an experience, a thought, a perception, because we are the meaning-making context (Kegan 1982:11).

The categories identified Säljö (ibid) have been repeatedly confirmed in subsequent research although Rossum, Deijkers and Hamer (1984) added a sixth category "Self realisation" where the self of the learner is the focus of learning. The process aspect of this conception is growing self-awareness, looking for answers to the question "Who am I?" The self has become the ultimate object of reflection. The product is self-realisation: becoming the person you feel you are (Rossum and Hamer 2010:8).

From an ecological perspective all conceptions of learning are valid in different contexts and we may hold some, most or all of these perceptions simultaneously. One of the goals of lifewide education is to make people more aware of their learning in all its forms but particularly how it relates to the realisation of themselves as a person. This essay is concerned with the learning ecologies within which individuals utilise their conceptions of learning.

Figure 4 Six dimensions of learning (Beard 2010:10 and Beard and Jackson 2011)

Connecting the Inner and Outer Worlds of the Learner					
1 OUTER WORLD OF LEARNER		2 Sensory Interface	3 INNER WORLD OF LEARNER		
SIX PRACTICAL QUESTIONS					
1 Learning Environment	2 Learning Activity	3 Senses	4 Affect – Emotions	5 Reason – Mind	6 Learning and change
WHERE where ... with whom, and in what contextual circumstances, does learning take place?	WHAT what will the learners actually do?	HOW how will learners receive this experience?	HEARTS? what is the nature of the emotional engagement?	MINDS? what is the nature of the cognitive engagement?	CHANGE? how can learners be encouraged to change?
SIX DIMENSIONS OF LEARNING					
BELONGING	DOING	SENSING	FEELING	THINKING & KNIOWING	BEING & BECOMING
Potential to engage the less tangible – Formless	Focus on tangible things FORM ⟵————————⟶				Potential to engage the less tangible - Formless

Any comprehensive view of learning as a meaning-making process must involve consideration of all the things that influence the way we create meaning, namely the social (other people/society), psychological (inner psyche/self), emotional (feelings), sensorial/bodily (kinaesthetic/senses) and cognitive (thinking) dimensions of being.

Learning involves personal change or *development* - it involves developing new or modifying existing personal knowledge, beliefs, values, attitudes, qualities, behaviours and skills that are the inner and outer manifestations of who we are. Ultimately, the accumulation of changes over time results in new identities and self-concepts of who we are and the continuous process of change enables us to become a different person.

While thinking and doing are important dimensions of learning, sense awareness and feeling awareness should also be considered to be fundamental to the development of the self, and our sense of who we are, our *being*. The holistic model for learning proposed by Beard (2010) and Beard and Jackson (2011) and reproduced in Figure 4, provides a useful framework to help us understand how our whole being is involved in learning.

In this representation of learning there are three components to a learner's world - his inner world, his outer world and the sensory interface between these worlds. Learning is represented in six dimensions: sensing, belonging, doing, feeling, thinking and being/becoming. All these dimensions come into play in an individual's learning ecology.

The challenge of recognising our own learning

At the most basic level everything we know and can do has been learnt but often we can't say exactly how, when or where we learnt it. We know we have learnt something when we can do something that we could not do at some time in the past or we have knowledge of something that we did not have at some time in the past. But sometimes it is extremely difficult to articulate what exactly has or is being learnt especially when it is embedded in our 'beings' and 'doings' so much of our day to day learning goes unrecognised. While we may recognise learning gained through formal, structured processes where leaning is an explicit objective, much of our learning outside formal education is not gained in this way. Eraut's studies of how and what people learn in work environments reveals this phenomenon

> The main problems in conducting such research are that:
> - informal learning is largely invisible, because much of it is either taken for granted or not recognized as learning; thus, respondents lack awareness of their own learning
> - the resultant knowledge is either tacit or regarded as part of a person's general capability, rather than something that has been learned
> - discourse about learning is dominated by codified, propositional knowledge, so respondents often find it difficult to describe more complex aspects of their work and the nature of their expertise.

Most respondents still equate learning with formal education and training, and assume that working and learning are two quite separate activities that never overlap, whereas our findings have always demonstrated the opposite, i.e. that most workplace learning occurs on the job rather than off the job. (Eraut's 2004: 249)

Eraut (ibid) has made significant contributions to our understanding of the complex and rich nature of informal learning in work situations. For him the formality of learning situations occupies a continuum with structured and directed situations such as occur in formal education and training at one end of the spectrum and less formal situations occurring along the continuum.

I prefer to define informal learning as learning that comes closer to the informal end than the formal end of a continuum. Characteristics of the informal end of the continuum of formality include implicit, unintended, opportunistic and unstructured learning and the absence of a teacher. In the middle come activities like mentoring, while coaching is rather more formal in most settings

Eraut raises interesting questions about the extent to which people are conscious of their learning while they are engaged in activities where learning is not the primary objective ie they are trying to achieve something where learning is a bi-product of the process of trying to accomplish something (Eraut's 2004: 249)

Rogers (2003) provides another perspective by suggesting 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 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)

Figure 5 attempts to summarise these ideas about learning and relate them to the concept of lifewide learning and education. Lifewide learning embraces both learning conscious and task conscious learning. Lifewide education adopts a lifewide perspective on learning and aims seeks to facilitate learners' consciousness of learning and development gained through everyday tasks and experiences.

Figure 5 Relationship of learning and task conscious learning (Rogers 2003) and the role of Lifewide Education to facilitate learning consciousness in task- and experience-based activity.

<div align="center">⟵ LIFEWIDE LEARNING ⟶</div>

Learning-conscious learning	Task/experience conscious learning
Formalised educational environments like schools, colleges, universities & training organisations. Events like conferences & workshops.	All other situations outside formal educational settings. Such situations provide opportunities for *learning conscious learning* if there are structures, process and resources that facilitate the process of self-awareness and recognition.
LIFEWIDE EDUCATION	Aims to facilitate learners consciousness of learning and development gained through everyday tasks and experiences, and their learning ecology

Learning projects the stimulus for our personal learning ecologies

While we may not recognise much of our day to day informal learning we gain through work and other activities we do recognise learning that emerges through our more significant self-determined learning projects. Rogers (1983) captures in a vibrant, if idealistic way, the dynamic of learning that is driven by interest and desire in the context of what might be conceived as a personal learning project.

> I want to talk...........about LEARNING - the insatiable curiosity that drives the adolescent boy to absorb everything he can see or hear or read about gasoline engines in order to improve the efficiency and speed of his 'cruiser' (Rogers 1983:18).

Such a view of learning embraces *learning activities* like reading, listening and observing, that are connected by *learning episodes* - situations over a period of time that are held together by the similarity in intent, nature of activity and/or the place of thoughts and actions, that are framed within a *learning project* 'a sustained, highly deliberate effort to learn' (Tough 1971: 7-17). The intention within a learning project is to learn - gain, develop and retain and embody new knowledge, skill or capability. Tough defined a 'learning project' in terms of at least seven hours effort within a six month period. Few people would use a term like learning project to describe a sustained effort to learn or master something new rather, they would use a term like interest, hobby, task, challenge, tackling a problem, or having an adventure. But once they have grasped the concept they can readily apply it to their everyday life (Tough 1971:15). A core proposition of this essay is that we develop our learning ecologies in order to undertake and achieve our personal learning projects.

Tough's pioneering work on the way adults learn by themselves and the reasons they learn laid the foundations for contemporary views about personal learning ecologies, self-organised and directed growth, and personal change.

> Almost everyone undertakes at least one or two major learning efforts a year, and some undertake as many as 15 or 20. The median is eight learning projects a year involving eight distinct areas of knowledge and skill. A learning project is simply a major, highly deliberate effort to gain certain skill (or to change in some other way). Some learning

projects are efforts to gain new knowledge, insight, or understanding. Others are attempts to improve one's skill or performance, or to change one's attitudes or emotional reactions. Others involve efforts to change one's overt behaviour or to break a habit. It is common for a man or woman to spend 700 hours a year at learning projects. Some persons spend less than 100 hours, but others spend more than 2000 hours in episodes which the person's intent to learn or change is clearly his primary motivation. Many learning projects are initiated for highly practical reasons: to make a good decision, build something, or carry out some task related to one's job, home, family, sport or hobby. Adult learning is also motivated by curiosity, interest, and enjoyment. A few projects are motivated by credit toward a degree or certificate. About 70% of all learning projects are planned by the learner himself, who seeks help and subject matter from a variety of acquaintances, experts, and printed resources. Other learning projects rely on a group or instructor, on private lessons or on some nonhuman resource (Tough 1971:1)

The next section focuses on the relationship between personal learning projects and ecologies for learning and development.

PERSONAL ECOLOGIES FOR LEARNING & DEVELOPMENT

The idea of a learning ecosystem is highly relevant to lifewide learning as individuals are deeply embedded in the contexts and situations they inhabit day to day pursuing their self-determined or imposed learning projects.

> At the very core of an ecological orientation, and distinguishing it most sharply from prevailing approaches to the study of human development, is the concern with the progressive accommodation between a growing human organism and its immediate environment, and the way in which this relation is mediated by forces emanating from more remote regions in the larger physical and social milieu (Bronfenbrenner, 1979:13)

As an ecological phenomenon, learning is not only individualistic, it is a phenomenon that is distributed and enables the learner to engage in progressively more adaptive individual-environment relations (Barab & Plucker, 2002). It is most definitely not only a cognitive process, rather it's a process of contextualized participation involving in a holistic way the multiple dimensions of learning captured in Figure 2.

Everyone is 'interconnected to the systems of nature, society, and thoughts that surround and flow through us' (Briggs & Peat 1999). Capra (1997) describes this as 'the complex webs of being and knowing that underpin life', but it might also be represented as our personal ecology for learning. Our ecologies of learning are the contexts in which we continually learn how to learn regardless of whether it is a conscious or unconscious process. Our ecologies for learning include the influences and assumptions we develop from our social background, and the resulting fears, motivators, barriers and needs that result from these assumptions. Our ecology of learning is both a social and philosophical structure and a series of relationships with ourselves, our community and our environment. Hill et al (2004) write that the study of ecology of learning is constructivist in nature, acknowledging how previous life experiences have shaped us. The result is that each individual has an entirely unique ecology of learning which we continually expand and adapt as we learn our way into the future. We are a product of our context, yet we maintain agency, or free will that helps us interact with and shape our context.

Bronfenbrenner's ecological framework

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 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 macrosystem, which refers to institutional pattersn of culture, such as the economy, customs and bodies of knowledge (Bronfenbrenner, 1994:1643).

Ecologies are living systems containing a diversity of factors that interact with each other organically. They are self-organising, adaptive and fragile systems. We can use this biological metaphor to describe the social systems in which we live. Framing our experiences within an ecological paradigm underscores our connectivity and relationships with other people in our lifeworld and our physical, emotional, and cognitive behaviours as they occur in relation to specific environmental contexts and the situations we encounter. It is the lifewide dimension of human experience that gives lifelong learning ecological significance. 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.

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.

Individuals' microsystems for learning, their personal learning ecologies, are nested within the *mesosystem* which 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.

The *mesosystem is nested within the exosystem* which 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.

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.

The *chronosystem* encompasses change or consistency over time not only in the characteristics of the person but also of the environment in which that person lives (e.g., changes over the life course in family structure, socioeconomic status, employment, place of residence, or the degree of hecticness and ability in everyday life).

Lifewide education is primarily concerned with the level of microsystem and individuals lifewide learning and their personal ecologies for learning, together with the mesosystem level which hosts ecologies for learning that encourage, support and recognise individuals learning and development. But it is also concerned with the exosystem - the level at which institutional beliefs and policies are created that lead to the adoption of a lifewide learning / personal learning ecology approach, and to the macrosystem which is the level at which society values this approach.

Personal learning ecologies in a digital world

How people use the internet and associated information and communication technologies to interact, create, co-create and learn has been one of the main drivers for visualising learning as an ecological process. In 1999 John Seeley Brown wrote an influential article about learning in the digital age in which he talked about the radical changes that were taking place as a result of the increasing use of the internet and the social interactions it was encouraging. One of the concepts he talked about was new *knowledge ecologies* and showed how gamers shared their experiences with each other in order to master a particular technology or learn a particular on-line game. These ideas, thanks to the internet, were quickly distributed to other thinkers, writers, educational designers and researchers and the next decade witnessed a raft of articles using the ecological metaphor to describe and interpret learning.

> Learning for youth that is life-long, life-wide, and life-deep is occurring in semiotic domains that are increasingly linked to interactive, web-compatible, digital technologies like cell phones, iPods, video games, audio and video recording and playback devices, as well as computers. The challenges of developing healthy human beings are tied to expanding our notions of life-long learning and literacy to more fully understand what is of the greatest value in these new learning contexts. (Banks et al 2006:17)

Barron (2006), developed and applied the idea of personal learning ecologies to the development of digital fluency. In her paper she shows how school children develop these literacies and the ability to use them through lots of different activities inside and outside school, see for example this sixteen year old student's response to the question, how did you learn about computers?

> Student: At the beginning I was reading magazines, surfing the net, I talked to my cousin Ian, my step dad, Uncle Jack, I took a course after school at Kingston Computers called Teen Tech. They taught you how to build computers and they taught you about small networks. That was another helper to my knowledge.
> Barron (2006: 193)

Barron's research demonstrated that learning is often distributed over several settings and across many different types of resources with more experienced and capable learners accessing and using a greater number and variety of resources even when access to computers and the internet was the same for all learners. Barron (ibid) suggested that this was mainly due to variations in interest and/or resourcefulness. Where interest and resourcefulness was high learners accessed more resources in a wider range of contexts. Barron's concept of a learning ecology was grown from this realisation which she defined as

'the set of contexts found in physical of 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).

Figure 6 provides a map of the sorts of contexts that comprised individual student's learning ecologies for what might be termed their ongoing project towards becoming more digitally fluent.

Figure 6 Contexts for development of digital fluency (Barron 2006:195). An individual's learning ecology aimed at developing their digital and technological will utilise these different contexts (and others) in their own ways for their own purposes.
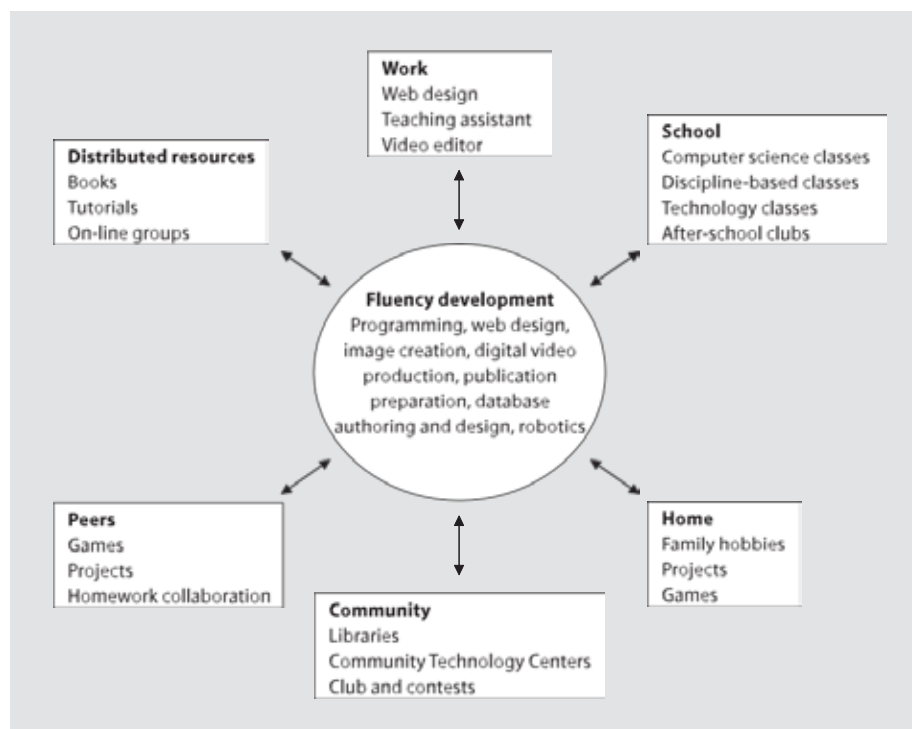
The learners in Barron's study were using people and resources in their own network to achieve their goal. This suggests that there might be a relationship between personal networks and personal learning ecologies. Rawsthorne (2011) provides a useful perspective on this matter.

A personal learning network is global and includes wherever your network reach extends, all resources (filtered or unfiltered) are available. It is important to consider everything that can contain or process knowledge and provide skills acquisition or understanding as a part of this network. Your PLN [personal learning network] is very broad. Your personal learning ecology is more geographically related... the learning objects are what is available in the "local area" or within easy reach (digitally or otherwise). Items in the learning ecology are what come available as the learner goes through their day and are the items in which the learner has built their knowledge. These objects have the ability to be viewed through multiple intelligences and consumed using multiple tools. They are the things that are on the current learning path and not too far out in the persons network. What is in the ecology is a subset of your PLN and these items are very easily accessible through multiple modalities at the right time. Often it is the objects that are right in front of you during your learning that are

most important, its the "when the student is ready the teacher will come" idea. And with PLEcologies the teacher can come in many forms. Depth and breadth is also important, therefore when the learning opportunity presents itself it needs to be explored in its entirety. Your personal learning environment is the full extent of the tools used to gather knowledge and deepen understanding. This PLE is more technology based and includes all your devices, approaches and collaborative technologies.

The important point being made is the way in which a personal learning ecology gives meaning to particular resources (including knowledge, objects, relationships, places and contexts see quote from Lemke 1997 on page 3) because of the particular learning enterprise that is being created. While this perspective stresses the fact that resources are local, the learning process itself often gathers resources from distance to bring them to bear in the local and immediate learning process. In other words the ecology is constructed from resources that may not start off being local but they gathered and connected locally when they are incorporated into the learning project. The idea of utilising resources that are local is illustrated well in the first and second examples of a personal learning ecologies below.

EXAMPLES OF PERSONAL LEARNING ECOLOGIES

We can extend these ways of viewing the important learning projects in an individual's life to any enterprise where intentional learning is involved, whether it be learning to ride a bicycle or drive a car, raise and care for a family, serve a community or find and take on a new job. The rest of this essay examines the idea of learning ecologies through a series of vignettes and considers the value of an ecological perspective for the practice of lifewide education.

Example 1 Learning to drive a car

We might illustrate the idea of a personal learning ecology through the scenario of learning to drive a car - an experience that most adults go through. This scenario involves the learner in a comprehensive way - head, body and heart. All the dimensions of learning represented in Figure 3 are involved and it contains both formalised learning-conscious and informal task-conscious learning (Rogers 2003). Ultimately learning and a level of competency have to be embodied and demonstrated in order to pass the driving test.

The process begins with the learner declaring their intention and setting themselves the goal of learning to drive (a useful and valuable new capability) and passing their driving test (the form of recognition that denotes a basic level of competency). The individual, often with parental guidance and support, creates a new ecosystem to learn and develop themselves in line with this objective (Figure 7). The ecosystem they create might typically include:

- access to a car 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
- driving instructors with a range of expertise and experience who may be parents or other family members, friends and often a professional instructor
- physical environment - safe areas for practising - like empty car parks and quiet roads - then public highways with various traffic conditions

Figure 7 Personal learning ecology created in order to learn to drive a car and past the driving test
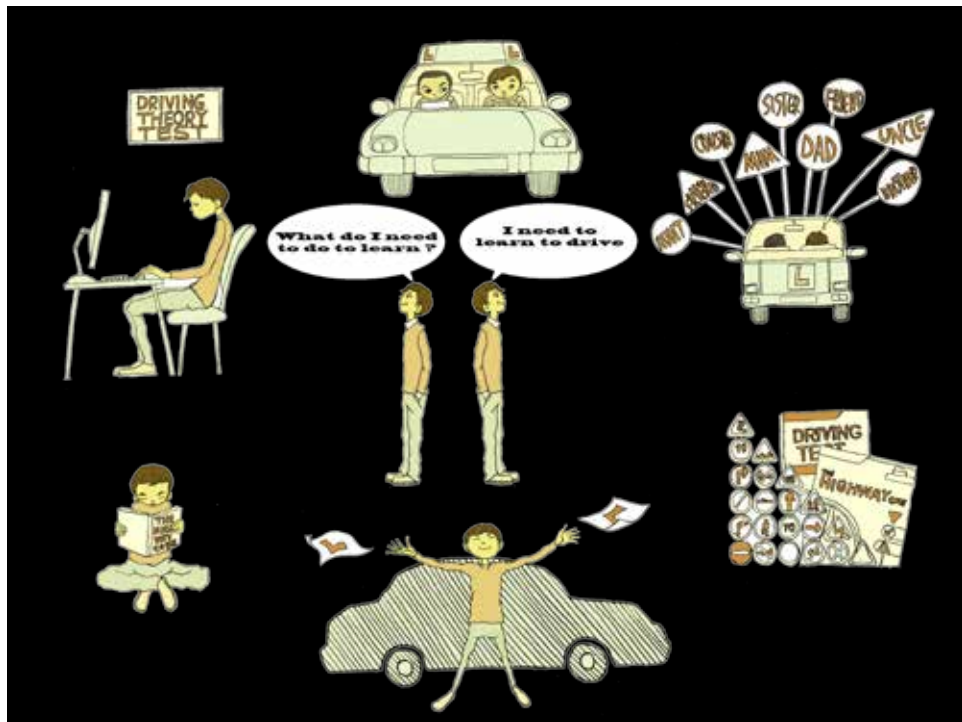
This is a good example of a learner interacting with their social, physical and virtual environment in order to learn and develop themselves. The learner develops practical skill and simultaneously theoretical knowledge, together with knowledge that is gained through the experience of driving. In effect they are developing their own case examples of situations they encounter on different sorts of roads in different sorts of driving conditions. 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 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. This ecosystem from learning to drive - *to become a competent 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 objective. The process includes mastery of a body of procedural knowledge as well as the actual embodiment of knowledge and skill in the performance of driving.

Example 2 starting to learn to play the piano

Personal learning ecologies often emerge from the everyday doings of life but once established they can be a source of motivation and a vehicle for sustaining personal development as illustrated in the story told by 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 or something. 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 just [saying] like, "Yes, 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 was not 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 pianist 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 onago.ly 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 a situation that has happened on numerous occasions before but this time she decided to try and learn something. The motivations for this 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 personal learning ecology comprises the contexts of school and home, the material resources of piano's at school and at home, the expert teaching resource of her school friend, her own time which she set aside to practice and master the musical notation and the piano tutor guide that had been sitting on the piano ever since her sister gave up the piano. The personal learning ecology is created only when Nadia has decided to learn and she must keep on nurturing and perhaps expanding to continue learning.

Example 3 learning to help other people

This inspiring story, told by a final year undergraduate student, illustrates very well the unfolding nature of a personal learning ecology as the student grapples with contexts and challenges that are unfamiliar or unknown. An important context to appreciate is that the student was studying for a BSc Biological Sciences degree with the aim of eventually securing a place at medical school to become a doctor. Her lifewide learning and developmental enterprise was geared to achieving this ambition. Here she reflects on a significant learning experience she undertook alongside her academic programme.

The volunteer trip I organised was to a small town in Uganda. This 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 and I was inspired by a visit to their website which informed me of the work they were doing in Uganda. I got in touch with them and they invited me to join them in their work. 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 to make our fundraisers enticing and fun, while maintaining the focus on the cause itself. Over the next 6 months, 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. Any money raised was to be a donation towards the children's home and medical centre we would be working at....Being the organiser and perceived 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... 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. 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 were 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 back home where complacency and over-indulgence are 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. I could not help but be moved by the experience of seeing families living in conditions of extreme poverty and illness. One particularly draining day of work involved us going out into a community far away to try to obtain support for Sarah, an eleven-year-old girl who was HIV-positive, and had walked forty-one kilometres 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 difficult, drawn out negotiation was absolutely worth it when they finally agreed, ultimately saving her life. The knowledge that we have helped 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.

These experiences we had in Uganda changed me and spurred me on to try to make a bigger difference and try to sustain what we had started and in my second year we [me and my sister] set up a 'volunteering society' [to continue the work we had begun]. Pioneering this society was daunting to say the least, with every step unpaved, and layers of bureaucracy to manoeuvre past.

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 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 while at university I have improved my understanding and insight into myself, and others. I have also realised 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 compilation of events; a tidal wave whose ripple effects extend continuously outwards.

This narrative of learning and achievement reveals how this individual created an entirely new social ecology in order to accomplish a very significant learning project 'how to make a difference to the lives of young people in a small village in eastern Uganda'. At the heart of her learning ecology is a small group of like minded students and the support of a member of the University staff who connected them to an existing project and provided the essential information to get them involved and started. Their actions involved many other students to raise money to buy mosquito nets. Once in Uganda - an environment and cultural context none of the students had experienced before the student developed working relationships with a number of local people and children. They learnt how to behave and how to contribute to the village community by participating in work - teaching and basic medical education.

This story reveals an individual's resolve to act or change because she has witnessed or been part of something through which she has changed: new insights and beliefs have been gained and her will to do more has been stimulated. The power of this learning manifests itself in this person's preparedness to engage with complex uncertainty, making informed, insightful and sometimes emotionally engaged choices about what to do or try to do next. Her willingness to put herself into new and unfamiliar, even risky, situations where neither the contexts nor the challenges are known seems to have forged a stronger identity so that she becomes more complete in the way she aspires to be. The story also illuminates how an individual's will to persevere and her own agency can overcome the obstacles that are encountered when she wants to achieve something in a world that is organised with priorities that are different to her own. Above all, the story illustrates the powerful synergy between an individual's lifelong and lifewide journey and her development as the person she wants to be and become.

Example 4 learning to be an archaeologist and help other people

Nathan is about to finish his BSc Archaeology degree at the University of York. His personal learning ecology is dedicated to being and becoming an archaeologist and he is aware that his learning and development is not confined to his course. Consequently his personal learning ecology embraces a number of self-organised extracurricular activities like reading various archaeological magazine, participating in conferences, joining digs which are not part of the course and leading a small team of friends to organise a national conference for archaeology students. All of these experiences enrich his formal education experience and

help him develop himself into the person he wants to become. This narrative of learning and achievement describes another learning project he has brought into his personal learning ecology.

I decided to get involved with Homeless Heritage in my second year. Homeless Heritage was started in 2009 by students at the University of Bristol. It's 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. From digging up crisp packets in the rain with people who live on the streets of York, to meeting rough sleepers from Bristol in a 15th century hall filled with "rubbish" this has been a project that has shown *me* the stark contrasts existing in modern life.

My involvement with the project began when a lecturer in the department asked me to help with a dig that was being organised with people from the homeless shelter in York. For me this was an exciting opportunity to get involved in an excavation and meet some new people, little did I know the community it would take me into. The idea was that a group of students and a few lecturers would work side by side with some homeless people to excavate a site used for rough sleeping . The week long excavation allowed me to not only work with people I would never have had the opportunity to work closely with as equals, but also to experience the benefits of archaeology in a way that it is often not seen - as a way of forming new bonds. It was from this close working that I was able to understand the value of not only contemporary archaeology, but community archaeology, and the value of inclusion in all aspects of life. My understanding of the homeless site and my appreciation of the problems of homeless people in York was increased massively by the group I was working with. I began to see the world through the eyes of homeless people right down to the way they walk through town and the way they identified their sites for sleeping. But although they lived a very different life to me as a student with a roof over my head and a safe comfortable bed, I discovered by talking to the homeless friends I made that there were so many similarities in what we both wanted from life and from each day.

This understanding stemmed from the shared experience of excavation, by working together to understand something as simple as an archaeological site we were able to understand each other, share our values and understand what was of value to each other. For me this was the perfect example of archaeology bringing communities together. Furthermore, it enabled me to challenge my own thinking about important things.

The excavation was only the first stage of our project, the next one involved telling people what we had learnt... After carefully cleaning, describing and cataloguing the art facts we had discovered we organised a week-long exhibition. It had two main aims, to ensure that people heard about the project, and that everyone who had worked on the excavation and finds analysis played an active role in presenting the results. This meant the team of archaeologists and non- archaeologists continued to work together in setting out our exhibition and the results of this productive collaboration showed. The layout of the exhibits and words we used to describe them were not something that could have been done without input from the homeless people who had been partners in the dig. And the results were fantastic. With hundreds of visitors to our exhibition over the weekend it really got people thinking about the homeless people of York in a different way. And for the archaeologists amongst us it introduced us to a whole new way of thinking about heritage. The true wonder of this project has been working with people, meeting new people and talking to them about things both mundane and ordinary as well as conversations I'd never have had.

Having started this project and seen the tangible benefits, the challenge is to keep the community alive. I bid for funding from the Heritage Lottery Foundation - a process that taught me a lot about university bureaucracy and the politics of bidding for funding. In doing this I realised that the transient nature of homeless life means that the people we worked with a year ago are often no longer around or willing to get involved, and some of the students who were involved have now left university. It is like starting all over again trying to attract new people to this community.

In spite of very different contexts we see some similarities with the previous narrative of learning and achievement. It reveals how this individual expanded his learning ecology by involving himself in a new social enterprise, an enterprise through which he discovered new value and meaning. This personal learning ecology formed around working collaboratively with homeless people and other students on a specific learning project was part of his overall learning ecology dedicated to becoming an archaeologist. Through this enterprise he questioned some of his assumptions about archaeology and as a result a whole new world of contemporary archaeology and archaeology as a vehicle for community engagement was discovered. His perspectives have changed and his horizons have been broadened. This story also reveals an individual's resolve to act because they have witnessed or been part of something through which they have changed: new insights and beliefs have been gained and his will to do more has been stimulated. The power of this learning manifests itself in his willingness to go on engaging with complex uncertainty as he took on a leadership role to secure funding to sustain the enterprise.

Example 5 learning to play and dance

Stepping outside the formal education environment Peter tells the story of the way in which his learning ecology enabled him to learn how to play a musical instrument and a dance.

I have taken it upon myself to develop an expert understanding of the Morris dancing and related folk music tradition with focus on learning to play the pipe and tabor. I've committed myself to this journey and for me it's 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 documenting my process in learning the pipe and tabor and regularly seek out opportunities to deepen my understanding of Morris dancing and playing these traditional musical instruments. I have felt this is slowing due to not getting the correct mentorship and feedback as I try to learn, and not knowing what is my next step toward deliberate practice is difficult. I continue to read books on the subject and attend festivals and face-to-face workshops to learn more.

A while back I was searching for books in these subject areas. My emerging learning network on this subject [people who were more experienced and knowledgeable than me] pointed me toward a couple of books which I have begun to read. One of the books describes when learning the pipe and tabor it is good to do this by ear, and it is a good idea to practice while sitting at a piano so you can listen correctly to the notes as playing on the piano then play them on the pipe. This back and forth between piano and pipe will greatly assist in learning the tones that occur when over-blowing the pipe. Training the ear is important to learning the pipe. Even though the book(s) came via my network, it is the presence of these books close at hand that put them into my [learning] ecology.

I have also 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 was 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. The Morris Ale became a part of my learning ecology.

These are both examples of how what was right in front of me from within my PLEcology is what I needed best. How this is different from the PLN is that I focused my learning on what was directly in front of me as resources instead of searching my broader network. Most often it is important to hold the faith that the right learning is available at the right time.

In this example of a learning ecology Peter's motivations for learning are linked to his deep interest in and passion for Morris dancing. We see him building a personal learning ecology in order to learn which involves him finding and meeting people who can help him by sharing their personal knowledge, knowledge that they embody in the practice of Morris dancing. He seeks out places where he is likely to meet people who can help him learn - the Morris Ale, Morris dancing event, and through this was process was able to find someone who was able to pass on his embodied knowledge. He also draws on book knowledge (someone's personal knowledge that has been codified). It's a good example of someone creating a learning ecology for a particular learning project.

Example 6 My own task-based learning project

Personal learning projects in the work setting can be triggered by need or interest and often, the two are intertwined. Indeed, working life is full of situations where we turn an extrinsically motivated need (here is a task go and do it) into an intrinsically motivated project (I can use this as an opportunity to do x, y and z). In this example I describe a recent experience of developing my personal learning ecology for a particular work-related purpose. In this example I was not venturing into new and unfamiliar contexts but using an approach I have used many times before utilising and extending my learning ecology.
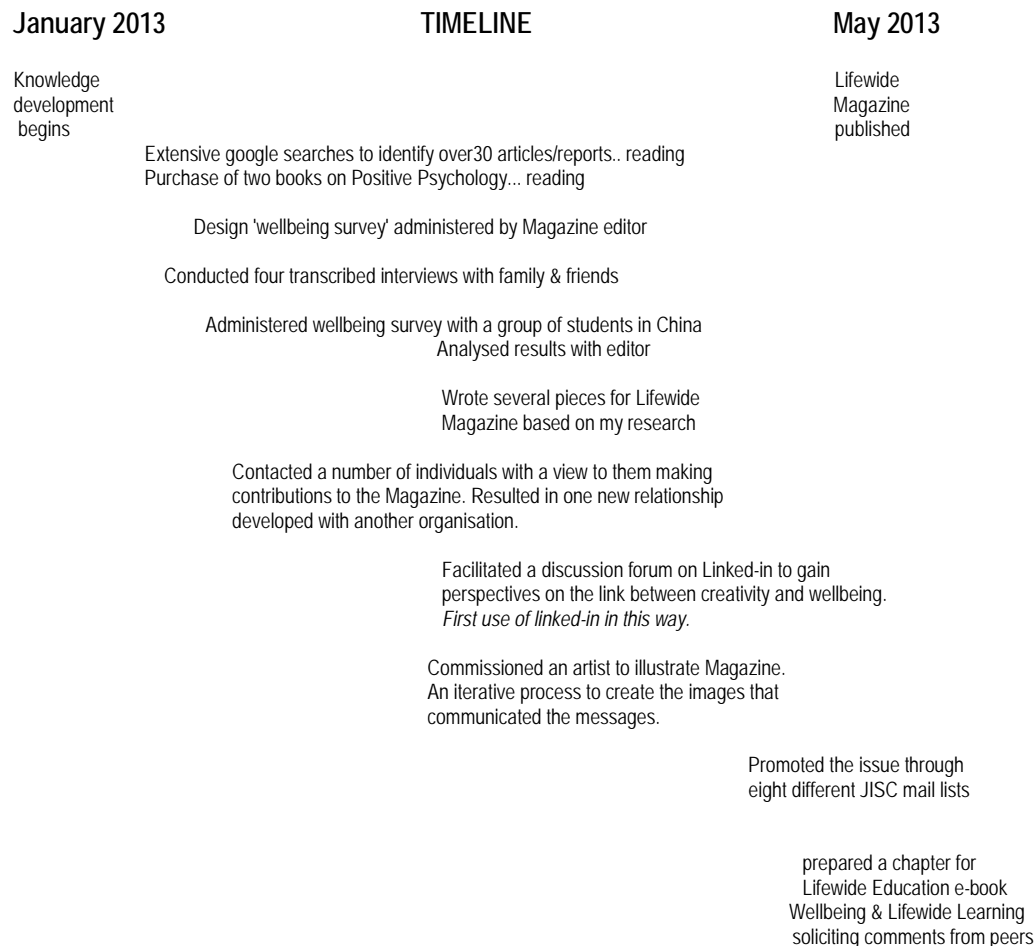
One of my work-related challenges is to support the continued growth and development of the Lifewide Education project - a community-based enterprise to promote and support the further development of lifewide education. There are many dimensions to this work and I have created a personal learning ecology in order to sustain this work. It includes a small number of people who comprise our core team, and other individuals who we try to draw into our enterprise from time to time. It also includes our existing knowledge resources contained in a PoD Book and vehicles for creating new knowledge resources (online Magazine and e-book). The enterprise is supported by a community website and suite of other websites. With this substantial ecosystem I am able to create personal learning ecologies to examine different dimensions of lifewide learning and personal development.

For example, we might consider my learning ecology which is aimed at producing an issue of Lifewide Magazine - a task focused exercise in which learning is an objective. We decided that the May 3013 issue would focus on 'Wellbeing' and working collaboratively with the editor I began to draw together materials that would be suitable for it and identify ways in which new resources might be created (Figure 8).

I did not plan all or even most of the activities at the start. Rather, I used the people, other resources and opportunities within my day to day life to gather existing knowledge and develop new knowledge for the Magazine and a chapter for the Lifewide Education e-book. I liken this process to what Dewey called 'productive inquiry' - finding out the things you need to know in order to do the things you need to do. Thanks to google, which helped me find numerous reports and articles I was able to do much of the work in my own home environment. I also interviewed several family members to gain more personal views of what wellbeing meant and used both sources of information to write articles for the Magazine. I

turned my interview protocol into a questionnaire (tool for finding out) and this was used by the core team to gather views on wellbeing from friends and family (now being written up by the editor as an e-book chapter).

Figure 8 Activities in my personal learning ecology for developing and using knowledge about wellbeing

January 2013	TIMELINE	May 2013
Knowledge development begins		Lifewide Magazine published

Extensive google searches to identify over30 articles/reports.. reading
Purchase of two books on Positive Psychology... reading

Design 'wellbeing survey' administered by Magazine editor

Conducted four transcribed interviews with family & friends

Administered wellbeing survey with a group of students in China
Analysed results with editor

Wrote several pieces for Lifewide
Magazine based on my research

Contacted a number of individuals with a view to them making contributions to the Magazine. Resulted in one new relationship developed with another organisation.

Facilitated a discussion forum on Linked-in to gain perspectives on the link between creativity and wellbeing.
First use of linked-in in this way.

Commissioned an artist to illustrate Magazine.
An iterative process to create the images that communicated the messages.

Promoted the issue through eight different JISC mail lists

prepared a chapter for
Lifewide Education e-book
Wellbeing & Lifewide Learning
soliciting comments from peers

During the process I identified a number of potential contributors and invited them to write an article for the Magazine. One of these solicited enquiries led to conversation that not only resulted in a Magazine article but also an invitation to go to Brussels to meet other members of the person's team to discuss how we might continue working together. During the process I visited a university in China and was able to gain students' views on wellbeing based on the questionnaire I had designed, this helped us develop a cross cultural perspective.

I also commissioned an artist to illustrate some of the core concepts we were writing about in the Magazine. The conversations we had, and the resulting images I helped him create, provide another interesting dimension to my ecological learning process.

The final stage in my process was to distribute the Magazine containing the knowledge we had brought together or created, through our website and mail lists and try to encourage people to read it. Learning at this end of the process is geared to evaluating the effects of marketing and other promotional activity through the tools on the website that allow visitor tracking.

So my particular learning ecology for this work-related project is developed from my overall learning ecology and the process extends this overarching ecology through new relationships. I interacted in an intensive way with a small number of people close to home. My project was mainly conducted within my home environment but thanks to the technologies I have I am able to communicate with other people and access distant resources. I also used other contexts, like a visit to a Chinese university to extend my understandings. My process is essentially one of gathering, evaluating, reusing ideas and sythesising existing ideas in the context of the Magazine issue, and also creating and co-creating new knowledge with people I already have a relationship with, or who I develop a relationship with through the process.

Example 8 Learning to innovate at work

Work projects involving significant change must involve significant learning and sometimes unlearning the ways of doing things that had been done previously. Here is an example of a higher education teacher's learning ecology taken from a study of how people innovate in a university (Jackson in press). Sarah is grappling with the many dimensions of her problem and working out what she has to do as she goes along. We see her structuring her environment to find out what she needed to know in order to do what she needed to do. We see her encountering challenges from other parts of her university which cannot give her the answers she needs to progress. We also see her using her ecology to develop meaningful and productive relationships that enable her to achieve her goals.

> I obviously used the research that we had done. Discussed it with the Head of School and the other school management and 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...I found these people by sort of utilizing my own contacts. I needed to provide a framework for the people to work with. So I began to think about that...a lot of email communication took place with them sending me materials and me checking it and going back to them with feedback. It was really..time consuming for me in terms of head space and having to pull myself out of my daily job, my normal responsibilities and almost doing this on top of that. ..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.

> [it felt like] 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 in that point in time...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 need to know.'

> Once we got into the middle stages of the project because I was having to be on one hand a subject person.... I was having to be a learning and teaching person and an online education person, working with Michael and actually trying to understand the requirements of the [university's innovation] project itself and making sure that I was still coming always back to what we originally set out to do. I spent more and more time with the people from [university's educational technology centre] and asked for their feedback on what I was developing and what the externals were developing with me. They got more and more involved because they really believed in what I was doing once the momentum got going....without them helping me so much, I wouldn't have achieved the outcomes. *Innovator School of Design*

This story illuminates how an innovator adapts and develops her learning ecology in order to learn how to accomplish the innovation she was seeking to develop. It included amongst

others people with knowledge and expertise in the design of on-line educational courses and learning environments, experts in her network who would provide the content for professional on-line courses for the fashion industry,   people in central roles in quality assurance, registry... her head of department. The narrative reveals something of the dynamic, messyness and emotion of learning in stressful work environments. But it also reveals the wonderful effects of creative collaboration by people who believe in and trust each other.

IMPLICATIONS OF AN ECOLOGICAL PERSPECTIVE FOR LIFEWIDE LEARNING, EDUCATION AND PERSONAL DEVELOPMENT

The essay set out to examine the idea of learning ecologies and evaluate the potential in the idea for enriching the concept and practice of lifewide learning, education and personal development. So what conclusions might be drawn from this examination?

Philosophical value

The first value that might be drawn from an ecological perspective is the way it conveys learning and personal development (adaptation and change) as a living organic holistic process. 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 and interests 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. The central argument in this essay is the idea that a personal learning ecology which I define as *the activities, situations and contexts encountered or created by an individual that provide opportunities and resources for learning, development and achievement in respect of a learning project* 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)

Value of an ecological perspective 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 or create contexts, use existing or develop new relationships, and ultilise their personal technologies to find the resources they need to learn. 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 responses they receive. 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.

Value of an ecological perspective 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 learning as an ecology that they have designed and resourced and perhaps this may open up new possibilities for contexts, relationships and interactions as they appreciate the learning ecologies of their learners' extend beyond the classroom.

For mentors who are encouraging and supporting lifewide learning, an appreciation of a learners 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 a formal, informal or lifewide learning perspective, and what this tells them about their relationship with their learning environment

Recognising individuals' learning ecologies

Lifewide education provides an educational construct through which an individual's lifewide learning projects and their related learning ecologies can be encouraged, supported, valued and recognised. The question of how an individuals' learning ecology might be recognised is illustrated using a learner who at the time of writing is just completing her first year university course in European politics at the University of Nottingham. She is also helping to pilot the Lifewide Development Award.

Over the past twelve months the learner has maintained a personal development plan which set out six aspects of herself that she wanted to develop. These became the foci for her learning projects. One of her developmental goals was to improve her communication skills utilising new media and in the context of making friends and building relationships - something she was apprehensive about when she started university.

Figure 9 illustrates some of her activities and achievements with respect to this self-directed learning project. The learner has yet to produce a reflective synthesis account with the potential to demonstrate ecological awareness or consciousness of her own learning process and associated development. But from her ongoing record of learning recorded in her blog we might infer that from day one she pushed herself to make new friends - initially by knocking on doors and introducing herself in her university residence - conversations must have formed the basis for this relationship building process and her Facebook page documents the numerous friendships and many shared events involving friends. She also learned how to create her own website and populated it with text and audio blogs describing

her self-directed learning experiences. This process involved communication between herself and her mentor whose role was to encourage greater self-awareness. To gain journalistic experience she undertook training in interviewing and then worked as a journalist on 'Impact' the student newspaper. Working for the newspaper provided an opportunity for making new friends and three of her articles were published. Through a friend she also participated in a university radio chat show and became sufficiently interested in the idea of radio broadcasting to seek voluntary work in local radio stations over the summer. She has contacted over a dozen stations so far without success and is discovering just how hard it is to gain work experience. As a result, at the time of writing she was in process of experimenting with internet broadcasting, with the help of a family member and a friend. Finally, she auditioned successfully for a part in the University production of Lysistrata and was chosen to play the challenging role of the Magistrate - challenging because she had to play a bigoted magistrate. Participation required daily rehearsals for a month of the Easter vacation and it is not surprising that new and enduring friendships were created with several members of the cast.

Figure 9 Illustration of a self-directed learning project aimed at becoming a better communicator. This assemblage of artefacts provides the basis for the learner to describe and evidence her learning ecology by linking the artefacts to the evidence on her blog so that she can gain recognition for her self-directed development.
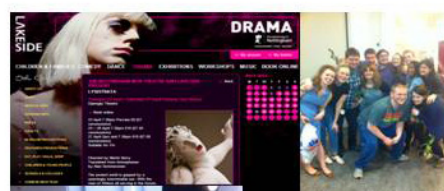

PDP Goal - Developing myself as a communicator in a range of different contexts, including use of new media and involving making new friends

Lots of digital activity on facebook

Reporter for University student Newspaper – produced 3 articles

Significant role in university production of Lysistrata

Creation of own website, written/audio/video blogs. Helping to pilot Lifewide Development Award

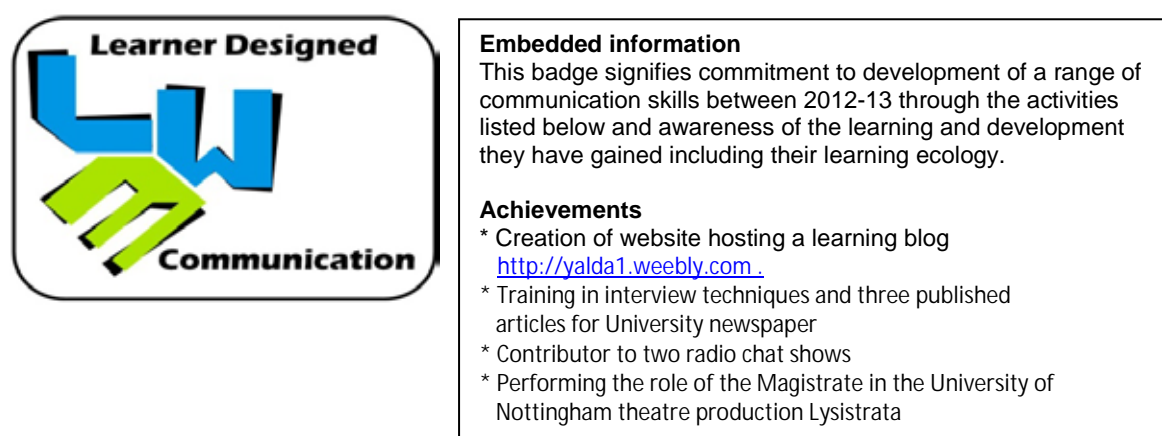Contributor to two university radio chat shows. Now seeking voluntary work in radio

Experimenting with internet broadcasting with a friend

Each of the above might constitute a discrete learning project but taken together they represent a significant commitment of time, effort and achievement in respect of trying to become a better communicator. Each contributed to personal development within the broad theme of becoming a better communicator, three of them involved performance (writing articles for publication, performing on radio and performing in theatre), and most of them involved creating new friends and putting herself into unfamiliar contexts knowing that she was likely to learn something new and that this experience may afford new opportunity.

An annotated graphic such as is illustrated in Figure 9 provides the basis for describing the detail of the process and outcomes of a self-directed learning project and for elaborating the

ecological nature of learning - *the activities, situations and contexts deliberately used by the learner to provide opportunities and resources for learning, development and achievement in respect of their learning project .* Such a description, supported by blogs and validated by a mentor would warrant recognition through a learner designed and justified Badge (Figure 8)modelled on the Mozilla Open Badge system, which itself could be part of the submission for the Lifewide Development Award (see Jackson 2012 for an explanation of the badge system).

Figure 10 Example learner designed and justified lifewide education badge for the purpose of recognising a learners commitment to their own learning project in this case to develop themselves as a communicator. Embedded in the badge would be information that defined what it symbolised and the statements of learning and development could be linked to the learners own website.

Embedded information
This badge signifies commitment to development of a range of communication skills between 2012-13 through the activities listed below and awareness of the learning and development they have gained including their learning ecology.

Achievements
* Creation of website hosting a learning blog
  http://yalda1.weebly.com .
* Training in interview techniques and three published articles for University newspaper
* Contributor to two radio chat shows
* Performing the role of the Magistrate in the University of Nottingham theatre production Lysistrata

These ideas are offered as a way of promoting thinking and discussion about the value and feasibility of recognising learners' learning ecologies in the contexts of their lifewide learning and personal development.

BIBLIOGRAPHY

Banks, J.A., Au, K. H., Ball, A.F, Bell, P., Gordon, E.W, Gutiérrez, K.D., Heath, S B., Lee, C.D., Lee, Y., Mahiri, J., Suad Nasir, N., Valdés, G., Zhou, M. (2007) Learning in and out of school in diverse environments: Lifelong, Lifewide, Lifedeep. The LIFE Center (The Learning in Informal and Formal Environments Center), University of Washington.

Barab, S. A., & Plucker, J. A. (2002). Smart people or smart contexts? Talent development in an age of situated approaches to learning and thinking. Educational Psychologist, 37, 165-182.

Barnett, R. (2011) Lifewide education: a new and transformative concept for higher education. in N. J. Jackson (ed) Learning for a Complex World: A lifewide concept of learning, education and personal development. Authorhouse.

Barron, B. (2006) Interest and Self-Sustained Learning as Catalysts of Development: A Learning Ecology Perspective. Human Development 2006;49:193-224 Available on-line at: http://life-slc.org/docs/barron-self-sustainedlearning.pdf

Beard, C. (2010) *The Experiential Learning Toolkit: Blending Practice with Concepts.* London, Kogan Page.

Briggs, J. & Peat, F. D. (1999) Seven Life Lessons of Chaos: Timeless Wisdom from the Science of Change, St. Leonard's, Australia: Allen & Unwin.

Bronfenbrenner, U. (1976) The experimental ecology of education. *Teach. Col/. Rec.* 78(2): 157-204.

Bronfenbrenner, U. (1977) Toward an experimental ecology of human development. *Am. Psycho/.* 32: 515-31.

Bronfenbrenner, U. (1979) *The Ecology of Human Development: Experiments by Nature and Design.* Harvard University Press, Cambridge, Massachusetts.

Bronfenbrenner, U. (1994). Ecological models of human development. In *International Encyclopedia of Education, Vol. 3, 2nd. Ed.* Oxford: Elsevier.

Capra, F. (1997) The Web of Life: A New Synthesis of Mind and Matter. London: Flamingo

Capra, F. (2007) Sustainable Living, Ecological Literacy, and the Breath of Life

Canadian Journal of Environmental Education (CJEE), 12, 9-19 available at: http://jee.lakeheadu.ca/index.php/cjee/article/viewFile/624/507

Checkland, P. (1999) Systems thinking, systems practice New York: Wiley

Davenport, T. & Prusak, L. (1997) *Information Ecology: Mastering the Information and Knowledge Environment.* Oxford University Press, New York.

Davenport, T., Prusak, L. (1998). *Working Knowledge.* Harvard Business School Press: Boston, MA.

Davenport, Thomas H. (2005) *Thinking for a living*, Boston: Harvard Business Press

Education Council (2006) Recommendation of the European Parliament and the Council of 18 December 2006 on key competencies for lifelong learning. Brussels: Official Journal of the European Union, 30.12.2006

Eraut, M. (2004) Informal learning in the workplace. Studies in Continuing Education, Vol. 26, 2, 247-273

Eraut, M. (2009) How Professionals Learn Through Work, in N J Jackson (ed) Learning to Be Professional available online at: http://learningtobeprofessional.pbworks.com/f/CHAPTER+A2+MICHAEL+ERAUT.pdf

Germain, C. B. and Gitterman A (1994) Ecological Perspective available on-line at http://www.uncp.edu/home/marson/348_ecological.html

Hill, S Wilson, S & Watson, K 2004, 'Learning ecology: a new approach to learning and transforming ecological consciousness: experiences from social ecology in Australia', *Learning Toward an Ecological Consciousness: Selected Transformative Practices*, (ed. O'Sullivan, EV & Taylor M), Palgrave Macmillan, New York.

Hoskins, B. and Fredriksson, U. (2008) Learning to Learn: What is it and can it be measured? European Commission, Joint Research Centre Institute for the Protection and Security of the Citizen Centre for Research on Lifelong Learning (CRELL) Luxembourg: Office for Official Publications of the European Communities

Hug, Theo (2005): Micro Learning and Narration. Exploring possibilities of utilization of narrations and storytelling for the designing of "micro units" and didactical micro-learning arrangements. Paper presented at the fourth Media in Transition conference, May 6-8, 2005, MIT, Cambridge (MA), USA.

Jackson, N J (ed) (2011) Learning for a Complex World: a lifewide concept of learning, education and personal development Authorhouse

Jackson, N. J. (2012) Open Badges for Lifewide Education available at: http://www.lifewidescrapbook.co.uk/uploads/1/0/8/4/10842717/open_badges_for_lifewide_education.pdf

Jackson N J Solent book chapter principles

Jackson and Beard (2011) A holistic model for learning and personal development. In N. J. Jackson (ed) *Learning for a Complex World: a lifewide concept of learning, education and personal development* Authorhouse 39-60

Kegan, Robert (1982). *The evolving self: problem and process in human development*. Cambridge, MA: Harvard University Press

Lemke J L (1997) "Cognition, Context, and Learning: A Social Semiotic Perspective" in D. Kirshner and A. Whitson, Eds., *Situated Cognition: Social, Semiotic, and Psychological Perspectives*. (pp. 37-55). Hillsdale, NJ: Erlbaum. 1997.

Mansel, R. (2010) Power and Interests in Developing Knowledge Societies: Exogenous and Endogenous Discourses in Contention IKM Working Paper No. 1. Available on-line http://wiki.ikmemergent.net/files/IKM_Working_Paper-11-Robin_Mansell-July2010-final-pdf.pdf

Mark, A. Mattaini and Carol H. Meyer (1995) The Ecosystems Perspective: Implications for Practice in C. H. Meyer and Mark A. Mattaini (eds) The foundations of social work practice : a graduate text / Washington, DC : NASW Press, available at http://home.earthlink.net/~mattaini/Ecosystems.html

Nardi, B. A. and O'Day, V. L. (1999) Information Ecologies: Using technology with heart. First Monday 4, 5 available on-linehttp://firstmonday.org/ojs/index.php/fm/article/view/672/582

Open Space Learning Blog available at: http://www2.warwick.ac.uk/fac/cross_fac/iatl/activities /projects/osl-final/technology/ecology/

Pickett S. T. A. and M. L. Cadenasso (2002) The Ecosystem as Multidimensional Concept Meaning, Model, and Metaphor. Ecosystems (2002) 5: 1-10

Rawsthorne P (2011) Personal Learning Ecology
http://criticaltechnology.blogspot.co.uk/2011/06/personal-learning-ecology.html

Redecker, C., Leis, M., Leendertse, M., Punie, Y., Gijsbers, G., Kirschner, P. Stoyanov, S. and Hoogveld, B. (2011) *The Future of Learning: Preparing for Change.* European Commission Joint Research Centre Institute for Prospective Technological Studies EUR 24960 EN Luxembourg: Publications Office of the European Union http://ipts.jrc.ec.europa.eu/ publications/pub.cfm?id=4719

Richardson, A. (2002) An ecology of learning and the role of elearning in the learning environment Global Summit Education AU Limited available at:
http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan007791.pdf

Rogers, C. (1983) *Freedom to Learn for the 80's.* Columbus, Ohio: Merrill

Rogers, A. (2003) *What is the difference? a new critique of adult learning and teaching,* Leicester: NIACE.

Rossum E. J. and Hamer R (2010) The Meaning of Learning and Knowing Rotterdam: Sense Publishers
https://www.sensepublishers.com/media/1113-the-meaning-of-learning-and-knowing.pdf

Rouse M (2005) Knowledge Worker Definition Tech Target available online at:
http://searchcrm.techtarget.com/definition/knowledge-worker

Saljo, R. (1979) Learning from the Learner's Perspective. I: Some Common Sense
Conceptions (Rep. No. 76). Goteborg, Sweden: University of Goteborg, Institute of Education.

Sasha A. B., and Roth W.M. (2006) Curriculum-Based Ecosystems: Supporting Knowing From an Ecological Perspective Educational Researcher, Vol. 35, No. 5, pp. 3-13
http://www.sashabarab.com/research/onlinemanu/papers/ed-res.pdf

Seely Brown, J. (2000). Growing up digital: How the web changes work, education, and the ways people learn. Change, 10-20.

Staron, M. (2011) Connecting lifewide learning to life-based learning. In N. J. Jackson (ed) *Learning for a Complex World: a lifewide concept of learning, education and personal development* Authorhouse 137-159

Tansley, A. G. (1935) The use and abuse of vegetational concepts and terms Ecology 16 284-307

Tough, A. (1971) The Adult's Learning Projects A fresh approach to theory and practice in adult learning. Available at: http://ieti.org/tough/books/alp.htm