UNDERSTANDING MOTIVATION FOR LIFELONG EDUCATION, THROUGH BIOGRAPHY, COMPLEXITY AND CONTROL.

By

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Abstract

Lifelong learning requires motivation to complete learning projects across the lifespan. Understanding an individual's commitment to extended periods of learning is not well understood. There are particular gaps in longitudinal and biographical accounts of learners grounded in frameworks of lifespan theories. Equally missing are accounts that consider the dynamical nature of learning across time. Three learner biographies are examined to develop a dynamical control perspective of motivation for extended learning. Drawing on a regulatory framework the Lifespan Theory of Control and concepts from complexity perspectives particularly Non Linear Dynamical Systems Theory, including feedback, attractors and bifurcation a model is offered which synthesises processes of control, motivation and dynamics leading to competence and accounting for extended periods of learning.

ACKNOWLEDGEMENTS

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INTRODUCTION

'All linear systems resemble one another, each nonlinear system is nonlinear in its own way.' (After Tolstoy's Anna Karenina, in Smith 2007)

This thesis is concerned with the processes that sustain motivation for a life of learning and competence[1]. These processes are developmental, dynamical, complex and nonlinear. Motivation to learn (or not) is an emergent pattern, a tapestry of the structure and evolution of a complex system, in this case a person. Understanding this better requires an analysis of *change*. Change is not well understood in the social sciences, change is conceptualised as linear and proportional, but in any complex system, linearity is the exception not the rule. Take an old example from psychology the Yerkes-Dodson (1908) law of arousal and performance showing an early observation of emotion and motivation's influence on behaviour.

Figure 1. Yerkes- Dodson law of arousal and performance
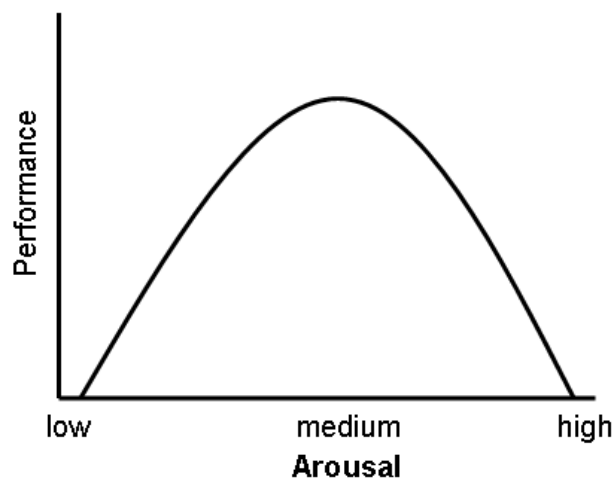
It is clearly not linear, as arousal increases so does performance until a point when increasing arousal produces a decline in performance. This is probably not an accurate

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[1] I'm using the term competence after White's (1959) idea of 'effectance' discussed later in chapter 1. 'Motivation'.

account of what happens in real life (Yerkes and Dodson were experimenting with mice). In real life lots of things could happen depending on who you are (e.g. a novice or expert), a maximum level of arousal might be reached and you give the performance of a lifetime, alternatively you get 'stage fright' and performance ends abruptly. In dynamical systems theory, an abrupt end would be called a cusp catastrophe (after Thom, 1974) and could be modelled mathematically and represented diagrammatically thus:

Figure 2. Cusp Catastrophe
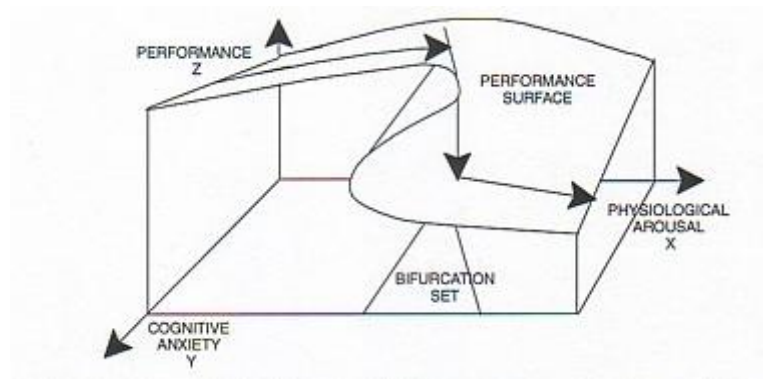
The above figure is from Hardy and Parfitt (1991) who found that high anxiety can lead to abrupt changes in performance in athletes and anxiety had to be conceived of and measured in complex ways. The point being, that to understand change processes a conceptual framework and tools are needed which better explain in nonlinear, complex developmental terms, what might be happening and these are mostly missing from human enquiry (Guastello, 2009).

I'd like to start with a very short story which contains features important to the ideas and viewpoints presented in this thesis. I want to return to this story in the methodology and conclusions.

Nico 'hides a secret inside his head' (Batarro, 2002) and his secret really is remarkable. He was born in Buenos Aires in 1992, his family are loving and protective and he has a brother and a sister. Nico is a charming and gregarious youngster, healthy and a good pupil at school. He now lives in Spain and attends a mainstream school. He likes computers, enjoys fencing and drawing cartoons, loves music, has learned to play an electronic keyboard, he also sings in the school choir.

If you were to see him at home or school, you wouldn't notice anything unusual in his overt behaviour, though you would probably notice a slight limp and some difficulty in moving his left arm and something you would have noticed when he was younger, was the small laptop he carried around with him at a time when many children wouldn't have had a such a thing. Overall though, Nico shows (using technical terminology) normal cognitive, social and affective development. So what's the secret inside his head?

Figure 3. A scan of Nico's brain

This: Nico has only half a brain, the dark area shows that his whole left hemisphere is missing.

Later I hope to explain the relevance of this to individual development, learning and motivation. Whilst we are not like Nico, we all have a unique developmental history, a set of experiences exclusive to us, that explains our learning and patterned

motivation - who we are and how we got here.[2] In essence I want to ask questions, like Kipling's 'servants', of what motivation and learning are and mean to individuals, such that motivation (why) impels learning (how) to achieve (what) and become (who) across life (when) in context (where).

In the learning age[3], education is at the heart of political, economic and social life. Lifelong learning and lifelong education is a central focus of debate and research in many fields of social science.

Motivation for learning is a subject of study which has grown considerably in recent decades, however, there is little research into motivation to learn framed in a life span perspective, though there is some (Heckhausen and Dweck, 1998; Heckhausen, 1999) or through the use of qualitative methods. There are not many analyses that are culturally or contextually situated; or which explore motivation to learn across a lifetime through the exploration of biographical data[4], and no comprehensive, coherent 'theory' or framework of learning that is complex and dynamical.

Life, learning and motivation are inseparable; learning is a process of acquiring skills and knowledge through goal directed or motivated behaviour and is clearly important for survival and development. As humans we have unique mental capacities for learning, founded on language, reason and complex emotion. Learning, a lifelong process, has yet to be comprehensively studied across significant time scales and only

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[2] Of course I won't be able to explain in fine detail these things but hopefully in sufficient detail.

[3] The 'Leaning Age' (Cm 3790) (The Stationery Office, 1998) is term that tries to characterise the era we are living through, where information technology and global competition has transformed life and continuous learing is need to cope with the challenges.

[4] Exceptions include: the work of Charlotte Bühler during the 1930s, however, her biographical studies of human development are considered to lack contextual analysis, focusing instead on individual motives.And the recent 'Learning Lives' project 2004 – 2008 which employs biographical methods to generate data concerning individuals learning trajectories, identity and agency ('the ability to give direction to one's life' Biests 2006). This project is a welcome addition to theory and knowledge, though the narrative model they have generated doesn't explain change or unconscious and emotional dimensions and ignores the substantial literature on competence motivation.

relatively recently have theories of learning been articulated that capture the multi dimensionality of learning (Illeris, 2002/6; Jarvis, 2007; Ranson, 1998).

Learning theory and research has previously been segmented into biological, behavioural, cognitive and social components or linked to intelligence and stages of attainment through schooling. Learning has also been largely viewed through the perspective of 'acquisition' over 'participation in practice' (Sfard, 1998), though learning to participate must involve 'acquiring' competence. Furthermore, how we learn, what we learn and what sustains our commitment to learning, (achievement motivation/competence) has seldom been examined in an individual way, but rather theory and research in this area emphasises, as it does across canonical psychology, universal processes.

The current models of motivation are almost exclusively developed from large quantitative, experimental or psychometric studies and the resulting accounts can be characterised as simplified, linear or dichotomous (e.g., stimulus-response associations, accumulative skill, ability vs. effort or flexible vs. fixed beliefs about intelligence, strong or weak self-efficacy) and subsequently are considered to have lost subtlety and complexity (Bempechat and Elliot, 2002). Yet individuals are motivated in many different ways and by many different beliefs, thoughts and *feelings* in personal and unique ways which also involve interpersonal and dynamic interactions, which are historically and culturally situated, in essence I think motivation is patterned by experience, the motivation that you apply to problem solving, learning, relationships or other domains of life, is influenced by prior events. But what is motivation? That is a fundamental question and an aspect of this thesis.

New dynamical or complexity perspectives are evolving to reflect human development in a more complex and realistic ways (van Geert, 2009). Though

currently, like learning, complex, dynamical models of competence motivation do not exist.

Each of us has a unique biological substrate and cognitive structure or mind shaped through our distinct constitution and our individual history, the micro architecture of every human brain is different as a result of experience (Sporns, 2010) and we are easily distinguishable from each other because of this. additionally, much of our mind is unconscious a fact largely ignored by current rational/cognitive accounts (Damasio, 2000; Koch and Crick, 2001). In short it is fair to say that contemporary accounts of achievement motivation (now more commonly called competence motivation), ignore the brain, do not discuss unconscious influences, have underplayed emotion, ignored societal/cultural influences, or context and tend to lack a historical or *temporal* focus. Though this is unsurprising, as psychology for most of its history, has struggled to emulate the context free natural sciences in search of universal laws.

That is not to say that there are no life span theories, there are (and they are considered later such as Self-efficacy theory, Bandura, 1997 and especially Action-control theory, Heckhausen and Schulz, 1995, (Heckhausen, 1999), nor is it to say that emotion doesn't matter, it does (Boekaerts, 2003) or that motivation will remain brainless. However, to reiterate, this understanding is not well supported by longitudinal, empirical data that is complex or historically situated. Furthermore, progress is hampered by theory building that is stuck in 'a linear rut' (Guastello and Liebovitch, 2009, p.1, in Guastello et al, 2009).

In using a biographical approach I hope to make a contribution to further understanding the developmental ecologies, or specific individual situations, of a small number of people and how this relates to their motivation and learning trajectories. To do this I want to fuse understanding from control theory and chaos or

non-linear dynamical systems (NDS) theory, not through analysis of empirically collected time series data, but rather through a conceptual lens, using NDS concepts as metaphor and biographical data.

In learning across a lifetime we develop from being essentially dependent to independent and interdependent, and we manage this independence through facing obstacles or constraints. These challenges and their resolution, or otherwise, are an important aspect of our personality or *identity* and subsequent motivation. We become who we are and we continue becoming and this is a reflection of an underlying pattern of learning and motivation, which can as a starting point be subjected to examination through case study and NDS analysis.

Motivation is an essential part of the process of learning and not just in the domain of formal learning to gain qualifications or develop in our jobs, but for all aspects of our life, without the desire to learn we are unlikely to fulfil potential or become as competent as we could be, which has significant implications for our life outcomes (Dweck, 1999). Though we have to bear in mind that there are many structures and forces that can hinder the desire to learn and the choice of what is learnt.

Motivation, particularly intrinsic motivation, according to Bickhard is a process that 'emerge[s] in the interrelationships between activity, learning and emotions' (p.54, 2003). This is important because any comprehensive understanding of lifelong education can only come from moving away from a fragmented, reductionist and instrumental view[5], to a holistic, interactive, systems view.

Aim

The aim of this thesis is to examine motivation for learning in order to understand achievement or competence motivation through the life-stories of adult learners and

[5] A viewpoint discussed later in the chapter 'Lifelong Learning'.

focuses on the impact of both normative events (e.g., formal educational episodes) and significant or transformational events or crises (also known as non-normative, qualitative change after Jung, 1921). From this I hope a better account will emerge for lifelong learner motivation: a dynamic one showing the interplay of time, culture and individual differences. Though such a model can only be tentatively offered.

However, although the focus is on individuals, I fully recognise that we are an outcome of our social development, therefore the influence of family, peers, community and the wider society is recognised in the case studies and in the analyses. Adults have been chosen as the focus as there is insufficient research on motivation through adulthood particularly in the area of educational achievement, at least in the psychological literature. In the past 30 years research in this area 'has burgeoned' yet very little of this work considers adults in terms of mature and older adults, those studies that do concentrate on college/undergraduate level 'adults' (Wigfield and Eccles, 2002). Where studies do exist they are dated and say little about motivation from a modern sociocognitive-developmental perspective (Veroff et al, 1984; Levy-Leboyer, 1984 in Fontaine, 1998). The 'Learning Lives' project does explore adult learners and focuses on agency, which can be considered the application of control in life, but again the modern literature on competence motivation (Elliot and Dweck, 2005) and lifespan theory of control (Heckhausen, 1999) is missing in their analyses. Equally there is no reference to learning as NDS phenomena.

Interest in a life span perspective on motivation is a more recent development (Dweck and Heckhausen, 1999; Heckhausen, 2003; Heckhausen and Shultz, 1995). Yet adulthood is after all the longest and most complex stage of life, spanning late adolescence to senescence. Indeed, childhood in some societies ends at puberty (typically11-13, Hendry, 1999) but adulthood, if you allow 'old age' as part of

adulthood, can last anything from 10 to 100+ years and anyway adults were also once children.

Research Questions

The research questions addressed in this thesis are:

1. What is motivation? Is there a particular pattern or structure of motivation in the individual?

2. What is learning? Why do some persist in formal learning across life? Are there identifiable critical incidents/ attractor states/ bifurcations involved?

The two questions are then linked with the aim of investigating motivation to learn across the lifespan.

In terms of methodology a qualitative (case study), longitudinal approach has been chosen. However, traditional longitudinal work requires extensive resources, unavailable to an individual PhD student, so I'm using, biography or the life story method as a valuable alternative and in some ways is the only possible approach to examine an individual's history. Furthermore life and learning as noted is a unified developmental process, which can better be understood by an examination of real lives played out in a specific historic-cultural background.

I therefore advocate a hermeneutic and contextualised approach much needed in contrast to the tradition of quantitative inquiry, with its prevalent methods of experimentation and psychometric measure. Though I acknowledge that mainstream methods of enquiry have greatly advanced the field of achievement motivation in the past thirty years (Wigfield and Eccles, 2002), I also agree that their continued use in a diverse cultural milieu has led to stagnation. And as such that greater conceptual

understanding can only come about through the application of research that is embedded in an individual's own understanding and meaning making processes (Bempechat and Elliott, 2002). And that developmental change can really only be understood dynamically rather than assuming 'that change... could be approximated by stretching static relationships over the time axis' (van Geert and Steenbeck, 2005, p.244, in van Geert, 2009). This is an important point as in a dynamic model previous states are iterated to generate a new state, whereas in a static model a dependent variable is predicted from an independent variable in a linear way with no reference to recursiveness. Most models in the behavioural sciences are static and linear (ibid). A static model would be for example 'shaping' in stimulus-response learning, where successive actions are reinforced as they approach the desired goal. A nonlinear dynamical learning process would be the insight learning of gestalt psychology, whereby without (overt) trial and error a solution suddenly becomes apparent. As in Archimedes buoyancy principle, to determine the gold content of King Hiero II's crown. Complex learning like this appears to use unconscious processing and synthesis of previous learning.

Individuals own understanding however, may be limited we do not always have great insight into our *own selves* or the lives we have led. Indeed in the field of emotional development a biographical study has provided new insights and a new 'dynamical systems' account of how emotions develop and transform personality that has generated much interest and argues that the individuals studied were not aware of their own emotional structure, or ideoaffectology, that guided their personal and professional lives (Magai and Haviland-Jones, 2002).

The everyday ordinary and extraordinary world of lived experience is, I would argue, the place to look for further insights into the learning that occurs through life and the force that sustains it.

The theoretical frameworks which inform this thesis, are the well established Socio-cognitive approach to motivation/competence (Dweck, 1999, Self-efficacy theory, Bandura, 1997) but particularly the Lifespan Theory of Control (Heckhausen and Schulz, 1995) as well as the less established Nonlinear Dynamical Systems approach in psychology (Guastello et al, 2009).

Theory of Motivation

There are many theories of motivation in psychology but only one has a developed lifespan orientation and that theory is the 'Lifespan theory of control' (LTC) by Heckhausen and Schultz (1995) and this is its value for the thesis. The theory in essence argues that individuals are active agents involved in shaping their lives, that they follow developmental pathways that can be centred on long term goals and that they engage and disengage in certain goals to remain committed to the longer term projects of their lives. In the case here the establishment and continuation as learners engaged in a lifetime of education. After the establishment of this learner identity, individuals try to remain on track in the face of various setbacks and failures. In all they adaptively regulate their motivation and goals through control strategies. These control strategies can be primary or secondary:

> 'According to Rothbaum et al., primary control processes are conceptualized
> as directed at changing the world to bring the environment into line with one's
> wishes. In contrast, secondary control processes are defined as changing the
> self to bring oneself into line with environmental forces. The two processes
> together are proposed to optimize an individual's sense of control, even when

circumstances constrain the individual's capacity to control the environment' (in Heckhausen et al, 2010, p. 6).

Case studies of successful learners are used to explore the extent that individuals can control their worlds in relation to educational goals. Secondary control strategies are important in regulating disappointment and setbacks and are more than just conforming to the situation but are used to overcome the barriers and constraints that are in place including class and gender and the historical economical/political climate. Identity is an integral element of 'successful' learners and an auxiliary theory of lifespan motivation is employed, that of Identity Completion, as it is an aspect of motivation neglected by the LTC.

This theoretical framework is supplemented with insights and concepts drawn from chaos and complexity theory especially that of non linear dynamics (introduced below).

Case studies are applied to fill in some of the ethnographic details of the theoretical framework as this has developed without reference to individual lives. The cases are presented as stories because stories have a natural temporal dimension and allow for an analysis of events unfolding over time. This process account considers how events build upon or are recursively incorporated to suggest an explanation for outcomes.

Non-Linear Dynamical Systems Theory (NDS)

NDS is a way of viewing the world as complex and connected and eschews philosophical and research traditions that reduce phenomena from complex processes to static elements or which see change as linear in the sense that inputs predict outputs in a proportional way. In the analysis of the cases I employ concepts drawn from complexity theory as useful metaphors to explore change in the learner's biographies and their educational trajectories. These abstractions include feedback, attractors,

repellors, bifurcations (catastrophes) and self-organisation and are important features of complex systems. This complexity is embedded in a network of wider social, cultural and political/economic systems and positions and policies such as those centred on Lifelong learning and education.

Lifelong Learning

Contemporary perspectives on Lifelong Learning (LL) expose a contested debate concerning the purpose of continual engagement of education. The 'extrinsic/instrumental' approach sees LL as a means to securing employment and updating to complete in the global economy, this is contrasted with the intrinsic/humanist view where learning is for its own sake and enjoyment, for personal development or assisting the development of other or for the 'critical appraisal of society' (Rikowski, 2007, p.155). The thesis whilst understanding the economic imperatives examines the value of education for the individual cases and concludes that extensive learning is begins as necessary for securing professional status, but is motivated intrinsically as learning for enjoyment and growth purposes, such that lifelong learning should be understood from the perspective of the learner, often missing from policy pronouncements.

In sum the theoretical framework connects a lifespan theory of motivation to complex features of learning contextualised in the socio-historical background of individuals.

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The following literature chapters review the interrelated concepts and theories centred on motivation and the lifespan, learning and systems theory and lifelong learning; biography is taken up in the chapters on methodology and research design.

Chapter 1. MOTIVATION

'If there is a cornerstone in the science of human behaviour, it must be the field of motivation. Motivational theories ask a fundamental question, namely: What moves a person? Thus they are concerned with the prime forces at work in human nature and human culture.' (Richard M. Ryan, 1998, pp. 114-5)

The starting point in understanding motivation is to define what it may be, theories of motivation have evolved over time, but there is as yet no accepted definition of motivation, therefore in the first part of this chapter I give my definition of motivation and return to this viewpoint in the conclusions. Furthermore, in understanding motivation for lifelong learning it makes sense to draw on an account that is clearly centred on Lifespan Development, Heckhausen and Shultz'(1995) 'Lifespan Theory of Control' is therefore drawn on as a starting point. The idea of identity is not strongly featured in the theory, consequently Golwitzer and Kirchof's (1998) self completion theory is additionally employed to help in the understanding of patterning of motivation in the individual.

The psychology of motivation has a venerable history situated as it is in the wider philosophical debates of freewill versus determinism and pursued through conceptual frameworks such as intrinsic, internal, freely chosen, versus extrinsic, external-determined, motivation, and in the paradigms of nature versus nurture and conscious versus unconscious processes.

What moves people?

As the quote above stresses, motivation is at the heart of explaining *why* people do what they do, therefore understanding motivation is fundamental to explaining why individuals engage and persist, or not, in learning projects over extended periods of time, even lifetimes. It will clearly not be possible to review the entire field of motivation but rather this chapter will seek to define motivation and its role in achievement/competence and identity, before concentrating on a lifespan theory of motivation which will provide the basis for examining the research questions and guiding part of the analysis of data.

What is motivation? Firstly, it is an idea not a thing, it cannot be isolated and probed on a petri dish, because it is an inference. Though like other aspects of mind, it has been measured and manipulated as a thing. However, because it is an idea, it should be studied as one through a conceptual framework and the model in the conclusions presents it as an idea of an idea. To do otherwise would be a homology error, that is taking something that holds on one level as holding on another level. For example examining the mind as a physical object rather than non physical phenomena.[6], the

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[6] Even physical things may not be substance/matter but rather processes, Davies, P & Gribbing, J. (2007) The Matter Myth: Dramatic Discoveries That Challenge Our Understanding of Physical Reality. New York: Simon & Schuster

idea that you can upscale from calcium ions[7] to consciousness is a basic reductionist goal or dream (Tallis, 2011). But even simple cognitive processes are materially mysterious, for instance just how do you get from synaptic switching to syntax, or really complex processes, such as whole language, thinking, consciousness and motivation, which may be a metacognitive process in people. Nevertheless, conceptual progress in the study of the mind has in turn made further conceptual progress such as Chomsky's Language Acquisition Device (1965).

Motivation Defined?

The repertoire of human behaviour whilst not limitless is exceedingly variable and all but the simplest of reflexes are learnt (Wagner, 1999) in turn learnt behaviour is, in the broadest sense, motivated behaviour.

Historically, motivation has been viewed as a biological drive and early 19th and 20th century conceptions described innate biological forces that energised the organism and directed behaviour towards specific goals, often to satisfy basic needs: the need to eat, drink, sleep, reproduce etc. For the purposes of the following discussion it is not necessary to outline these various approaches, but rather to note that clearly such biological accounts are limited in giving a comprehensive explanation of human action. In the latter half of the twentieth century, psychology underwent a cognitive revolution and all things mind-related, as opposed to biological, unconscious or behavioural, became prominent. That is not to say that biological or evolutionary models of motivation have disappeared, they haven't (Heckhausen and Shultz' 1995 'control theory' below has a clear biological component) and no developed theory can ignore the brain. However, out of this revolution has come the realisation that the

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[7] Calcium ions and channels are involved in neuronal firing and synaptic behaviour.

social world we inhabit is to a large extent a constructed one (Berger and Luckman, 1966). Psychology during this period then, returned from exterior objective concerns to interior subjective ones and new methodologies took root to reflect this, particularly qualitative ones (Denzin, 1999).

Robert White, notably in his landmark paper of 1959, challenged the understanding of motivation rooted in bio/psycho drives and instead introduced the construct of 'effectance' to shed light on the motivational basis of competence. His impact has been surprisingly slight in the literature on achievement (though this is now currently being addressed, see section below on competence and achievement).

Some 20 years later, cognitive development came to be recognised as a process of interaction with the social environment, not just an unfolding of a bio-maturational sequence and researchers began to consider how children's thoughts and beliefs influenced their achievement behaviour. Notably, Bernard Weiner and Albert Bandura were instrumental in moving the field forward from the mechanical-drive perspective to a modern socio-cognitive one, where thoughts and beliefs about intelligence and notions of efficacy and confidence were shown to impact importantly on the 'need' for achievement (Weiner, 1972, 1992; Bandura, 1986).

A definition.

The standard definition is that motivation determines behaviour by *energising* and *directing* it towards a specific goal. The definition is this, *'motivation concerns those processes that give behaviour its energy and direction'* (Reeve, 2005, p.6).

But that doesn't make sense, fundamentally it is back to front, processes must come from energy and energy is associated with the four (maybe five) fundamental forces

of nature. In which case one should ask the more fundamental question what moves anything? The four forces electromagnetism, weak and strong nuclear forces and gravitation. As Ryan (1998) states in the opening quote we are concerned with prime forces when considering motivation, in the definition below motivation is considered to be a kind of prime force.

Before redefining motivation it is necessary to introduce concepts from physical science that appears in defining complex biological systems i.e., organisms, and those are energy, entropy and its opposite 'negentropy'. Energy is a 'systems potential to "do work", physicists have a specific meaning of "work" [which is] the amount of force applied to the object multiplied by the distance travelled by the object in the direction that the force was applied (Mitchell, 2009, p.42). This is a useful way to see motivation as energy put to work to achieve goal directed behaviour. However, in applying force you use energy and some of this energy is lost as 'heat' this heat loss is referred to as entropy and is a measure of energy that cannot be used to do further work. Entropy is related to the second law of thermodynamics, which effectively states that entropy increases until it reaches a maximum. Entropy is often equated with disorder and systems tend towards increasing disorder unless work is done to change that. In a living system however, energy is stored and used to produce order, structure and organisation, this stored energy is negentropy and it distinguishes an organism from a machine because 'a machine converts fuel into heat and motion, but it does not convert fuel into itself...through feedback (Briggs and Peat, 1989, p. 153).

The definition then can be, 'motivation is the energy that gives processes their behaviour and direction'.[8]

In this sense motivation is a prime negentropic '*force*', it is a force or combined forces of nature in the same way that gravity and electromagnetism are, but it is something more than a deterministic urge. In fact I think it is a pattern of forces or energy flow, unique and emerging through bio-graphy.

When we consider human motivation and motivation to learn, to become competent, rather than seeing motivation as simple drive reduction, reinforcements or behaviours emanating from fixed personality traits, motivation is considered in the *processes* shaping thoughts, feelings and actions unique to our species. Unique, because as noted above we possess unique cognitive capacities and live in a socially constructed world and have to interact with and respond to that social world. Equally important is that process embodies *change,* and dynamical systems theory is all about change.

In social cognitive theory human behaviour results from a dynamic interaction of personal factors, behaviour and the physical and social environment (Bandura, 1986). Cognitions ~ thoughts, beliefs, attitudes and goals ~ are strongly emphasised in the construction of reality and meaning and then in patterns of motivation.

This is not to argue that the socio-cognitive theory of motivation is without fault as it has been recognised that there are a number of shortcomings. The theory currently does not give enough attention to emotion; models of motivation and learning 'struggle with the inclusion of affect' (Boekarts, 2003, p.173), equally others have argued that models of motivation are not very well integrated with cognition

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[8] I'm using the term 'behaviour' in a wider sense than human action, lifeless mechanical or natural systems can behave (the solar system shows behaviour), for the reason that dynamical systems science introduced later draws on ideas from a wide variety of behaving systems.

(Bickhard, 2003) nor are unconscious processes well considered (Freud, 1901; Gollwitzer and Bargh, 2005) and the dimension of time (experience and change) is very poorly factored. To emphasise once again, this point is important for a consideration of motivation to learn across life, as opposed to a concentration on short learning episodes, which has often been the case (Boekarts, 2003)[9].

Therefore, it can be argued that an adequate account of lifelong learning requires a lifespan theory of motivation applied to a learning trajectory or learning career.

So then, any definition of human motivation must be complex, as it is a force emanating from a dynamic interaction of (the embodied) mind operating in the world for a purpose (competence) and has multiple dimensions of affect, cognition, behavioural feedback, automaticity and time extension.

Achievement Motivation and Competence[10] Motivation

Whilst research into motivation is ancient, the study of achievement and motivation appeared at the beginning of modern scientific psychology. The study of achievement striving is argued to have begun with the work of William James (1890) who suggested that achievement is linked to self evaluation and constructs of global self and self esteem (Elliot & Dweck, 2005). Unfortunately, the history of achievement motivation retains a strongly self orientated (self reliance) or individualistic nature, whilst not actually studying individuals and has not engaged too well with issues of context and social motivation (Plaut & Markus, 2005).

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[9] All of this has lead some commentators to conclude that the field is hopelessly complex and fragmented (OECD, 2000). However, this is overly pessimistic as the same could be said for any complex phenomena e.g. the brain, the mind, the universe, yet a great deal has been learnt, and complexity researchers continue to contribute to understanding these formidable systems.
[10] The study of achievement motivation has now been refocused and reorganised around the concept of competence a better defined and broader concept.

Although the analyses presented later are centred on individual experience they take account of the influence of *others and time and place* in explaining individual motivational patterns for lifelong learning. This is an important point because as Martin Covington (2005) puts it there is the 'compelling case that competence is best defined in group contexts, and that any expression of competence is largely a social event' (in Elliot & Dweck, 2005, pxii, 2005). However, this is not something to be overly concerned about as is there is no contradiction in being an individual and a social being, indeed a current perspective of the mind is that it is embodied and the body shapes the mind which in turn is continuous with the environment (Clark, 1997). Competence is at the core of achievement motivation and such motivation is at the heart of striving as a lifelong learner. As noted above, motivation in the first half of the 20th century was dominated by biological (tissue deficit) models of drive reduction positing a small number of primary drives; appetitive, pain avoiding or sexual, until it was noted that many animals expressed a preference to play and exploration over physiological drive reduction (in Deci & Moller, 2005). Out of these observations came the effectance or control striving motivation theories of competence. The seminal work being the writings of White (1959) on competence [11]motivation, De Charms on humans as 'causal agents' (p269, 1968) and Deci's intrinsic motivation (1971).

Achievement and Competence

As the Lifespan Theory of Control (see below) argues from the beginning of life we strive to become competent, remain competent, increase our competence and try to

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[11] These ideas are preceded by the German writers Groos (1901) and Buhler (1931) and their concept of Funktionlust and by Piaget's (1952) 'pleasure of being a cause' in Csikszenthmialyi et al (2005, p.599)

avoid incompetence. Competence is the preferred construct now to describe and analyse achievement and achievement motivation.

The history of achievement motivation research was arguably established by Kurt Lewin and colleagues in the late 1930s, when they proposed their 'resultant valence' theory - a model of expectancy and value. Central processes in this model are judgements of likely success in a task (expectancy) and reasons for engagement (values). According to Weiner:

> 'The historical impetus derives from the work of Lewin, Dembo, Festinger and Sears (1944), who proposed that *level of aspiration,* or the goal that people set in a task, was a function of expectancy and value components. The results of much research showed that level of aspiration depended on prior experiences – successes raised it and failures lowered it, that people felt more successful when they met the goals they set for themselves than with an objective level of attainment, and that level of aspiration reflected individual and group differences'. (2005, p.90)

In this quote you have the agenda for research that has taken us up to the present: level of aspiration (achievement motive), approach (successes) avoidance (demotivation, failure compensation), intrinsic and extrinsic motivation, the goal construct and individual differences as well as social motivation.

Following Lewin's lead McClelland and Atkinson (1953) began to pursue research on their proposed 'need for achievement' construct and developed measurement systems which dominated the field until the emergence of social cognitive accounts of motivation.

At the same time that need for achievement measures appeared, Robert White proposed his effectance motivation theory (1959[12]). Whilst McClelland et al (1953) established a major programme of research such that White's ideas were ignored and his concept of effectance has had little impact until recently, when interest in competence has risen. White's publications use the term competence and his work

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[12] Titled 'Motivation reconsidered: The concept of competence'.

was intended to combat the prevalent behaviourist accounts of motivation and learning based on reinforcement. He noted how human infants and other young animals displayed curiosity and mastery striving in their exploration of the environment. He proposed that mastery was adaptive to problem solving, increased approach behaviour and quelled anxiety. However, as need for achievement construct took hold the idea of competence was sidelined and as Elliot and Dweck have argued this lead to a narrow, conceptually confused and methodologically anarchic literature[13] (2005).

Competence as a construct encapsulates a far wider range of domains than has traditionally been examined; previously the main areas of study were the classroom, workplace and 'ballfield' (Eliot and Dweck, 2005). Furthermore, achievement is considered to lack a clear definition or precision.

Competence is defined as: the condition or quality of effectiveness, ability, sufficiency or success (OED[14]) and the opposite of competence is incompetence: a want of competence, lack of ability or skill, ineffectiveness.

The challenges once competence is accepted for achievement, is to decide how to evaluate it determine at what level it applies and recognise the efforts for its attainment. Evaluation may be absolute, have an interpersonal standard or involve normative comparison (Elliot and Dweck, 2005, p.6).

It is applied to many levels 'from concrete actions (e.g., putting a peg in a hole) to specific outcomes (e.g., a grade on a test) to patterns of skill and ability (e.g., piano

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[13] Andrew Elliot and Carol Dweck in their introduction to the 'Handbook of Comptence and Motivation' (2005) argue for a shapening and increased uniformity of manipulations and measures that will likely produce more comparable results that easier to interpret' (p.8). In their own research they favour quanitative mainstream methods, however, as noted in the introduction there is a need to go beyond such methods to provide contextually richer accounts of competence motivation.

[14] Its root is L. compet-ĕ re, in its post-classical active sense 'to strive after (something) in company or together, (OED, 1989 second edition).

playing) to overarching characteristics (e.g., intelligence) to omnibus compilations (e.g., a life)' (ibid).

Competence is considered to be an 'intrinsic need to deal with the environment' (White, 1959, p.318) and as such is a basic psychological need, essential for well being (Deci and Ryan, 1985) universal and expressed in daily life and throughout the lifespan (Heckhausen and Schultz, 1995).

Motivation and the life span

'*Because of the great flexibility and therefore immense scope of human behaviour the individual needs to select specific behavioural options and protect…against competing action tendencies. This requires a powerful system of motivation and volitional regulation, which guides choice…[and] safeguards and enhances focused commitment*' (Heckhausen and Schultz, 1998, p.51).

The socio-cognitive approach to motivation (and others) although interested in life transitions particularly from childhood into adulthood, is generally not set in a lifespan framework. Though there is one major collection of writings from a developmental perspective that covers various age groups (see Heckhausen & Dweck, 1998) only one theory is properly a *comprehensive* lifespan theory of motivation and this is outlined below.

Developmental psychology now shows a greater interest in the development of adults than previously. However, Achievement Motivation in terms of 'scholastic' achievement across adulthood has received relatively little attention. Nonetheless it is possible to take a lifespan perspective through examining the 'timetable' of life and the regulation of development through *control*. Directed behaviour and goals are

known to change with age and stage of life, however the evolution of motivation across an individual's learning career is not well understood (Billett and Pavlova, 2005).

As the quote opening this section states, the potential human behavioural repertoire is vast therefore, to make development predictable and manageable a process of regulation is required. Regulation of development is achieved by a system of constraints 'both biological (maturation, aging) and societal (age-graded institutions, age norms)' (Heckhausen, 1999 p.1). Development is a lifelong process of adaptation involving growth and decline, gain and loss, and occurs in a particular historical and structural context (Baltes, 1997). Furthermore it involves a dynamic interplay of constancy and change from conception to death.

The Lifespan Theory of Control

'The challenge we posed for ourselves was to develop a conceptual system that incorporates both existing theory and data, accounts for major life-course transitions, and is sensitive to the biological constraints and opportunities characteristic of human development, as well as the social-structural forces that shape individual lives. Our approach enables us to integrate diverse empirical literatures and theoretical perspectives and, we feel, represents an important first step in articulating a theory of development that spans all of the human life course' (Heckhausen and Schulz, 1995, p.284)

'The key proposition of the lifespan theory of control is that individuals endeavour to control their environment throughout their lifespan' (Heckhausen, 1999, p.2).

From the beginning of life infants shows a preference for behaviour-event contingencies and attempt to control such events as do many other animals (Heckhausen, 1999). These associative pairings are at the root of learning and as such have obvious functional value; learning is essential for adaptation and therefore survival. However, as emphasised in the second quote above we are motivated not

just to adapt to our environment but also to actively control it throughout life. To do this the individual must continually adjust their behaviour to respond to their particular developmental 'ecology', such adjustment cannot be achieved by maturational processes or instinct, but must be learnt. Endeavouring to control outcomes in the environment is called 'primary control striving' (described below). 'Controlling outcomes in ones physical and social environment is central for the basic motivational systems of achievement, power and affiliation/intimacy. Thus primary control striving is a universal motivational tendency in humans that underlies more specific motivational orientations' (Heckhausen et al 2001, p.86).

The lifespan theory of control (LTC) has a number of features to explain motivation as a regulatory process including: selectivity and failure compensation, the function of internal and external constraints, primary and secondary striving for optimisation and developmental goals for organisation and regulation, in particular identity goals following from the work of Gollwitzer and Kirchof's Symbolic Self-Completion theory (1998). These will be considered in turn.

Selectivity and Failure Compensation. To cope with the extensive variability of human behaviour, an individual must make selections amongst the possible options offered by their environment and when subsequently exposed to failure and loss must employ various means to compensate for these negative outcomes.

The LTC argues that behavioural selectivity has two main aspects: the need for choice and focused investment of resources (Heckhausen, 1999). Individuals must then make choices about which goals to pursue. Admittedly in childhood many personal, social

and educational goals may be set by adults, however, from late adolescence onwards, particularly in advanced industrial societies, the individual is expected to set and pursue their own goals and therefore regulate their own development, and this is particularly so in an elaborate and complex educational system. However, there are constraints operating which also regulate development such as maturational processes, aging and the social structure (including, class, gender and ethnic differences) and these limit and guide development (p.13). The theory focuses on choices that have long-term implications for development, choices which can enhance or threaten developmental outcomes (not trivial everyday choices such as what to have for lunch or what to watch on TV tonight). So pertinent here would be the choice to pursue further and higher education, if one felt able to do so.

Choosing particular developmental paths have over time increasing consequences and selecting a particular path means that others must be dropped. Furthermore, scarce lifetime will also have been used up and cannot be reinvested without increasing cost to the individual (this is considered again below in the construct of developmental deadlines).

Implementing a behavioural choice is only successful when resources are effectively focused on the chosen activity. Applying resources (time, money, motivation) particularly to long-term or lifetime goals~ raising a family, pursuing a professional career~ requires major motivational means and heavy investment, with the need to make the right decisions for successful development and regulation. In terms of an occupational career (contingent upon the occupation and its structure) it makes sense to follow an education and training relevant to the occupation and then to work and up-skill in that career, rather than making repeated shifts in occupation (p.12).

However, economic, historic and personal circumstances may not always make that possible.

In summary choice and investment are risks that can enhance adaptation or if unsuccessful limit and threaten development. At this point when failure or loss occur, mechanisms of compensation are needed to help the individual cope and continue.

Errare Humanum Est

Failure Compensation: inevitably individuals will experience failure, learning itself 'is initiated by error, by failure of the anticipations involved in representations', (Bickhard, 2003, p.51). Failure presents important risks to development, especially when responses are non-adaptive or irrelevant to particular goals. However, learning is the main process by which behaviour can be optimised, though this is most efficient when we are operating at intermediate levels of difficulty or in the Zone of Proximal Development (Vygotsky, 1978). Significantly less than this and the behaviour has been mastered and is simply being performed, whilst significantly greater and the capacity is well beyond the individual at that point in time. It is important for students and their teachers to be aware of their achievements and limitations throughout their learning career as over persistence in unachievable goals is harmful (Dweck, 1999). Heckhausen states it thus:

> 'In practical terms… an individual will strive for goals that are just beyond his
> or her reach. Thus a child will attempt a task that she has not yet managed but is
> just one step more difficult than the most difficult one mastered so far (H.
> Heckhausen, 1982, 1984). An athlete will train for the competition that he has
> not yet been in and mastered. At the end of the lifespan this principle could be
> transformed into: Strive for goals that were mastered yesterday but may be
> unattainable tomorrow. Thus the elderly and partially disabled person will fight
> against giving up self care to others every step of the way.' (1999 p.16)

This quote captures well some of the processes of continuous growth and decline gain and loss, but on the surface is somewhat superficial and obvious. In the processes of gains and losses there are many emotional outcomes to deal with especially those relating to failure.

In compensating for failure two main negative emotional consequences are identified: frustration of goal intent and negative self perception. Managing frustration is important for goal commitment and persistence in the face of difficulty and this is achieved (or not) by *anticipatory self-reinforcement,* that is imagining the success, and the subsequent positive feelings of achievement, status, improvement and others esteem etc. Heckhausen argues that this mechanism allows for the delay of gratification for long term goals as well as buffering against short term failure. Heckhausen has said that as a scientific construct it converges with Bandura's concept of self efficacy (p.17) which is a good predictor of effort and persistence when encountering obstacles (it appears to me to be identical) so as an aspect of the theory it is well established (Bandura, 1996).

Failure experiences more often than not generate negative information that can be a powerful threat to esteem, confidence, self ascribed ability conceptions and therefore to future courses of action. A student repeatedly doing badly in a particular subject is likely to lose interest, devalue the subject and even give it up if possible. Carol Dweck has shown ability conceptions and implicit theories impact significantly on learners of all ages and like Bandura's work, show that some are very vulnerable to failure and will respond by showing a helpless pattern of negative affect and behaviour that is detrimental to development. On the other hand there are those that expect and accept setbacks and so adjust and adapt to meet them (Dweck, 1999).

To compensate for obvious external failure it is necessary to summon internal resources or strategies of compensation (such as re-evaluating your goals), in LTC these are known as 'secondary control strategies' and are examined below. In lifespan terms accumulated frustrations represent a significant 'load' for compensation and with lifetime becoming increasingly restricted the 'effects of wrong life decisions can be disastrous' (p.17). This is more so in some domains than others, for example a professional career or raising a family. However, in terms of education and training, it should be possible, within reasonable parameters of ability to pursue learning at most stages of life. However, just because opportunities are available that does not mean that they can be successfully achieved, because that requires appropriate investments, a balance of constraints and chance and an internal motivational *system* that regulates behaviour in an adaptive and long term way. In terms of motivation for lifelong learning this involves a complex dynamic interplay of psychological processes and socio-structural factors that we do not properly understand for the individual.

Constraints are both limitation and developmental scaffold.

'The scope of developmental change in humans over the life course is larger than in any other species. From complete helplessness, individuals evolve to develop extremely sophisticated cognitive and motor skills that enable them to exert extensive control over their environments.' (Heckausen and Shulz, 1995, p.289)

In LTC the life course is involves a number of important transitions that are sensitive to a number of constraints, age graded and arising from biological (maturation, ageing) and cultural institutions and norms, these then strongly influence what the individual can do and when and therefore provide a time-ordered sequence for managing or regulating development (Heckausen and Shulz, 1995). There are three main sources of constraint; biology, social structures and age norms.

Biological or Maturation constraints – physical and cognitive capacities show a pattern of growth, plateau and decline over the life course representing underlying biological patterns of maturation. Biological constrictions on behaviour and capacity follow an inverted U-shape trajectory: born helpless we develop a complex repertoire of increasingly sophisticated motor and cognitive capacities across childhood and adolescence before reaching a state of proficient adult functioning, which then peaks and declines as old age approaches. Advancing old age then brings losses in functioning of motor and cognitive ability and related health declines including various diseases, chronic conditions and disabilities, which will eventually end in death. Pursuing life goals in the face of decreasing resources requires either increased effort or the relinquishing of those goals.

Heckhausen proposes that 'developmental deadlines' represent a point of goal attainment where success is virtually impossible as the deadline approaches and definitely impossible as the deadline passes. Therefore, investment in a post-deadline goal is 'futile' (Heckhausen and Farrugia, 2003, p.89). There seems to be very few of these developmental deadlines. The authors cite two, childbearing and finding an intimate partner. The first is convincing[15], the second less so as it is possible to find partners at any point in adulthood. Nonetheless, a range of socially constructed 'deadlines' exist that do provide opportunities and constraints and are implicated strongly in the regulation of development and are very useful for explaining goal engagement, vigorous investment and withdrawal. For instance, a student revising

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[15] Though postmenopausal motherhood is now possible, if controversial, through IVF.

hard for final exams, is making an appropriate investment of resources, revising after the exams have passed is absurd.

Socio-structural constraints, three types are identified: lifetime related, chronological age based and age sequential.

A limit to the time we have (lifetime) has implications for developmental goals and life planning as clearly there is a final deadline for life (the upper limit is about 120 years); in addition to this there are many deadlines or endings in other domains. In education and work certain phases come to conclusion; so for example nursery education comes to an end when primary schooling begins and this ends with the start of secondary schooling, which in turn typically finishes before employment or further and higher education. Career development, promotions and retirement laws also bring various endings in the world of work. However, it must be noted that many of these are culturally determined and not fixed or static end points.

Chronological age is a constraint due to the age strata of most (if not all) human societies and this generates influential age norms for many life events and transitions (Heckhausen, 1999). In the UK we live in an aging and ageist society; again using the example of education, the state provides free education for children and subsidised education for youth but the older you become, the more you experience fewer opportunities and tighter funding. As an example of this ageism an NIACE report states that the UK government and its Sector Skills Development Agency approved agreements for a number of providers to recruit more than twice as many young people than actually exists in the UK! (NIACE, 2006). (Issues of adult and lifelong learning are examined in Chapter 3.)

Age-sequential constraints result from a channelling of developmental and life-course processes into 'biographical tracks' (Heckausen and Shulz, 1995). Life-course sociology has identified such tracks as:

> 'segregated biographical paths in a given society…that give rise to intracohort heterogeneity…A typical case is professional specialization, which yields ever increasing levels of expertise in the chosen field, while forcing one to give up on non-chosen alternative domains. Along such developmental tracks, functioning is optimised, but crossovers to alternative life tracks become increasingly difficult.' (Heckhausen and Shulz, 1995, p.295)

This is a significant problem in the post-Fordist age of precarity, making long-term career planning today more difficult (Dörre, Kraemer and Speidel, 2006).

Heckhausen recognises that these constraints are experienced differently by the 'socially unjust allocations of resources', however, she does not take a critical stance but instead considers the function that these constraints have for the regulation of the individuals' life course. However, I think that these structural barriers (poverty, class, gender, ethnicity, disability) do need to be considered more closely as they have important implications for an individuals' outcomes and help to explain when and why people engage in learning and how they subsequently fare and they must also be important for explaining how biographies evolve. However, it is understandable that these barriers are not built into the specific detail of the theory as they change with historical time and social and individual circumstance. Also, there is an argument that even during social upheaval certain age normative transitions do not change and the examples given are school graduations and marriage (noted below). Nonetheless, the theory needs to be expanded and explored with the details of social-structural barriers built in.

Heckhausen and Schulz have applied their theory to a study of sociohistorical transformation in their case study of German unification and conclude that developmental regulation remains adaptive under changing and challenging conditions, however, when the circumstances are severely adverse then the limits of control are reached with calamitous effects. I think that these socio-historical challenges are worth examining in the cases of individual experience and I attempt to gauge their impact in the case studies that make up the data and analysis of this thesis.

These age sequential constraints applied by the social structure create 'segregated biographical paths' which 'canalises' the life course (p.31). For Heckhausen this socio-structural canalisation helps an individual to focus on a given life course path and discourages shifts and therefore enhances gains in acquired functioning (such as occupational competence) and in turn increases access to resources. This is referred to as an accumulation effect, or the 'Mathew effect' however the accumulation can be both negative and positive; positive in terms of accumulated advantages (status, wealth and other capitals) but negative in terms of the flexibility to choose other, possibly more rewarding careers, practices, lifestyles etc. Alternatively this canalisation could be perceived as a deliberate strategy for maintaining the status quo, for instance young people from working class backgrounds might be encouraged to pursue vocational qualifications over academic ones and adjust their expectations of possible University graduation.

Age norms. There is a good deal of research on the power and pervasiveness of age norms and stereotypes in the sequencing and control of behaviour. Such age norms may have previously been enforced by social institutions but are considered to have now come to be internalised ways of thinking about human life (Heckhausen, 1999

p35). Age related norms differ across societies, with more rigidity in pre-industrial societies as distinguished from the greater manoeuvrability in western industrial contexts. Though of course continuing class differentials bring into question just how much manoeuvrability there is.

However, age stereotypes still provide frames of reference that proscribe on and off timing for many developmental events. Heckhausen (1999) has argued that the controlling force of age-normative conceptions comes from that fact that they are not institutionally enforced, but of course many are, e.g., voting, age of consent, getting married, criminal responsibility and so one. They can represent potent constraints that can narrow the options along the life course and can also constrain the thinking of individuals. Many adults I know who returned to learning in their 30's and 40's wondered if they had simply left it too late and if they would be able to cope as well as younger students. Though this can be contrasted with others who felt that having learned much from previous life experiences (work, raising families) they were better placed to cope. Nonetheless, being off-time or the 'wrong age' may make it harder to study, and Heckhausen has argued that 'the "off-time" student has to invest many more personal resources so as to compensate for the lack of socio-structural support' (1999, p.31). To what extent that is true in the learning age is considered later.

Age sequential structures. This refers to the 'canalization' of life courses whereby choice is restricted and individuals are channelled into particular 'life-course tracks' (ibid). Schooling/education again provides an example, the sequence can run as, nursery-primary school-secondary school- sixthform/college-university-graduate school. And there are age and institutional norms here, so for instance if you want to repeat part of your education as an adult you go to a college, maybe take basic literacy

and numeracy courses or GCSE's or 'A'levels, you do not go to a primary or secondary school[16]. So this fits in with ideas of 'normal and desirable biographies' (ibid). For adult learners though, there may be many examples of discontinuity in the sequence of their learning career.

The life course then is set in a framework or context of biological and cultural constraints and opportunities which in turn regulate development. The regulation of development is achieved through the control of the external and internal environment of the individual.

Primary and Secondary Control

"You cannot prevent the birds of sorrow from flying over your head, but you can prevent them from building nests in your hair." **Chinese Proverb**

Control of ourselves and our world is a fundamental human desire and a capacity extending with varying levels of skill across the lifespan. It is essential for any individual to adapt to their physical and social world to achieve well-being. There are a number of theoretical perspectives on control, though the important one for the LTC is the dual system of Rothbaum, Weisz and Snyder (1982) positing 'Primary' and 'Secondary' control.

Control itself is understood to be the extent that an agent can produce a desired outcome (Skinner, Chapman and Baltes, 1988 p.118) or cause an intended event (Weisz, Rothbaum & Blackburn, 1984 p.195). Though that is not to suggest that there is consent in the control literature, Skinner (1996) has concluded that most researchers

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[16] Though in 1993, Brian McKinnon, aged 32, enrolled at his old school as a 17 year old pupil by the name of Brandon Lee, in order to study medicine. He passed his highers and was given a place at Dundee University medical school. His deception was uncovered and he was expelled. He was last reported as homeless in Glasgow as a result of the negative media attention. Though you could take this as an example of the strong proscription of a 'deviant' adult , returning to a setting for the education of children.

are referring to direct personal control, whilst others include concepts such as proxy and collective control (Yamaguchi, 2001).

Primary control is directed by individuals achieving 'control by bringing the environment into line with their wishes,' whilst secondary control is brought about by 'bringing themselves into line with environmental forces' (Rothbaum, Weisz and Snyder, 1982, p.5) or conforming. Primary control in the physical and social world is brought about by individuals applying 'personal agency, dominance or even aggression' (Weisz et al., 1984 p.955) whilst secondary control accommodates external reality by fitting in and changing the internal environment (cognition).

Heckhausen and Shultz assert that there are probably a very small number of fundamental motivating systems for human behaviour (1998, p.51) and that striving for competence or mastery is one of them, and the more developed this is the greater the 'optimisation' of the individual. Primary control in the theory is founded on the powerful preference for behaviour-event contingencies. From the first moments of life the infant on becoming aware of a contingency shows the desire to produce and control it. As noted this tendency is held to be adaptive in the animal world, supporting the individual's need to survive and adapt (Heckhausen and Farrugia, 2003). Primary control enables the organism to 'successfully forage, seek shelter, compete for mates, fight off predators and protect and care for its young (ibid, p. 86). In this quote can be seen a strong evolutionary/biological emphasis in the LTC. The opposite of control is of course non-contingent behaviour relations, dependency/helplessness, and this can have a serious impact on the individuals adaptiveness and development (Seligman and Elder,1985).

This fundamental need for mastery then opens up a rich array of behaviours essential for control and autonomy in the short and long term. As a result of its fundamental

functionality Heckhasuen and Shultz argue that primary control striving has 'primacy' in the motivational system, this echoes Carl Rogers (discussed later). Primary control *striving* is a stable motivator, whilst primary control *potential* shows radical change over the lifespan (Heckhausen and faruggia, 2003, pp86-87). Importantly, they assert that primary control is invariant across time and culture (Heckhasuen and Shultz, 1995, p.286). Gould (200?) has challenged this with arguments of examples drawn from Eastern cultures and this is supported by the Amae system in Japan where primary control strategies do show cultural difference (where indirect primary control is employed with subordinates manipulating others in power to achieve goals), and this is a criticism and elaboration of Heckhausen and Shultz position of direct personal control (Yamaguchi, 2001).

Figure 4: Hypothetical life-course trajectories of primary control potential, primary control striving and secondary control striving (Heckhausen, 1999a)
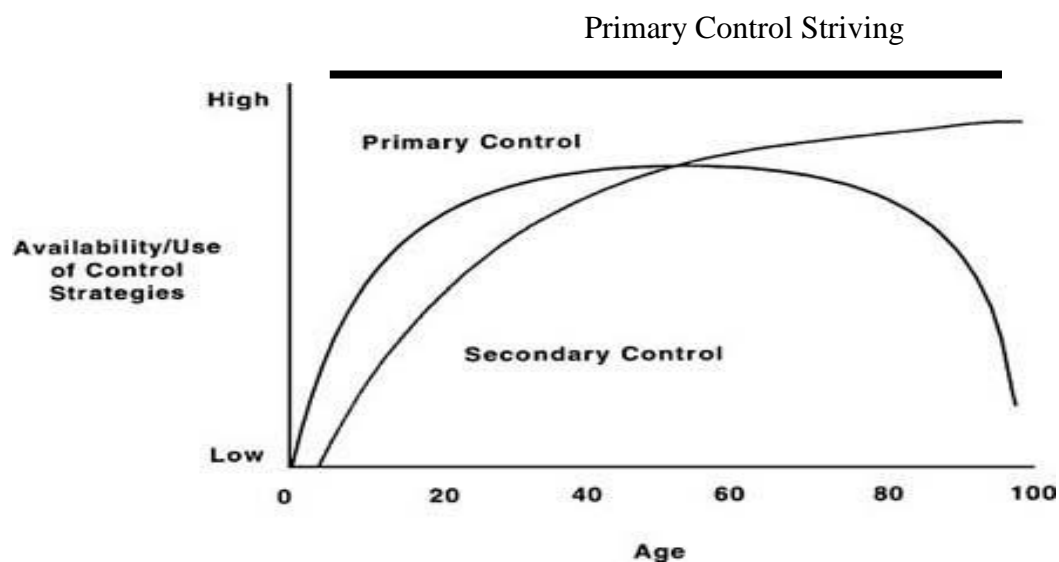
Primary control striving is considered a stable motivator across time and is represented by the solid line at the top of the diagram (like a soliton). Primary control

potential however, grows, peaks, plateaus and declines across the lifespan. In infancy the potential is low but as childhood develops so does mastery of the environs to a peak in young adulthood, levelling out across midlife before beginning its descent through loss and increasing failures in old age.

Secondary control on the other hand, continues its ascent across the lifespan, assisting primary control by 'protecting and enhancing motivational resources' (Heckhausen and Farrugia, 2003, p.87). It is argued that secondary control strategies emerge in mid-childhood until a basic set are established, they are then used as necessary to compensate for failure throughout life but are needed increasingly in middle and old age, though research evidence is not well established.

Secondary control involves effective manipulation of internal states (emotions/cognitions) using a variety of strategies and is used to manage selectivity and failure compensation. Secondary control is conceived of as ancillary but not necessarily an inferior or dysfunctional force (Heckausen and Schulz, 1998).

Compensation following failure is a common experience and necessary for short term ego protection and for long-term achievement striving and developmental goal attainment.

Failure is an inevitable experience that is both adaptive and maladaptive. Adaptive because making mistakes is how we learn and develop and maladaptive, when it causes us to undermine our self perception, esteem, confidence or determination. Failure produces two kinds of costs, goal frustration and negative self perception. Secondary control strategies are employed to buffer these negative effects to ensure continued persistence in goal striving and whilst providing protection to the self. Of course some failures may be so challenging (repeated or sudden and extreme) that

attempts at control are futile and the severe distress cannot be compensated for. Heckhausen cites the case of those experiencing a stroke whereby:

> the individual's motivational and emotional resources may be inadequate to buffer the immediate threats to primary control. Thus when such losses occur suddenly, and substantially disrupt the individuals experience of primary control, depressive sypmtomatology and long term negative effects are frequently the outcome (Schulz, Tompkins and Rau, 1988)

(Heckhausen, 1999, p.82).

In one of the biographies considered later, the learner suffered a debilitating illness in his early 50s and following a period of some years of recovery, returned to learning. Interestingly, Heckhausen has said that people may re-establish a new system of control 'within the constraints set by the disability (p.82-3) and goes on to discuss an interesting scenario of loss of primary control from the collapse of the social and economic system of East Germany, but does not examine an individual person as a case.

Optimization

The process of human development from childhood into old age is considered to be an age-related change in adaptive capacity, in which there is a continuous interplay between growth (gains) and decline (losses) (Baltes, 1997).

Paul Baltes (1939-2006) and Margret Baltes (1939-1999) have proposed a model of lifespan development that combines the elements of selectivity and compensation with a process of adaptation that aims to maximize gains and minimize losses, this process is called 'optimization'. Taken together the three component model is known as 'selective optimization with compensation' or SOC model (Baltes, P & Baltes, M., 1990). The SOC model has been combined with the strategies of primary and

secondary control in the LTC theory to provide a model of optimization in primary and secondary control known as the OPS model.

'In the most fundamental sense, optimization reflects the view that development is the internally and externally regulated search for higher level, efficacious, and desirable levels of functioning' (Marsiske, 1995, p.49).

This echoes the idea of 'self-actualisation' used by Maslow (1955) however, the concept has been criticised as transforming 'a descriptive notion into a moral norm'(Vitz, Paul C. Vitz, *Psychology as Religion* (1994) p. 54). I want to consider optimisation here as just a descriptive notion, whereby people do try to maximise gains and limit losses to make the best of their situation.

OPS Model

The LTC posits two fundamental requirements of functioning, selectivity and failure compensation and two types of control, primary and secondary employed for the 'higher order' regulatory process called optimization (Heckhausen & Shultz, 1998, Heckhausen and Dweck, 1998).

Primary and secondary control strategies are subdivided into: selective primary, compensatory primary, selective secondary and compensatory secondary control. The four strategies, which can be either functional or dysfunctional, are regulated to promote long-term primary control.

Heckhausen argues that 'motivation for primary control provides the impetus and regulation' of the individuals' interactions with the environment (1999, p.87) and that selectivity and failure compensation are managed by the four strategies.

Figure 5: Optimisation in primary and secondary control (Adapted from Heckhausen, 1999, p.88)
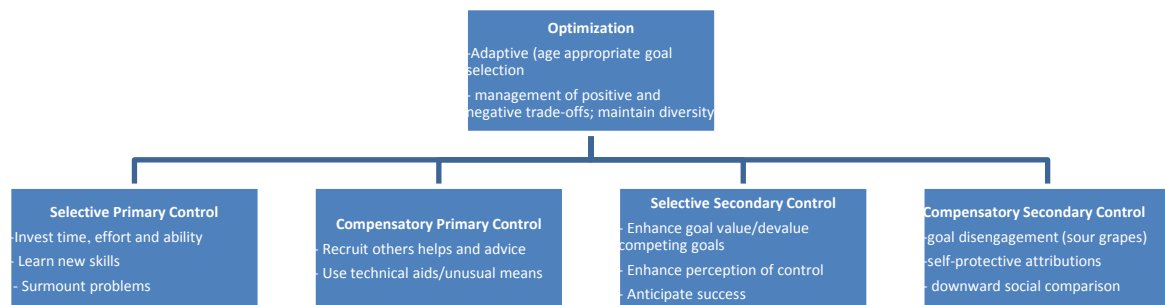
The individual, in order to maintain commitment to a specified goal, engages selective primary control by applying time, effort, skills and ability. Furthermore, the acquisition and refinement of skill/ability is included as necessary persistence in the face of difficulty.

Selective secondary control is focused on the internal representations such as the value of goals over the devaluing of non preferred alternatives and perceived control and anticipation of future success.

Compensation strategies.

Compensatory Primary Control (CPC) is invoked when the individual has reached the limit of their capacity (for various reasons) and must employ external assistance in the form of advice, others help and perhaps technical aids (for mobility or perception, hearing seeing etc). Heckhausen states that this 'may happen in older adults due to age related decline, but also in infants, children or inexperienced individuals in general due to immaturity or insufficient skill' (p.91). However, rather than being an

immature or compensatory strategy, some see this as a proxy form of control that can be the only alternative and also highly effective and Yamagugi has shown that the Japanese system of Amae, manipulation of powerful others, is regularly used by subordinates to effect control, 2001).

For instance, Compensatory Secondary Control, appears to be similar to a number of ego protective approaches inevitably following failure and loss. This serves two primary functions- to assist in goal disengagement and to buffer the negative thoughts and feelings that follow.

Developmental Goals as conceptualized in the LTC are long term action 'units' that help in the regulation of development, in that they are organizers and motivators of behaviour. There are quite a number of different developmental goals identified in the literature, but important in this area is the idea that developmental goals have a temporal aspect, that the individual is an active agent and that they are related to his or her identity (Erikson, 1959).

Developmental goals

In a mobile and flexible society there is greater potential for control of one's life trajectory, however, major developmental goals, such as completing school, starting work, beginning a family or preparing for retirement are not 'arbitarily distributed across the lifespan. Instead, opportunities for attaining particular life goals vary systematically across chronological age' (Heckhausen & Farruggia, 2003 p.88) and form curves of varying steepness according to windows of possible attainment.

Figure 6: Hypothetical trajectories of different developmental goals. The y axis equals 'opportunities' the x axis, 'lifespan'.

The first loop can be formal schooling, the second, further/higher education, the third, work career, the fourth marriage, the fifth, grandparenthood.
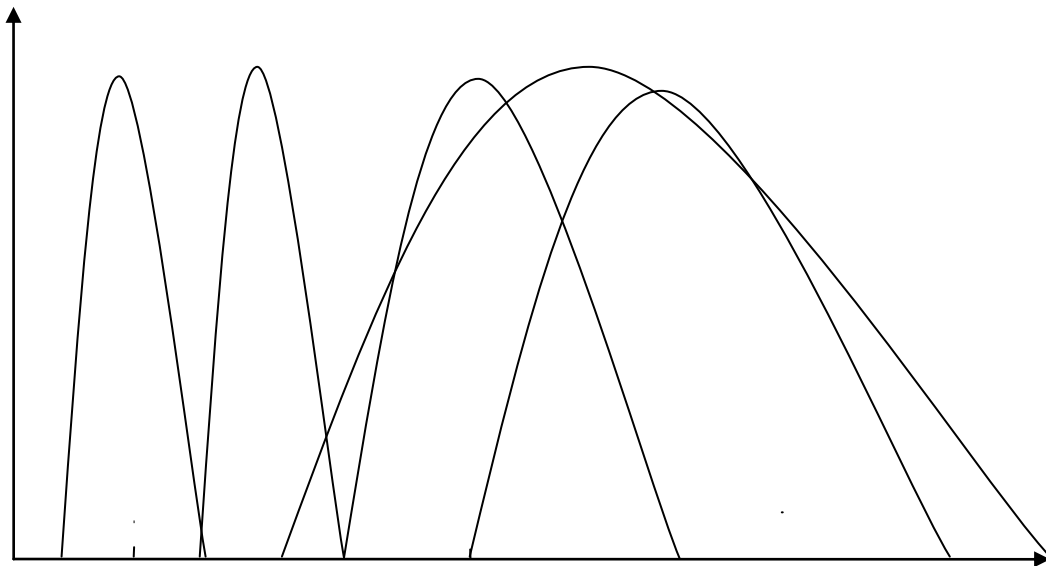
Important in this conception of a developmental timetable is the idea of 'deadlines'. A developmental deadline is the point end of an opportunity, deadlines motivate the individual to disengage with the particular goal and invest resources in other goals. Such goals have a potent influence on the behaviour of the individual, as a deadline approaches the individual may have to make urgent and intense investment, until the goal is hit, then at the point of passing, disengage and perhaps engage in compensatory mechanisms.

As an example a student engaged in preparation for 'final exams' may start to 'cram' and revise for the upcoming tests, spending late nights as the exam days approach, then as each exam passes forget about them and concentrate on the next until all are

complete, at which point they may feel satisfied that they have done enough or engage in ego protection if they feel they have failed; clearly continuing to revise after the exams would be futile and absurd.

Heckhausen has proposed that in the cycle of opportunities individuals use an action strategy based on the 'Rubicon'[17] model of action developed by her father Hienz Heckhausen (1991, in Heckhausen & Farruggia, 2003). This decisional processing model can be illustrated thus:

Figure 7: Action Phase model (2003, p.90)
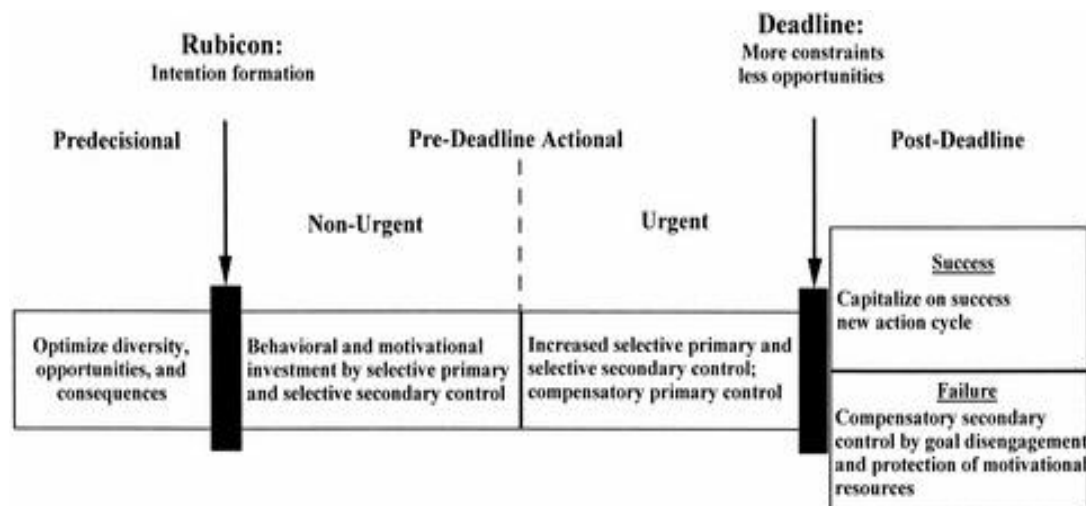
This aspect of the theory uses this model to explain actions directed at developmental goals (Heckhausen & Farrugia, 2003, p.89) rather than goals in general and the management of life transitions.

During the pre-decisional phase the individual weighs up the options and costs/benefits of various action alternatives. Then the individual chooses a course and crosses the Rubicon into the post-decisional phase where goal engagement requires action or control processes. As the individual moves closer to the goal deadline (as in

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[17] The point of no return, refers to the action of Julius Caesar when he led his army across the river Rubicon in 49 BC and effectively began his war against Pompey and the Optimates.

the example above) there is a phase of urgency, then following the passing of the deadline, a phase of disengagement and compensation occurs.

What are the developmental goals with clear deadlines that the theory can be applied to? As noted there are relatively few it would seem, Heckhausen uses the examples of childbearing, successfully, and the establishment of intimate relationships, I feel less successfully, and the transition from school to work in the German 'Realshulen' system, again successfully. However, these are but a few of the many transitions of life and in terms of learning and education, it is possible to continuously repeat aspects of one's education and strive for qualifications that have failed to be gained. And seeking to be competent at anything may take a very long time and require many repeated attempts; therefore deadlines may not be as 'dead' as envisaged.

However, the Rubicon model has been used convincingly by Gollwitzer (Gollwitzer, 1986, 1998) in application to the achievement of identity and interestingly he states that 'the pursuit of identity goals is enduring over time, cannot actually be completed and are not easily halted by failure' (p.389). I think that is very important in accounting for lifelong learning and persistence. In this respect there can be no deadline in becoming who you want to be or not be, except the literal one.

Identity

"Hao-xue-xin" is the Chinese term meaning heart and mind for wanting to learn.

In China an important aspect of identity is that of pursuing self improvement, such that many people conceive of themselves as operating in a cultural meaning system and that part of who you are 'has an enduring and inner desire for learning' (Li, 2002, p.54).

Identity is concerned with who you are. James (1890) broke identity down into physical, social and personal aspects and various research traditions have followed this classification (in Golwitzer and Kirchof, 1998).

Gollwitzer and Kirchof's Self Completion theory, extending Wicklund and Gollwitzer's symbolic self-completion theory, (1986) differs from previous research into the self in that it focuses on how the self is achieved *behaviorally* as opposed to how the self is cognized, though this is not neglected. It also draws on the action theory of Heinz Heckhausen and relates the concept of identity to lifespan development because the 'desired' self has to be attained by doing something. The theory describes the process of striving for self-defining goals, like being a good parent, athlete, professional etc. People persistently pursue self-defining goals and on the way accumulate 'symbols or indicators' (p.417) showing the possession of the wished for identity. Identity as noted above is never completed and depending on the identity to be strived for may have many staging posts on the way, as well as many sub-goals and alternative routes to identity. Professionals have a number of goals to pursue. So for instance I might consider myself an academic psychologist and in the development of this identity I have completed a degree, Masters, work as a teacher at a University and I am now in the process of completing this PhD; these are symbols of my modest claimed for status. But they are just the beginning, to continue to consider myself an academic, I have to aim for other symbols such a senior lectureship, then perhaps a readership or professorship as well as an appropriate publication history, grants, awards etc.

This perspective is in contrast to the idea that identity stabilises and becomes consolidated in middle age (cf. Brandstadter &Rothermund, 1994). Also as Shultz (1998) has pointed out to what extent do 'self symbolizing processes characterize the

behaviour of individuals whose life course trajectories include few externally defined gradients or symbols to strive for, as might be the case for the person stuck in a "dead-end" job' (S, p.433).

It is not enough however, for the individual to feel a sense of identity, this identity needs to be acknowledged by others, it has to become a 'social fact' (p.395), so self completion is achieved when others recognise the relevant symbols; title, position, awards or whatever.

Like the LTC the SCT has a compensation element. In striving for a self-defining goal the individual may fail to gain the relevant symbol, when this happens they experience a sense of incompleteness, hence the title of the theory. This can occur when making comparisons between more successful peers or when negative feedback is given by a significant other (e.g., teacher). This in turn motivates the individual to tenaciously pursue a committed to goal and the associated symbol, by alternative routes which are usually possible. Golwitzer and Kirchof (1998) have stated that 'identity goals commonly imply a whole array of symbols, the individual does not have to focus her or his compensatory efforts on the experienced shortcomings or incompleteness. Compensatory efforts can be expressed in any of the many alternative routes of self-symbolising'(p.396).

The experience of incompleteness is motivating, Brunstein and Gollwitzer (1996) have argued that when people experience a state of incompleteness they feel a frustration that transforms itself into determination to overturn the failure and so individuals seek opportunities to compensate. An example is a musician taking part in a competition, doing badly, then increasing their practice levels, or purchasing a new instrument. Though this is a hypothesis, if the threat is perceived great enough you

may wish to make a shift in identity and engage in other behaviours that support that identity.

However, having established an identity it is more likely difficult to deflect someone from maintaining and enhancing that identity. For this reason identity and goal pursuit are lifelong. Golwitzer and Kirchof (1998) argue that just because someone has achieved a powerful symbol, confirming their identity, incompleteness will eventually occur and the search will go on for other symbols as in the saying, 'don't rest on your laurels'. This fits in with the view of LTC that primary striving is continuous, people are not prepared to give up independence for example easily, and likewise individuals are reluctant to relinquish a long fought for identity. [18]

Yet people do, and For a number of reasons; failure on an identity 'path' may mean that future options are closed down, like failing your medical degree (the case of Brian Mackinnon above however, shows the lengths some may be prepared to go to); lack of social support from others who do not recognise their identity (adult students I have known have dropped out due to lack of support or even hostility from family members); and competition between roles i.e., as a parent versus professional commitments. Nonetheless, the process of identity completion may be a powerful self organising principle and a pattern that should be looked for in the analysis of the data from the case studies.

LTC's application to lifelong learning trajectories.

The lifespan theory of control and self completion theory have many useful components that can be applied to the question of why someone would engage and

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[18] Also, self symbolizing can assist primary control, especially when the goal is long term such as establishing and maintaining professional status, the individual remains on track by self symbolising whilst attaining the necessary skills and knowledge that establishes them as an expert.

persist in learning particularly over extended periods of time. The specific application of the theory is considered in the section on design.

In the following chapters selective literature on learning and dynamical systems and lifelong learning are examined.

CHAPTER 2 LEARNING

Defining Learning

> 'Persons are complex dynamic open systems with multiple emergent properties, such as representation, motivation, learning, emotions, consciousness, language, and so on, and will not be understood without honouring that fundamental dynamic nature' (Bickhard, 2003 p.4).

Human learning is clearly complex phenomena with a plethora of related concepts and theoretical positions. Chaos, complexity and non-linearity are aspects of change and change is at the heart of learning processes. Complexity ideas derive from a technical-scientific tradition particularly mathematics, physics, meteorology and biology, but have 'relevance to contemporary social [and psychological] theory building' (Mackenzie, 2005, p. 45) as they supply metaphors to better capture the dynamics of change, connection and holism. Learning and motivation can be characterised as nonlinear, dynamical processes allowing flexibility and driving change in the individual. Important here will be the concept of attractors and self organisation as again they can provide a useful way of understanding how particular events can influence an individual's learning trajectory.

All life forms and some non-living systems learn[19]. It is fundamental to life and the more complex the organism the more elaborate the learning processes become. It is no surprise then, in considering human learning, that there are many different theories, some complimentary some contradictory. What is surprising after 100 years of

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[19] For instance neural networks learn from experience and more than that they can generalise, that is transfer the learning to new situations. Or Sony's AIBO a robot dog that learns and matures.

modern study of learning, is that there are few attempts at a comprehensive or integrated framework accounting for the multiple influences on learning (though emerging ones are discussed below).

Midway through the last century Ernest Ropiequet Hilgard (1904-2001) in his seminal text *Theories of Learning* concluded that:

> concepts are not yet in order for a satisfactory comprehensive theory… The search for appropriate concepts is not merely an exercise in defining or classification. It requires a high order of theory construction based on open-minded acceptance of demonstrated relationships and in addition contributing to the ordering of such relationships into a system (1948 pp.326-327).

Hilgard realised that a comprehensive, systems theory of learning was called for but would require rigorous theory construction founded on more than quantitative, experimental data (p.328). Fifty years on from this Anna Sfard (1998) concluded that a global theory of learning is unlikely and that the best that can be hoped for is a 'patchwork of metaphors' (p.12). She states that this is the *realistic* view and this is echoed in the work of Peter Jarvis who has said that any comprehensive theory of learning is unlikely, that 'we can never have such a theory…[only] a wide variety of disciplinary standpoints' (p199). However, studies in complexity and understanding of complex phenomena are still in their infancy, but multidisciplinary groups are trying to understand the complexity inherent in learning processes, for instance the Santa Fe Institute (http://www.santafe.edu) and it would seem too early to say they will not succeed. Also in terms of Jarvis's work, his whole approach is based on an existential - experiential model, the idea of experience is at the heart of his model, however, his view of experience is so broad and all encompassing that it is no wonder that he feels learning to be mysterious and that a complete theory would equal understanding 'life itself to the full' (2006, p.199). This is understandable as *learning,* like the brain or the universe is a daunting subject of study.

Nonetheless, there would seem to be a need to go beyond a patchwork if there is to be a better understanding of a *learning society* or *lifelong learning for all,* in the sense that at the heart of these ideas is learning, so a beginning should be a complex and comprehensive understanding of learning. And indeed although researchers such as Peter Jarvis deem it impossible they are nonetheless seeking a more 'Holistic' understanding of human learning (Jarvis and Parker, 2005). I think that advances in holistic science will offer up meta frameworks if not a meta-theory of learning, for reasons that learning is an emergent process and that simpler component processes might be identified that cover a wide range of phenomena. The use of *dynamical minimalism*, employing 'mutual feedback loops among theory, computer simulation and empirical research, (Novak, 2004) may be a way forward.

Overview

Learning is at least a cognitive-affective-socially dimensioned process of *acquisition* of knowledge and skill and a process of *participation* in the communities creating knowledge and skill[20].

A comprehensive theory must account for the interrelationships of embedding learning in the biological substrate, cognitive change, social and emotional development, conscious and unconscious processes and motivation and it will also be contextual or situated in time and place. This would be a dynamical neuro-environmental holistic model.

Historical and social contexts necessitate an examination of what learning is and how we learn but also what might need to be learned and for what purpose. Learning then

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[20] By 'knowledge and skill' I mean knowing, feeling and doing.

is a process and an outcome[21] and it is for a purpose. Being at the heart of education it should be for a moral[22] objective (Sikes, Nixon, Carr, 2003), just what that might be is taken up in the next chapter examining the learning society and lifelong learning.

When seen in a dynamical and situated way, learning can then be considered in a living humanist way, beyond what has been characterised as a 'dead Cartesian' programme (Laing in Capra, 1997), for the individual the totality of their learning will be the story of their life (Jarvis, 2006).

This chapter's aim is not to summarise the whole field as it is simply too vast, but to consider the central concepts and reach an encompassing definition. Important concepts include the shift in theorising from acquisition positions on learning to the idea of learning as participation (Billet, 2004; Lave and Wenger, 1991; Sfard, 1998).

Of the integrative models one draws on cognitive, emotional and social dimensions (Illeris, 2002, 2007) and the second on [23] Jarvis's Human Learning model ~ an existentialist perspective. The chapter ends with a consideration of the temporal dimension i.e., learning over the lifespan, before finally considering what chaos or non-linear dynamical systems theory can offer for the study of learning.

The story of learning theory and indeed many ideas, is organised on a continuum of simple to complex. Learning can be viewed in simple terms as in concepts or single theory or in complicated and comprehensive ways as in multi-dimensional theories. This is the history of learning research, initially 'defining' observations or concepts

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[21] Strictly speaking though learning is a process and the outcomes are products memories, knowledge, skills etc.

[22] By this I mean an ethical, humanist end.

[23] There are other comprehensive theories for example Ranson et al's agency, institution and cultural formation theory (Ranson et al, 1996,1998) or Bateson's cybernetic theory, but these are not well developed or empirically supported.

were produced, later single theories emphasising a particular process such as stimulus-response (SR), conditioning, or neuronal (Hebbian) connectionism, cognitive insights etc which came along before an integration of dual processes (e.g. social-cognition cf. Bandura) then triplicate dimensions of learning were proposed (Illeris, 1999/2002; 2007) up to a systems theory which is yet to be articulated, though such a model of learning and motivation is offered in the conclusions.

Latterly, distinctions are made between acquiring the products of learning to that of participation in learning (Lave and Werner, 1991). Though this participative or situated view was proposed early in the 20th Century by Dewey (who is considered an early educational complexity theorist) and is incorporated into the new comprehensive theories. In sum the chapter moves from a one dimensional understanding of learning to a four dimensional conception; a behavioural to a cognitive, then social perspective with a developmental system dimension.

There are so many differing theories (see below) and concepts related to learning that this has resulted in little consensus or agreed upon definitions. Standard psychology texts define learning as a 'relatively permanent change in behaviour due to experience'. This definition, enormously broad, is usually then unpacked in terms of the meanings inherent in the three phrases 'relatively permanent', change in behaviour' and 'experience' which reveals many further problems of definition or consensus. In a standard text such as that by Belkin and Gray (1977) a chapter is devoted to this definition of learning.

What becomes apparent is the strong emphasis on the entity and acquisition metaphor of learning, the products of learning, which has until recently been the dominant paradigm in learning theory. However, comprehensive theories have attempted to bridge the divisions. Knud Illeris (2002) defines the process of learning thus:

> 'I see it as an entity which unites a cognitive, an emotional and a social dimension into one whole. It combines a direct or mediated interaction between the individual and [the] material and social environment with an internal psychological process of acquisition' (p.227).

A useful definition attempting to integrate the multiple 'dimensions' of learning, though the term 'entity' contradicts the conception of learning as an open, process of a dynamic system, associated as it is with a thing, an object or a unit. He uses the same term in his latest work on learning (2007) however, to be fair he may mean 'something' rather than a 'thing'. Nonetheless, the definition ends with the idea that learning may be about acquisition rather than just the process *itself* and this is examined below.

There are over 500 concepts/constructions associated with learning and over 50 theories in the literature (http://www.learning-theories.com) all of which attests to the complexity inherent in understanding what is meant by learning.

For psychologists/physicists the modeling of learning often means stripping it down to a central feature, so for instance in Bickhard's intergrative account he uses a trial and error process whereby 'learning is initiated by error, by failure of the anticipations involved in representations' (2003 p.51), this leads to de-stabilisation of the system and conversely success leads to stabilisation. This accords with Piaget's equilibration theory of learning employing the well examined processes of adaptation and assimilation. And is also reflected in Rogers' significant' or transformative learning (1969) whereby learning produces turbulence and change followed by stable re-organisation and with Javis's notion of 'disjucture' whereby dissonance leads to a reestablishment of harmony (2006). At the heart then of multiple viewpoints of learning are processes of system stability-instability-change-stability, or more simply put- change, through feedback (feedback is discussed below). But this is important

because chaos is the study of change, however, it is not the study of change in a linear way, or for equilibrium, but rather the study of the complexity inherent in change and the order and self-organisation that emerges from change.

However, even trial and error accounts cannot be simple but must have complex biological processes underlying them such that the reality of how learning occurs remains nonlinear and complex (see computation mechanics - Santa Fe Institute for instance http://www.santafe.edu/media/workingpapers/94-02-005.pdf).

In the triplex model of Illeris (2002), factors such as cognition (personal), emotion-motivational (interpersonal/agency) and socialisation (public), act to produce learning. The model by Jarvis (2006) includes the important dimension of time. However, each of these models do not show how the different dimensions interact in a complex patterning to produce a life of learning in an individual, indeed they do not identify what could be the causal principle of change. As noted above, in the conclusions I'd like to offer a model of lifelong learning drawing on a non-linear dynamical systems viewpoint to integrate a biological, psychological and social system that has the dimension of time or becoming, fuelled by motivation that is central to a better appreciation of lifelong learning.

Learning Theory – from biology to society

The following theories will be briefly described as they form the 'dimensions' of later comprehensive accounts.

Associationism or Behaviourist accounts are some of the earliest, so it is worth starting with them, because they are perhaps the most basic iterative units, feedback loops that the rest of learning is built on. In multilayered, dynamical systems model of

learning, these would be at the bottom and coupling together many thousands of these loops could produce the higher forms of cognition and learning that emerge from the actions of millions of cells and this is the basis of 'Network Theory' of mind (Martin, 2012).

Therefore it is worth briefly considering a number of elementary forms of learning described by the classical psychology of 'Associationism'[24].

The simplest[25] kind of learning is that involving loss of responsiveness to repetitive stimuli that do not reward or harm the organism and which is known as *'habituation'*. This allows an animal to concentrate energy on signals that are important to survival and reproduction and *'sensitisation'* a form of learned fear, showing a strong response to an otherwise neutral stimulus. These occur in human learning and motivation, for instance the idea of sensitization may be an important process underlying approach /avoidance theories or efficacy, though proponents of these theories have not made that link.

Higher level associative learning involves the linking of one kind of stimulus with another, or with a behavior. For instance in classical conditioning, an involuntary or innate response becomes associated positively or negatively with a stimulus that did not originally elicit that response. Pavlov's (1928) classic experiment with a dog's innate behavior of salivating, conditioned a dog to associate the ringing of a bell with feeding, which caused salivation, so that even with the absence of food, the ringing of

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[24]   Derived from the British Associationists and elaborated by Thorndike, Watson, Pavlov, Skinner and Hebb (to name the most notable).

[25]   Though as noted above the underlying bio-physical processes are exceedingly complex (see the programme of Nobel Laurete Eric Kandel and his neurophysiology of Hebbian Learning and the molecular basis of memory).

a bell would produce salivation. Eric Kandel (2007). has found that habituation and sensitization processes are recruited together to produce classical conditioning Though he also claims that all memory is due to synaptic swithching and you can produce 'memory in a dish' (ibid). There are too many problems with this to go into here (see Tallis, 2011 for a thorough discussion of neural correlates of consciousness).

Operant conditioning (trial and error) involves learning to associate a behavior with a reward or stimulus and modifying later behavior accordingly. This type of learning was described by B.F. Skinner in the 1930s using a technique (involving a Skinner Box) which rewards an animal with food when the correct coloured button or lever is pressed. Associative learning of this kind is underpinned by feedback processes and can produce complex skills.

Associative learning has a place in any theory of learning as it does account for behaviour but there are many limitations not least its 'black box' approach ignoring whole realms of influence; consciousness, cognition, emotion, motivation and the social and cultural context.

Biological bases of learning.

'Learning engages a simple set of rules that modify the strength of connections between neurons… these changes play an important role in making each individual unique.' (Kandel and Hawkins, 1992, p.1)

The rules may be simple, however, a small set of simple rules can generate exceeding complexity (Gliek, 1997) as illustrated in the period doubling route to complexity below.

The human brain is an astonishing and dauntingly complex organ that develops and changes across life. We are born with 100 billion neurons and across life hundreds of billions of shifting dendritic connections are made. In active lifelong learners these

connections continue to increase (Kotulak, 1996)[26].

In essence then the neurobiological basis of learning is the laying down of functional connections between neurons and the strengthening of those connections. Although brains have a general similar construction they are very different from each other at the microstructure, differently wired, if you like, accounting for individual uniqueness. Einstein's brain was preserved after his death and his neuroanatomy has been explored, In comparison with 'normal' brains some parts are missing to allow expansion of others, and some lobes were larger and more spherical than usual, but overall his brain was smaller than average. Nonetheless, it was remarkable in another physical way, Einstein's brain contained far more glial cells than 'control' comparisons. The significance of this isn't understood, but glial cells may be involved in cognition (Fields, 2009).

A system of likes and dislikes (preferences and aversions) also develops in interaction with the environment and these are acquired across life and impact on the motivation(s) of individuals. All in all, learning is embodied in the functional physiology of brain networks and processes, which are embedded in the wider context of the world which are exceedingly complex.

Networks

There are advances that have been made in graph theory as applied to complex networks (Watts and Strogatz, 1998). Network science has grown greatly in the past decade across most scientific disciplines (Mitchell, 2009). Though it has a longer history in Maths (Euler,1763) and the social sciences (Moreno, Milgarm,

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26 Stein (2005) states that we have lost nine hundred thousand million neurones before birth, as they have failed in 'lethal competition' with other cells because they did not make useful connections. This is reflective of a principle of brain function across life 'use it or lose it'.

Gratnovetter, in Martin, 2012)the current evolution of understanding shows there are mathematical commonalities found in a wide range of networks, physical, social and technological webs (Watts & Newman, 2006)

This work extended graph theory (Erdös and Rényi, 1959), which is the mathematical, abstract representation of linked objects. The objects are called vertices (or nodes) the links are called edges and these simple mathematical concepts have proven enormously useful for the exploration of complex systems.

Very briefly, networks are characterized by path length and clustering, path length is the distance between nodes, clustering is the cliquishness between groups of nodes. Nodes can be measured in terms of their degree, that is the number of links in and out, nodes with a high degree are called hubs (a transport example would be Hong Kong Airport). Degree can be measured in terms of distribution, for instance in a network like the world wide web, there are a small number of very popular sites and a large number of smaller sites, so it has a skewed degree distribution (known as scale free). Scale free networks, taken together with path length, clustering, hubs and skewed degree distribution describes the fundamental properties of most natural and technological nets.

In the conclusions I draw an interacting subsystem model to illustrate this and hope that the importance of this is to draw together in a framework the interacting elements of learning, motivation and control important in understanding lifelong learning.

Chaos, complexity, nonlinearity and learning

Annika[27]

Chaos/complexity as metaphor

> 'The use of a metaphor implies a way of thinking and a way of seeing that pervade how we understand our world generally. Metaphor exerts a formative influence on science, on our language and on how we think, as well as … how we express ourselves on a day-to-day basis.' (Morgan, 1986, pp.12-13)

Metaphor exists in all scientific discourse but differs in use in terms of emphasis, in qualitative interpretative enquiry it can have a greater emphasis than 'hard' physical science would allow.

Chaos/complexity concepts which follow are employed as metaphors, the origins of modern Chaos theory, the Lorenz attractor, itself draws on metaphor to convey some of the meaning of sensitive dependence on initial conditions (SDIC), through the 'butterfly effect', the idea that a butterfly flapping its wings in Tokyo causes a tornado in Texas. However, SDIC has its origins in mathematical equations and I will not be developing any mathematical formulae or gathering time series data that can be used with nonlinear systems dynamical methods.

Chaos and complexity theory offers a conceptual tool box that can be used metaphorically in qualitative research to explore change in individuals and the social context. Dynamical Psychology is still a new approach and quantitative methods are just emerging (Guastello et al, 2009), such that metaphor offers a way into the complexity of human life and psychological processes, where, as Verhulst (1999) has argued, a quantitative approach would not make much sense or allow progress. The mathematical application of chaos theory is limited to quite simple systems and at present has not been able to cope with the complexity of psychological or social systems. Briggs and Peat (1999) note in the development of mathematics that when

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[27] The Buddhist concept of impermanence or change.

the area becomes very difficult to comprehend, numbers are abandoned in favour of images until more developed numerical formulae and proofs can be established.

'Nonlinear dynamical systems theory (NDS) is the study of how complex processes unfold over time and is sometimes known as chaos theory or complexity theory.' (Gaustello, Koopmans and Pincus, 2009, p.xiii)

Some background and concepts

To begin with Non Linear Dynamical Systems theory is synonymous with chaos[28] whilst complexity theory, with more specific ideas like 'self-organisation' and emergence. It has been noted that the non linear term is redundant for example Ulam has stated that this is a bit like saying Zoology is the study of non-human animals (Mitchell, 2009), and Goerner has stated that 'there are no completely linear systems, just linear models' (1995, p.19). Perhaps in the future NDS, chaos and complexity will just be referred to as dynamical science.

The rationale for employing the insights of chaos or NDS theory is that the old linear, reductionist and equilibrium models of human behaviour are unable to adequately explain that change is not proportional to inputs, that there is order in disorder, that the whole is greater than the sum of the parts and that feedback does not necessarily lead to stability but can lead through rapid bifurcation, to amplification and breakdown. Van Geert (2009) has argued that much of mainstream social science has been engaged in building static models of human behavior and has avoided engaging with processes of change. He gives a simple definition of NDS taken from Weisstein

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[28] The term chaos is problematic as it means different things to different sciences, For instance Smith (2007) in his glossary of chaotic terms, adds an 'm', 'p' or 'c' to an explanation when it refers to its use by an mathematician a physicist or a computer scientist. I won't tend to use the term chaos due to this conceptual confusion. Also its precise identification can really only come about from accurate, multiple time-series data, which I do not have. But that does not preclude its metaphorical use.

(1999): "a means of describing how one state develops into another over the course of time" (in Van Geert, 2009, p.243).

This can be expressed mathematically as:

$$\Delta y/\Delta t \ = \ f(y)$$

This states 'that the change of the system, denoted by y, over some amount of time, denoted by Δt, is a function f of a state of y. The function f is also referred to as the evolution term or evolution law (pp243-244).

What is important in dynamical systems change is that f equals some 'causal principle of change' (p.243) and that it has a recursive relationship (it is deterministic), the system describes the current state as a function of the preceding state and the future state as a value of the current state and so on. Change is iterated back into the system producing its evolutionary trajectory. This iterative process as dynamical researchers have shown (see Lorenz below) can cause a magnification of small changes that seem grossly disproportionate to the input. Trial and error and mental modeling are iterative processes, and in the case of insight learning a small change, an observation , leads to a large change- success.

The difficulties for developmental psychology are that NDS developed out of maths and physics, employing simple paired down systems and equations, or they employed very controlled empirical work to provide precise measurements.

So in examining developmental processes over very extended time it is not possible yet to measure 'some causal principle of change' but rather identify events, occasions or processes that could be accounting for the resulting change. In this respect a model of motivation for lifelong learning can at this stage only describe and develop

understanding of important influences, rather that predict or control what will happen (which in a   precise way, may never be possible). It may be able to show how someone got where they are (backward analysis or retroduction), but it will not be able to forecast their future. Nonetheless, understanding the influences that propel certain trajectories is still a useful starting point, and is the crux of this thesis. In the model in the conclusions I consider 'secondary control striving' to be a complex dynamical causal principle driving change and this, in its detail, is individual and embedded in biography. We respond to and adapt and develop according to our life events.

A number of dynamical constructs are described next which will be used in a useful combination with control theory, to model a way of looking at learning and the lifespan.

Systems[29] Theory

NDS is a part of General Systems Theory (GTS), GTS is attributed to the work of von Bertalanffy (1968) but has its origins in the work of early theorists such as Spencer, Pareto, Durkheim and Bogdanov,

> '...there exist models, principles, and laws that apply to generalized systems or their subclasses, irrespective of their particular kind, the nature of their component elements, and the relationships or "forces" between them. It seems legitimate to ask for a theory, not of systems of a more or less special kind, but of universal principles applying to systems in general' (von Bertalanffy, 1968, p.32)

GTS is a meta theory that offers a conceptual framework with ideas that are applicable across a range of disciplines. Essentially GST emphasises holism and

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[29] Systems are groups of interrelated, interacting parts that make up a complex whole. They have structure, behaviour and are interconnected and the parts maybe interdependent. The body is a system, the coronary system is a subsystem, in simplified form comprising a pump (heart) and two sets of blood vessels (arteries and veins).

organism rather than reductionism and mechanism. The body, the mind and the environment are systems, but in referring to a person or their mind, I, in no way think that they are objects or machines, it is just that much of the language comes from cybernetics, which in turn drew on engineering and maths.

NDS has its roots in GST and both are mathematical in origin. Simply put, a nonlinear system is one in which 'input is not proportional to output' (Goerner, 1995, p.19). A small change can produce a large effect and vice versa (known as *sensitive dependence)*. So change is often not smooth and continuous but shows qualitative transformations (or bifurcations). A classic example is a horse increasing its speed and moving through different gaits, walking, trotting and galloping, qualitative changes as speed increases. These bifurcations come about through parameter changes, parameters are quantities that represent and define characteristics of the system, therefore in the horse example speed is a parameter that when increased changes the movement behavior of the horse.

The parameters of a system are important as they can be critical external values that shape the evolution of the system. Take for example the global obesity epidemic, a complex multifaceted phenomena, however, one of the parameters of this problem is food availability. Until the 1950's, even in developed countries there were food shortages, but there is now food abundance and a plethora of food choices often processed and convenient, these changes have contributed to the difficulties of regulation that didn't exist before (Martin, 2010).

In the LTC primary and secondary control striving can be conceived of as parameters, primary control striving (PCS) is a steady struggle with the environment over extended periods of time, whereas secondary control striving is the application of

resources to cope and compensate, but as noted in the motivation chapter, is in service of PCS.

In general terms dynamical systems show sensitive dependence, are deterministic and nonlinear. A number of central concepts of NDS exists and a selection are given below.

Feedback

Feedback is fundamental to change and therefore is at the heart of processes of learning and motivation. Feedback is the process of information or energy being looped back into the system to control or change the system.

Figure 7: Feedback
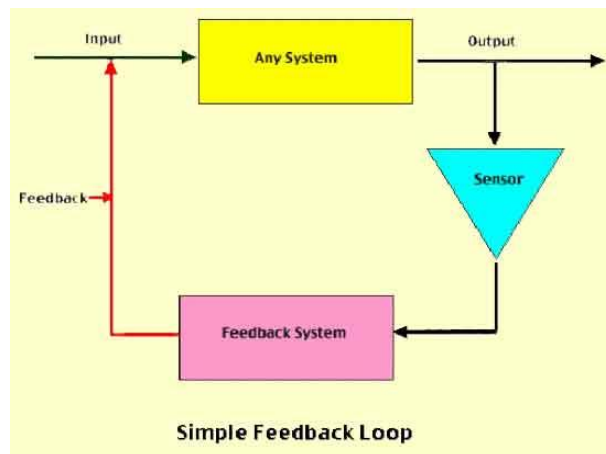
Feedback can be negative or positive

Negative feedback provides system stability or equilibrium (Brigs & Peat, 1989). The simplest example is a thermostat – when the temperature in a room gets too high the

boiler or radiator switches off and the room begins to cool. Negative feedback underlies simple learning phenomena such as habituation, so initially there is a reaction however, repeated inputs are eventually ignored and equilibrium is re-established.

Positive feedback is an escalation or exponential growth as information or energy loops back and increases the behaviour of the system. An example from biology is blood clotting, wounded tissue releases a chemical that draws platelets to the site and these in turn release chemicals activating more platelets to rapidly make the blood viscous and stop flowing from the wound. Whilst this may be beneficial positive feedback can lead to 'cascading failures'. An example form biology again would be the behaviour of glial cells when the spinal cord is damaged, these cells rush to the site clearing debri but also releasing chemical which further damage the nerve cells killing them and paralysisng the individual (Fields, 2009).

In motivation this might be seen in the helpless pattern described by Dweck (1999) when children, faced with very difficult maths problems, dissembled into confusion and irrelevant responses (see below).

Delayed feedback is a time lag, whereby something going into the system takes time to appear as behaviour. The concept of latent attractors below may be examples of delayed feedback.

The different forms of feedback produce 'multistability' in the system, allowing it to exhibit stability and instability, in a word – flexibility.

Attractors

Attractors are points in state space[30] that pull other points towards them. So if you roll a marble in a bowl, it will swing up and down the sides until it eventually stops in the centre of the bowl. This central position would be known as a fixed point attractor. An attractor is a stable point drawing objects towards its basin where they stay unless a strong enough force can pull them away. 'Some attractors are stronger than others and have wider basins' (Guastello and Liebovitch, 2009, p.6). There are a family of attractors of which the fixed point is the simplest. Some systems may contain more than one attractor with differing strengths. A dynamical system containing two fixed point attractors would show oscillating behavior, known as a limit cycle, spending time on each attractor. So in the condition 'Bipolar Disorder' it has been noted that depressive episodes are twice as long as 'manic' episodes, this could be viewed in terms of a strong 'depression' attractor and a weaker 'manic' attractor. Or as a lack of attractors, such that mood responds to 'external and internal events' (Johnson and Nowak, 2002. In Vallacher and Novak, 2009) preventing stabilsation. Alternatively, the system may be characterised as being pushed between repellors (defined below). Each of these scenarios suggests complex patterns of attractor/repellor behavior. Indeed, Johnson and Nowak show that just one component, 'depression', has complex dynamical patterns and individuals can have a number of attractor configurations (2002).

Other attractors in a psychological system might be beliefs and other cognitions, emotions, motivational patterns, identity and so on. In this sense the system after wandering around apparently randomly then settles on a particular path or position, or cyclical behavior. This is not the same as a simple, closed equilibrium model, with the

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[30] The space in which each point completely specifies the condition of a dynamical system (Smith, 2007)

system effectively 'static' and unaffected by energy flow from outside (see self organisation theory, below).

The view of near equilibrium, has been common in biology (homeostasis) and psychology and is prominent in the work of Freud, Lewin, Bowlby and Piaget (Goldstein, 1990; Magai and Havilland-Jones, 2002), but 'is inadequate for understanding the process of change' (Goldstein, 1995, p.240), or the evolution of a system through time.

Repellors

Repellors are also areas of space, but rather than attracting points they drive away or deflect them. Repellors are aspects of sadles which in turn appear in bifurcation or catastrophe theory. In Lewis's self organising personality development model (1995, in Magai and Havilland-Jones, 2002) emotions that need to be defended against are repellors, anxiety and shame are examples proposed by Magai and Havilland-Jones and defenses 'act to ensure stability of identity' (p.471).

Saddles

These points exhibit attractor and repellor behavior, an example might be a waterhole in the African savannah, animals travel to the waterhole then move off to pursue other activity. They are drawn in as they need to drink, but repelled away as it is dangerous to stay too long if they are prey to other animals. Saddles are mentioned here as they are an aspect of catastrophe theory (see below).

Chaotic attractors

These are attractors 'on which the dynamics are chaotic' (Smith, 2007, p.164), some of these are known as strange attractors. Strange attractors have a fractal structure and are synonymous with turbulent systems. Turbulence is the movement from an orderly state to a disorderly one (Briggs and Peat, 1989) and results from a change in the attractor state (bifurcating[31]), moving from a point, to a limit cycle, to a torus to a bizarre fractal dimension, chaos.

Briggs and Peat use the example of a rock in a river, initially the water flows around the rock, then as more water is added (from rainfall), the river speeds and vortices (limit cycles) appear, then the vortices break up into choppy, swirling water then complete churning turbulence appears. This bifurcation pattern has been studied since the famous 'butterfly' effect noted by Lorenz in 1966 (in Gliek, 1986)

Figure 8: Period doubling route to chaos
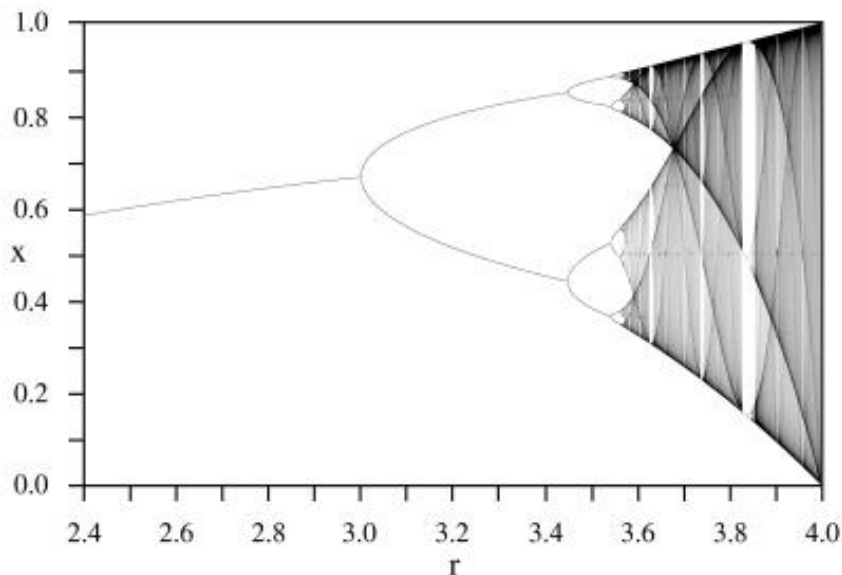
X equals an order parameter and r a control parameter[32].

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[31] Bifurcations are changes in the stability of a system which then gains greater complexity.
[32] Control parameters have been discussed but an order parameter is essentially a dependent measure.

The initial straight line (period 1) of the map accords with the system stable on a fixed point attractor, at the first bifurcation point (Hopf bifurcation) period 2 becomes a limit cycle, at the second bifurcation, period doubling occurs and the system becomes one of cycles within cycles. At the next set of bifurcations period 3, the system has entered 'chaos', no discernable order and is living on the strange attractor; though the white blocks in the region of chaos, are periods or islands of relative order. We all start life like this a single cell which divided (1st bifurcation) then continued dividing until complex sub systems (organs) came together is a very complex network, a body. Organs could represent the 'islands of order' in the map, but it is known that organs such as the heart and brain show chaotic behaviour and this is linked to healthy functioning (Briggs and Peat, 1989).

This map has had applications in population biology and is found in many systems, including electrical circuits, the weather, business cycles and 'learning' (Briggs and Peat, 1989). There are not many examples of literature on the period doubling route in learning, other than work in 'motor learning' (Newall et al, 2001, cited in Guastello et al, 2009). Metaphorically however, it can be envisaged that learning does follow a trajectory like this, consider Vygotsky's ZPD: Before the zone the learning is 100% attained and performed (fixed attractor), in the zone there is a 50% error rate (period double 1) further along the zone errors rates would continue to develop (period quadrupling) and so on to a point on the other side of the zone where there would be confusion, perplexity, chaos (but in the non technical, mathematical sense).

Other more general discussions of dynamical change in constructivist learning is given by Van Geert (2009).

In terms of motivation this process towards turbulence can also be seen and has been described by Dweck (1999) though not in terms of the logistic map route to chaos.

What Dweck found was that when pupils mastered some problems and were then set another raft of problems that were harder and indeed impossible in some cases, two patterns of motivated behaviour emerged; mastery or helplessness. The maladaptive helpless pattern is an example of a motivational descent to chaos, whereby the children experienced a disorientation that led to them giving up on the task early and then engaging in self blame, negative emotions and 'non-constructive coping' (Heyman, Dweck and Cain, 1992, in Dweck, 1999). An important finding of the whole Dweck programme is that these experiences can set up a pattern of seeking safety in learning and avoiding challenge, clearly not a useful strategy for lifelong education.

Latent Attractors

In the family of attractors I think this is one of the most important of the potential states in a psychological system. Latent attractors are those that not visible in the system of multiple attractors, but which determine the states possible for the system when the system changes (Vallacher and Nowak, 2009). And change that seems abrupt and unsuspected maybe in response to this lurking attractor. Vallacher and Nowak speculate that latent attractors 'may be highly important in the long run' for a system (p.378). However, little research has been done and that which exists is in the area of intergroup conflict (Coleman et al., 2007, in Vallacher & Novak, 2009). A potential latent attractor is examined in one of the case studies later.

The thing to note about attractors and bifurcations is that they provide researchers with conceptual terms to explore change and stability.

Human brains and minds are vastly complex and show intrinsic dynamical properties. In daily life people encounter many situations and information that could change

them, but of course display *stable* patterns of thought, mood and behavior (even motivation) over time. And of course people change, in all dynamical processes are at work and Vallacher and Nowak conclude that the three basic types of attractors (and repellors for that matter) are 'likely to have relevance for understanding different intrapersonal and interpersonal processes, although work designed to establish such relevance is in its nascent stage' (2009, p.375).

Catastrophe Theory

Catastrophe theory is a part of geometry, principally topography and bifurcation theory and is associated with the work of René Thom. Whereas dynamical systems can change under internal oscillations or forces, Thom was interested in sudden transformations resulting from external forces. Briggs and Peat give the following physical examples: 'a corn kernel in a popper, the collapse of a support beam in a bridge weighed down with one pound too many, the dramatic translation of water into ice… the flicking on and off of a light switch' (1989, p.84). A common phrase that captures a sudden transformation would be 'the last straw' or 'the straw that breaks the camels back'.

Thom referred to these as 'catastrophes' and identified a group of seven elementary ones. A number of these are found in the psychological literature (Guastello et al, 2009), but in general only the simplest ones are applied.

The first of these is the fold and is the basic building block of the others and involves a fold in phase space when a control parameter reaches a critical point and falls over the fold into oblivion, or as Guastello and Leibovitch put it, 'the point leaves the basin of the attractor and flies outward, never to return' (p.30).

When the number of controls is increased to two another catastrophe, the cusp, can be observed (this was briefly discussed in the introduction). The cusp catastrophe can be visualized by considering a piece of paper folded in a 'S' shape with an upper and lower surface, the system moves around on the surface. Briggs and Peat use the example of flight or fight to illustrate the movement of the system, the control parameters then are fear or rage, at some point the behaviour must change and the individual either flees or fights. The cusp catastrophe is therefore a transition point and has been applied to many examples of change - social, psychological and physical (Guastello and Leibovitch, 2009). Topological folds along with attractors and repellors are a valuable way of understanding change. But while they seem to imply the movement of stability to chaos, it is equally the case that they are involved in the opposite, order out of chaos.

Self organization

Whereas the preceding discussion viewed dynamics as a pathway to chaos, it is known that order can emerge from chaos, this is the basis of development in our universe, from the big bang to the human mind, somehow nature has taken disparate matter and forces and created structure.

Self organization theory has its modern origins[33] in the work of Ilya Prigogine, who studied 'far from equilibrium' systems initially through chemical and thermodynamic systems. The ideas he proposed have been extended to many other systems and are now prevalent in the social sciences (Byrne, 1998). Related issues here are 'emergence' and universality or wholeness. They are briefly taken in turn.

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[33] The concept was first used by Von Bertalanffy and Gestalt Psychologists in the 1930's to understand the development of organised wholes and human perception respectively (Alhadeff-Jones, 2008).

Living organisms cannot be considered as existing in classical equilibrium models as they are far from uniform and show too much variety and complexity in their structure and function. This is what really distinguishes a machine from a living organism, is that a machine is a collection of parts that cannot renew itself, whilst an organism is a whole which can create new order, it is reorganising and self organizing. This kind of system does not require interference from outside agents to exist and is an open system that can allow the flow of matter and energy in, in this way it constructs itself. These flows of energy from the outside also lead to chaos, but what Prigogine found was that out of the chaos new systems emerge. He studied chemical clocks and wondered how: 'billions of molecules' could flip from one state to another:

> 'Such a degree of order stemming from the activity of billions of molecules seems incredible, and indeed, if chemical clocks had not been observed, no one would believe that such a process is possible. To change colour all at once, molecules must have a way to "communicate" The system has to act as a whole.' (Prigogine and Stengers, 1984, in Briggs & Peat, 1989 p.176)

Emergence is the way complex patterns arise out of simpler (sic) individual units, the discussion of emergence precedes dynamical science, in psychology Gestaltists understood that 'the whole is greater than the sum of its parts' and it has long been observed in nature that complex structures can be generated by the unconscious actions of many. Termite mounds and slime moulds are examples. Briggs and Peat (1989) state that self organizing, emergent structures are everywhere: 'in biology, in vortices, in the growth of cities and political movements, in the evolution of stars.

Motivated learning can be an example of self organization where by multiple components or states come together to generate new learning or new order. This has been demonstrated in problem solving or reasoning, using the 'gear tracing problem' working out the turning direction of the last gear in a daisy chain configuration from the turn of the first gear (Hollis, Kloos and Van Orden, 2009). The solution is to note

whether there is an odd or even number of gears and the rule is: 'same direction as the first gear in an odd numbered chain and opposite in an even numbered chain' (p.219). The research showed an increase in entropy (disorder, measured by finger tracing) and inefficient stepwise strategies to an abrupt change of behaviour when the solution became apparent (a measure of negentropy, or order) (p.220).

Time

Change happens over time and time is unidirectional and scalar. Unidirectional means that time is irreversible and scalar means that there are time scales. Time scales range from the immediate to the enormous, from a millisecond to 13.7 billion years (the age of the universe). Scales have significance in developmental theory and short time scales are sometimes referred to as micro, proximal or real time, whilst long ones are called distal or developmental. Learning theories and lifelong learning has not engaged well with 'time'. In understanding lifelong learning time scales are important and are returned to in the conclusions following the case study analyses.

Conclusion

Theory and research into learning has evolved from simple mechanistic approaches to complex multidimensional frameworks, just as in other fields of endeavour. As more becomes known, then models and theories should become more and more approximate and better at explaining learning processes, but only if they take 'change' as a central principle and understand change in a dynamical way. While that work goes on it is worthwhile considering the wider historical, political, economic and social debates especially as they relate to what is meant by 'lifelong learning'. Particularly as complex systems, people, are imbedded in a network of other complex systems ~ social, cultural, economic and political.

CHAPTER 3. LIFELONG LEARNING

Lifelong learning and Motivation

> '[W]e do not possess even the outlines of an adequate social theory (or theories) of lifelong learning, which is a necessary precondition for the creation of a learning society' (Coffield, 2000, The ESRC *The Learning Society* p.19)

> 'Knowledge, understanding and debate about… *development and learning*, with their implications for educational practice and policy, should underpin all other educational discussion, if only because if they are wrong little else will be right' (Burgess, 2004, p.220 my emphasis)

Life and learning unfold in a context, with the constructed physical world, the social world and history all shaping the individual, such that the behaviour and outcomes of life are regulated by these worlds. Part of this social world involves the political and economic perspectives on learning across life and whilst there have been many policy pronouncements, critiques and commentaries, very little of this engages with motivational theory, yet motivation is important for sustained periods of learning. Neither do the perspectives offer a comprehensive lifespan framework to understand learning and education through life.

One of the central perspectives on lifelong learning is that of an economic imperative, whereby learners help their nations compete in the global economy, and lifelong learning is for getting and keeping a job in a changing world. This position of Lifelong (L)earning is a reflection of the OECD policy pronouncement in 1973 'Recurrent Education: A strategy for Lifelong Learning' (OECD, 1973). This narrow economic view is challenged in this chapter.

In this 'Learning Age', learning has been viewed as a panacea to society's problems and learners are the 'sovereign individuals' who can bring about the transformation of society and ensure a better future of continuous success These are a couple of the oft

repeated 'romantic' mantras for the role of learning and lifelong learning in contemporary social and political life (Coffield, 2000). However, as the quotes above state[34], there is still much to be done and a long way to go particularly when basic theory building and empirical research in the area of lifelong learning remains embryonic, such that adequate theories of learning grounded in contextual analysis of real learners (and their motivation), which are complex and framed in the lifespan are nascent. As noted in the previous chapters a great deal of theory and research exists in these areas but little of it is integrated or coupled to dynamical understanding.

That is not to say that there are no theories Michael Young's educative model (1998) is one, however, it is a post-compulsory education model and remains emergent and empirically unsupported. Although theory and empirical research are important, unfortunately more than a decade after the ESRC project was launched, Britain does not appear to be a nation of lifelong learners, indeed we now have fewer adults participating in learning over the past decade and the pattern is that the older the age group the fewer the numbers in learning (NIACE, 2006; 2010). Furthermore, the learning divide is widening, with participation falling except for the highest socio-economic groups' presenting a depressing picture of a non-learning society among the UK's poorer citizens (NIACE, 2004; UCU, 2011). This is all the more disheartening as the well-being and wider benefits of continuous learning to the individual, their family and communities', has been recognised for some time (Schuller, 2004).

This chapter examines some of the history and the concepts of the *learning society, lifelong learning* and *motivation for continuous learning*. The literature in these interrelated areas is again enormous as there has been a number of government

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[34] First taken from Frank Coffield's introduction to the second volume of research on the ESRC's *Learning Society Programme* the other from the Routledge guide to Key Debates in Education, Burgess, 2004 (Ed.).

reports, green and white papers, strategy documents published throughout the late 1980s and 1990s (see Dearing, 1997; Kennedy, 1997) then there was the ESRC programme *The Learning Society* which ran from 1994-2000 and produced two volumes of research findings, four joint reports and many, many papers (Coffield, 2000). At the same time other UK researchers and theorists have written extensively on the learning society (e.g. Edwards, 1995, 1997; Field, 2000, 2002; Ranson, 1994, 1998 and Young, 1998 to name those most prominent). Equally wide-ranging literatures exist in many European countries, North America, the Antipodes, Japan and China as well as the literatures of trans-national organisations such as the EU, OECD and UNESCO. Cleary the following is a necessarily selective review, but important as 'located' in a historic-cultural context.

Historical Roots

Lifelong learning itself is not a new idea, the ancient Greeks did not consider so called 'terminal' or 'front end' education adequate for a whole life and advocated different kinds of education for different stages. At an obvious, though non-trivial level, we are all lifelong learners and cannot be otherwise as are we are biologically designed to learn even before birth, from our environment (inner and outer) and experience. Lifelong learning is a fact of life. In this respect the project is already ancient. But of course much learning or certain kinds of knowledge are not equally valued, there are cultural/class distinctions, issues of power and dominance (Bernstein, 1973) that define what will be learnt and what uses it will be put to that threatens the attainment of 'a learning society that realizes equality and agency' (Ranson, 1998 p.244).

Neither is the *term* lifelong learning new, having been used in Britain in 1919 by the Adult Education Committee of the Ministry for Reconstruction and by writers such as Basil Yaxlee (1921, 1927) in response to the economic crisis and labour unrest

following the war (Field, 2000). However, it failed to make any serious impact on educational policy in the UK or abroad. So not until the 1990's with the clear impact of major social and economic transformations coupled with an interest in the learning society and the growth of the knowledge economy, did the idea of a through life education start to be considered seriously (OECD, 1996).

The dominant debates on lifelong learning are overwhelmingly political and policy driven as opposed to an educational discourse. On the surface this sounds like a naive argument. However, there are many in education who whilst recognising the obvious political nature of education are not party politicians and serve different ends and hold different values about the function of education (Martin, 2003), as Martin has remarked: 'Most of us did not really need Paulo Freire to tell us that education is political' (2003, p.570).

Although the idea of lifelong learning precedes the conception of a learning society, and is intimately connected, in recent history the development of theory and research into the learning society comes before the renewed interest in through life learning.

Individual learners

Before considering the learning society and lifelong learning, I want to briefly examine the individual as a component of theory and debate and in concluding this chapter on 'motivation to learn' I want to return to this level of analysis. However, as discussed in the introductory chapter, it has to be fully acknowledged that individuals are shaped by their social experience as people are a yin and yang of internal and external worlds, though it has been noted that there is 'precious little society' in the literature on the learning society' (Coffield, 2000, pp16-17). This is reviewed below in discussion of some of the typologies of the learning society.

Clearly individual learners are a fundamental aspect of the research and debates in this field and many projects have focused on learners which challenge government thinking and policy, that tend to neglect and subsume real learners and learning in a homogenous mass of 'calculating human capitalists' (Coffield, 2000a, p.12). There is a shifting of emphasis and focus to individual, tailored learning and responsibility of the individual for their own learning. Hannan et al (2000) discuss the shifts in focus and responsibilities of individuals when they say that:

> 'Fundamental is the frequent realisation that, in many context the old ways are not working…and that new ways are [needed] to sustain motivated learners who are more autonomous and more able to take responsibility for their own continued learning' (p.165).

This shift from teaching and training methods to responding to the needs of learners and the context in which learning can best be promoted, is a return to student centred teaching or learner centred learning. In the words of a European Commission report:

> Placing learners and learning at the centre of education and training methods and processes is by no means a new idea, but in practice the framing of pedagogic practices in most formal contexts has privileged teaching rather than learning. …In a high technology, knowledge society, this kind of teaching-learning relation loses efficacy: learners must become proactive and more autonomous, prepared to renew their knowledge continuously and to respond constructively to changing constellations of problems and contexts. The teachers role becomes one of accompaniment, facilitation, mentoring, support and guidance in the service of learners own efforts to access, use and ultimately create knowledge. (cited in Field, 2002, p136).

The aim now is for learners to develop as autonomous, flexible and reflexive individuals who seek to continue learning across a lifetime. However, clearly there is an enormous task when significant numbers of learners and communities suffer disadvantage, alienation, disaffection and resistance to formal education (Ball et al, 2000; Field, 2000: NIACE, 2004). Also as Further and Higher education expands in colleges and the new universities, efficiencies are achieved by large classes/lecturers and very little tutor time (Bok, 2003). At the same time this shift in responsibility is

questioned and questionable as yet another cost saving strategy, one, which is 'over-simplified, deeply unfair and counterproductive' (Coffield, 2000, p.15). Individualising learning is at odds with the clearly familial, social and societal nature of learning, it denies a society which is itself having to learn (Ranson, 1998) and panders to a simple minded theory of human capital. In addition, the whole process of learning and teaching is poorly understood when we know too little about how teaching works, what self-directed learning is and how informal processes, unconscious and implicit 'knowing' all impact on learning (Burgess, 2004; Claxton, 1999; Eraut, 2006).

Of course wanting to continue learning and having the intrinsic resources involves motivation, motivation to sustain your efforts across a whole lifetime. And as argued in the preceding chapters motivation is rooted in the beliefs we hold about the value of education and the efforts needed which in turn derive from a number of sources not least from our earlier experience of success and failure, family influences and the identity and identifications we hold to. Learning also is a complex interplay of individual (interpersonal), social, historical and cultural factors. The issue of motivation is taken up in the third part of this chapter first though some of the literature of the development of the learning society and lifelong learning are examined.

Learning societies and lifelong learning are enormous (interdependent) enterprises, which have drawn the attention of many researchers, philosophers, politicians and policy makers, which to reiterate, hold that the learning age promises economic prosperity, greater emancipation, equality and a new form of society. Over a quarter of a century after the launch of the ESRC 'Learning Society' programme, these ideals have not been realised. Rather in the UK there is mass unemployment, enormous

public debt and continuing class based disparities in the uptake and outcomes of education (NIACE, 2010).

There are however, many who challenge the visions that have been articulated and the political/policy developments, contending that they are; myths, utopianism, idealism, ideology, a-historical, 'spin', indoctrination and control, even religion (respectively, Hughes and Tight; 1995; Tight, 2000; Young, 1995; Martin, 2003; Rikowski, 1995, 2004; Nicoll & Edwards, 2004; Illich, 1974; Jauhiainen & Alho-Malmelin, 2004). These viewpoints are considered later in the section on 'criticisms of the learning society'. Furthermore there are so many different types of learning society and a mind boggling array of terms that may or may not mean the same thing (Coffield, 2000).

One thing is sure that achieving something as radical as a learning society and universal lifelong learning that emancipates citizens is unlikely to be realised in a short span of time. Nonetheless, challenges to the ideas of the learning age need to be examined and responded to or the motivation to progress these projects will be lost or the 'visions' fatally degraded. What is at stake are fundamental values of what it means to be human and free. It is the 'job' of academics and researchers to strongly criticise public political programmes that promise so much and as they are often the architects of these projects they are well placed to do so. In terms of motivation for lifelong learning it is I think important to examine the discourses are motivated towards either an extrinsic (instrumental) or intrinsic (humanist) viewpoint.

The Learning Society: the instrumental and humanist discourses in lifelong learning

The debates on lifelong learning are complex and contested by two main discourses and can be called 'instrumental' and 'humanist'. These are my terms for the debates

of lifelong learning, others could be the accumulation of 'human' versus 'social' capital, or simply a market vs. social justice model. Whatever the label, different versions accord to either the view that lifelong learning is primarily to ensure economic competitiveness or even survival over other ends such that learning is for human development, for growth and the extension of democratic society. The distinction is important as working and studying to subsist leaves little room to enjoy life, a point made by Illich in the 1970s when he referred to lifelong learning as 'endless education' for the working class, 'imprisoned in the global classroom' (1976).

The concentration on learning and continuous learning is of interests to politicians, academics and others because as noted it promises solutions to today's and tomorrows' social and economic crises. Only an educated and active citizenry can best adapt to uncertainty and compete in an aggressive global market place it would seem. The people themselves must be responsible to a greater extent than before for the services governments provide - education, health, physical safety even (the UK government recently published a guide to preventative measures people can take to keep them safe, which was sent out to every household) and in taking that responsibility must 'learn unto death' (Rikowski, 2004).

The learning society

The idea of learning societies has received vigorous debate over the past decade and has gained considerable influence in government and the academy. The idea has evolved over two distinct periods: the late 1960's early 1970's and the 1990's till the present.

Historically Donald Schon's work *Beyond the Stable State: Public and Private Learning in a Changing Society* (1971) is seminal and provides an early theoretical framework in which to understand the threats posed by continuous technological change and how learning can help us cope with these changes. Change is inevitable yet the scope and pace of change can produce crises through uncertainty, which can significantly affect the functioning of society. The challenge for the individual and society is to learn about learning, to develop 'learning systems' that respond and continuously transform 'themselves without intolerable disruption' (p.60). However, learning how we learn and how systems might learn is no easy task, as argued in the preceding chapters theories of learning are multiple and complex as are theories of motivation for learning with as yet little synthesis or global application. Though it is surely a process of reflection (consciousness) and revision of previous knowledge, structure and practice *coupled* to a constantly evolving environment (Bateson, 1972; Varela, 1979).

Other theorists have made important contributions to conceptions of what is and can be a learning society, including Hutchins (1970), Husén (1974) and the radical philosophers Freire, Illich and Goodman who all emphasise the democratic and emancipating possibilities of a learning society which challenges the stagnant apparatus of formal education (in Smith, 2000). Torsten Husén's ideas were particularly prescient when he anticipated the need for individualised learning, appreciated the role of informal learning and lifelong learning, noted the supporting role of ICT and saw education through the scope of a 'wider social context' (1974). Sadly, these hopes may not be realised as learning becomes solely equated with economic viability.

However, building on some of the earlier ideas, three modern kinds of the learning society typologies[35] can be outlined though there are others, e.g., Young's educative type is not covered and all three overlap in different ways (Rikowski, 1998). Furthermore, there are ten different models identified in the ESRC programme and in all in the UK literature there are at least twenty different models that can be discerned. The first two given, arguably represent descriptions and vision or aspiration of what the learning society can be, a new form of society and the third represents the current economic practice.

Edward's typology

Richard Edwards has over a series of publications outlined the three main strands of debate in ideas of the learning society (Edwards, 1995, 1997). The first theme centres on the modernist social democratic project adopted by post-war societies committed to extending the franchise, to developing an educated citizenry that would avoid the mistakes of the past, respond to the changes in an increasingly technological, global world. This view of a learning society and lifelong learning was mainly promoted by 'liberal educators in the metropolitan areas of the industrialized North in the 1960s and 1970s'.

The second version of the learning society can be conceived as '**a learning market'**, enabling institutions to provide services for individuals as a condition for supporting the competitiveness of the economy' (in Hyland and Merrill, 2003, p24), aiming for a market in learning opportunities to 'meet the demands of individuals and employers for the updating of skills and competences' (ibid).

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[35] Typology is a useful way of classifying complex phenomena however, there is a danger of reification and there is a point at which the usefulness of types breaks down. The typologies discussed here are simplifications of the complex versions of the original writers. Just as learning societies have been classified so have lifelong learners –see below.

Finally, a learning society is one in which learners adopt a learning approach to life, drawing on a wide range of resources to enable them to support their lifestyle practices. This supports lifelong learning as a condition of individuals in the contemporary period to which policy needs to respond. This conception of a learning society formulates the latter as a series of overlapping learning networks... and is implicit to much of the writing on post-modernity with its emphasis on the contingent, the ephemeral and heterogeneity. The normative goals of a liberal democratic society - an educated society - and an economically competitive society - a learning market - are 'displaced by a conception of participation in learning as an activity in and through which individuals and groups pursue their heterogeneous goals' (Edwards, 1997).

Ranson's Typology (1998, pp.2-10)

Firstly this is a society which (acknowledging Schon and Thorsten's work) 'learns about itself and how it is changing' in order to respond to the structural, social and political transformations without 'intolerable disruption'.

Secondly, a learning society changes to support the enormous expansion in participation and maintains pace with technological, communication and epistemological change'.

It is thirdly, 'a society in which all its members are learning' not just the young, instead learning 'needs to be opened out to all' resulting in a diverse, accessible and 'comprehensive system of continuing education'.

Lastly, 'a learning society must be a learning democracy' and the task is to transform 'education from an elite (selective) to a socially just (comprehensive) system through a process of 'public discourse' creating a shared sense of community.

Hyland and Merrill (2001) see Ranson's model as a stage developmental one, whereby when the conditions of one stage are met it is possible to construct the next stage. Indeed they see all models as ideally moving from a narrow skills training programme, to a broader vocationalism then to the wider 'social, cultural and moral objectives linked to a socially just community' (p.26).

This accords well with the idea of a learning society, which is one in which a polity of active citizens is working towards a 'new form of society' (p.253) of true participatory democracy or an inclusive learning society.

The market model

In terms of political initiatives it is clear that an economic or market model of a learning society takes centre stage in post- industrial societies. In the UK economic imperatives are clearly referred to throughout the *Learning Age* documents (see http://www.lifelonglearning.co.uk/greenpaper accessed 24/3/2006) David Blunkett the then Secretary for State for Education stated that:

'With increasing globalisation, the best way of getting and keeping a job will be to have the skills needed by employers [and] for individuals who want security in employment and a nation that must compete worldwide, learning is the key' (THES, 27/02/1998, p.18).

The priority is economic competitiveness and then where possible the promotion of social justice. This concentration on the economic function of education is a reflection of the changing nature of work, globalisation forces and the emergence of the information age or knowledge economy and the power of global financial institutions to dictate policy. Publications by the world bank and IMF clearly see the learning society and lifelong learning as tied to the idea of being prepared for 'getting and

keeping a job and argue that a new social order has appeared 'founded on knowledge' (in Field, 2000) where continuing employment depends on 'readiness to learn over lengthy periods of the working biography' (Alheit, 1994, p.85 in Field, 2000). This learning is intended to create workers who are more competitive, efficient, flexible in terms of employment security, working hours and so on. How far this economic revolution will go and what the consequences will be are not known, but it clearly contrasts with humanistic notions that education supports more that just work and that we would want to strive towards increasing social capital as well as 'human' (economic) capital.

Nonetheless, the market economy dominates our political and social institutions, with talk of us living in the 'market democracy' (Martin, 2003) and yet it is unlikely that we will all be knowledge workers in the future (after all, to put it crudely, we can't eat knowledge). Globally, many people are still employed in traditional jobs, farming, manufacturing, human services etc. Indeed, many people will continue to work in one trade and for one employer. Nonetheless, according to Field (op. cit) this market of learning may be reinforcing traditional forms of exclusion and creating new ones. There are fewer jobs for people without recognised skills or qualifications and those unable or unwilling to engage in continuous learning (the knowledge poor) will be left behind and furthermore lifelong learning may be used to 'legitimate inequality' (p.111) or exclusion for non-conformists. For example, in American Psychological Associations there is a trend towards 'mandatory continuing education' (MCE). Failure to take, often distance learning, credit based modules, can result in the suspension of your licence to practice, conversely the more you 'study' the cheaper your liability insurance. Understandably many are concerned with the ethics of this (Kavanagh, 2003).

Fundamentally, the market model is one that is at odds with nature, the Darwinist (biological and social) account of competition and individualism that belies the market is wrong, survival and evolution is predominantly a story of creativity and cooperation not aggression and competition (Fritjof, 1996). The challenges facing humanity, ecological catastrophe, global poverty and warfare based on prejudice, cannot be solved by further increasing the selfish pursuit of wealth, to do so means that everyone will lose in the end.

More criticisms of the learning society

Some have dubbed the learning society a myth particularly Hughes and Tight (1995) who see it as a way of 'mobilizing rhetoric and leading people through change' (p.290) and which provides a 'convenient and palatable rationale' to give the 'impression that things are improving' (p.188), concluding that the learning society is very far from being realised or even realisable.

Similarly, the concept of the learning society can be viewed as utopian, rendering 'fictional, idealised' accounts into 'finished forms or blueprints' (Rikowski, 1998) and existing in an 'a-historical cosmos' (ibid). Such utopian or idealist visions are likely to simply perpetuate the market hegemony and offer little challenge to inequalities of power.

Whilst, Nicholl and Edwards (2004) have argued that a good deal of policy on the learning society and lifelong learning notions are perceived as 'spin', or hyperbole, designed to deceive (p.1)'. Such that promoting the learning society/lifelong learning are helping to 'fabricate its facicity and ontological position. In this sense…we are as much involved in the spin of policy as those politicians and policy makers who are positioned as the darker forces of the art (p.1).'

Finally, some researchers would liken the contemporary world of education and the learning society to religion:

> 'The functional state religion of education has, over the past century, become firmly established as an organic part of social policy and educational policy, in which education—in particular educational reform—has begun to be regarded as a miracle cure, a kind of panacea for a wide variety of social ills and problems…
> Education as a new state religion produced a new order in societies. While in the past societies were constructed according to estate, language and sex, in the modern societies education emerged in addition to these factors, and partly replaced them. This means that hereditary social position also had to be legitimized by means of formal education. And that was also a matter of faith. While those who believed in education were rewarded, at the same time those who were weak in their faith became marginalized. At the societal level, this means that lack of education emerged gradually as the crucial common denominator of the new lower class (Jauhiainen & Alho-Malmelin, 2004, p.462)

And contended by Illich:

> 'School is a ritual of initiation which introduces the neophyte to the sacred race of progressive consumption, a ritual of propitiation whose academic priests mediate between the faithful and gods of privilege and power, a ritual of expiation which sacrifices its dropouts, branding them as scapegoats of underdevelopment. (Illich 1974: 44.)

Jauhiainen & Alho-Malmelin end their argument with speculation about what will happen to the educational sinners or atheists, those that reject the faith and it would seem that they are doomed to be forsaken, to join the ranks of the useless and 'knowledge poor' (Coffield, 1999; Field, 2000).

The challenge that the learning society is a myth fails to acknowledge the complexity of the idea, that the term myth is used 'so broadly as to collapse distinctions which are essential to the clarity of the analysis required' (Ranson, p.241). In a similar vein Strain and Field (1998) have argued that there is 'out there is a real society' and one of iniquity 'detrimental to the collective survival and development of human society', (p.240 in Ranson, 1998). To dismiss then the learning society as a myth (in terms of a fantasy/delusion) is a wholly negative position which offers no alternative concept to

meet the challenges, social and economic ~ deep inequalities, poverty, prejudice and conflict.

Rikowski's idealist challenge and one can include the religious metaphor here, is rebuffed for its static and endist pronouncements which apply mainly to the market model and the rhetoric of government. The learning democracy dynamic and draws its strength from 'cultures of difference' which confront hegemony and uniformity.

As for 'spin' and fabrication this also applies to the narrow economistic conceptions promoted by certain governments and agencies such as the WTO and the World Bank. The versions of education, learning societies and lifelong learning being promoted by the neoliberal polity presents the greatest challenge, yet as noted above their philosophy is centred not in nature or reality, but in social construction and as such can be altered.

Having examined some models of the learning society it is necessary to consider the idea of a permanent or lifelong education and then the role that motivation plays in this process.

Lifelong Learning

The preceding versions of the 'learning society' are inevitably coterminous with ideas concerning lifelong learning. No model of a learning society considers learning/education to be something that goes on intermittently or is loaded into one stage of life usually childhood and adolescence.

Just as the 'learning society' is not a wholly new idea, the concept of lifelong learning has a very long history, stretching at least from Plato's Republic to the French notion

of Education Permanente; through to Lindman's (1926) and Yeaxley's (1929) continuous adult education to Faure's 'Learning to be' and into the current debates on the learning age (DfEE, 1999). Eduard Lindman's classic *The Meaning of Adult Education* (1926) captures the vision of education and lifelong learning as a holistic continuous enterprise when he states that:

> Education is life not merely preparation for an unknown kind of future living... The whole of life is learning, therefore education can have no endings. This new venture is called adult education not because it is confined to adults but because adulthood, maturity, defines its limits.' (Lindman 1926: 4-5).

Furthermore, he felt that adult education was distinct from vocational imperatives, adult education takes off where vocational education ends and a primary idea for Lindman was that the curriculum should reflect the experience and concerns of the learner, which would fit well with ideas of student centred learning and enquiry based learning. It is not difficult to see why Lindman thought this way, his own story is one of a lifelong learner, struggling for personal improvement. He was a mature student when he began his formal education having worked as a shipbuilder from the age of *nine* and been a trade union activist.

There are potential benefits of a further and continuing education, statistically the earning potential of a UK graduate is 40% greater than a non graduate and this is well advertised, however, the trend may be one of declining returns as more and more graduates enter employment. Current evidence shows that 40% of graduates are not in jobs requiring 'graduateness' and their earnings are poor from these low skilled or menial jobs (CEBR, 2011). Also some nations are more advanced than others in terms of participation; contrast Britain with Japan (see later section on motivation and lifelong learning). Japan now has a strong tradition of lifelong learning activity and government administration; it has long had a lifelong learning division of its

education ministry and a substantial budget for promoting the development of lifelong learning. Individual family investment in education is remarkably high with 75% of state pupils attending Juko (private tutoring classes) or having a home tutor (OECD, 2000), however, this can further compound iniquity of the educational haves and have nots.

Like Lindman, Basil Yeaxley saw education as life,

> '…education, rightly interpreted, is as inseparable from normal living as food and physical exercise. Life, to be vivid, strong, and creative, demands constant reflection upon experience, so that action may be guided by wisdom and service be the other aspect of self-expression, while work and leisure are blended in perfect exercise of 'body, mind and spirit, personality attaining completion in society.' (Yeaxley 1929: 28)'

Furthermore, for Yeaxley this lifelong education would happen in many different settings, would be a comfortable (if challenging) experience outside of formal institutions. This learning in turn would influence compulsory education because young people would have the expectation that education continues beyond school, throughout life and adults would have a better appreciation of the schooling of their children and would be involved and critical.

Although influential in the area of continuing adult education Yeaxley's work did not herald a learning revolution.

The problems identified for the learning society have been applied to the ideas of lifelong learning too (Hyland and Merrill, 2003) and lifelong learning is a contested arena of debate, policy and practice and will be used by different interests and for different ends. Like any powerful idea it has the potential to liberate or enslave people, but then it always has had. For at base is something fundamental – learning. Viewed in narrow economic terms it translates into a technology of social control generating the necessary flexible worker suited to modern capitalism.

Or as Rikowsky has said:

...in sacrificing lifelong learning to upgrading labour power for economic competitiveness other notions of learning are implicitly downgraded. The idea of 'learning for its own sake', or learning for social and personal development, or for the critical appraisal of society, or for the sheer enjoyment of it appear to lose their magic in the shadow of ... lifelong learning policy. (2007 p.155)

Field (2000) argues , for example, that the learning society and lifelong learning rather than tackling the old structures of inequality, is in fact 'actively reproducing inequality' even 'creating new sources of inequality' which are not replacing the old but rather 'overlaying them' (p.102-3). A society of educational 'haves' and 'have-nots' has arisen whereby the skills rich enjoy the fruits of an extended education and the competence it provides, whilst the 'skills poor fall further behind' (DfEE, 2000 in Field, ibid). Four reasons for this trend are identified: (1) reduced options for the unskilled; (2) rising expectations; (3) a new politics of poverty; (4) the new learning culture.

Taking the essence of each in turn, there are fewer unskilled jobs and opportunity for those without qualifications. In a new economy driven by knowledge this will certainly increase. The gap is growing between the qualified and unqualified with the value of qualifications falling as the number of those with higher qualifications rises with penalties for non-qualification rising even more steeply. In all those already endowed with higher qualifications are gaining most from the learning age.

With a compulsory education system, people are expected to have a minimum level of literacy, numeracy and skills of communication. Those lacking these skills may be particularly compromised.

Post-war welfare states, it is argued have come to the realisation that the levels of support provided, has reached a limit (Leiven and Martin, 2006).

A result of this may be the legitimation of discourses of discrimination where the poor, the alienated and disenfranchised, who have failed to capitalise on learning opportunities will have to accept their fate on the margins of society. Frank Coffield (1999) perceives a new 'moral authoritarianism' emerging in the lifelong learning debate and strong elements of coercion and control, where learning is not something freely engaged in but rather is dictated by the needs of employers or government paying ones benefit. In the US there is 'mandatory adult education' with the legal requirements of certain professionals to take courses to keep their licence to work (Little, 1993). In the UK this is Continual Professional Development (CPD)and would not be considered anything sinister, for example, who would want to get on a plane with a pilot who refused to update her knowledge of the latest safety measures? Of course this is not a problematic example, what is of concern is that large numbers of people are forced to take training courses from which they perceive little benefit for example Highland and Merrill (2003) in their studies in Further Education colleges have found many lecturers and students expressing suspicion about the value of some courses and government programmes like 'New Deal' (which is compulsory) they say:

> Although government policy intentions behind New Deal may appear on the surface to be about social inclusion and improving employability, young people view it as a form of coercion and social control (p.61).

The potential result of this is resistance or increased disaffection amongst 'learners', often compounding the negative experiences they gained at school. Such 'extrinsic motivation' can only take the learner and the learning society so far and then do damage.

Finally before concluding this section, it needs mention that just as there are typologies of the learning society, some research teams have also classified lifelong

learners essentially on a continuum of those who seem firmly committed to those who reject continued participation (Ball et al, 2000). The importance of these studies is that identity, time and place figures strongly in accounting for difference and as such is reviewed in the section on motivation.

Viewed as a human developmental process, lifelong learning of course has the potential to optimise the talent of individuals. Without critical, continuous learners how can the worst aspects of the 'learning culture' be resisted and changed? Without an educated, reflective demos the likelihood of some of the 'totalitarian' visions can draw closer. And conceived of as an instrumental means to an economic ends, lifelong learning could turn out to be an even more intractable source of inequality than the historically structural biases that so many have been struggling to overcome. Torsten Husén predicted this possibility three decades ago stating that:

> Society towards the year 2000 will confer status decreasingly on the basis of social background [but rather] educated ability, will be democracy's replacement for passed on social prerogatives (1974, p24).

Though inherited capital in all its forms still confers great advantages to social elites (Hutton, 1996). Whatever, the problems, we are living in some sort of learning society and people will have to continue their learning for a lifetime, if only to remain in employment and avoid downward mobility. How this will be sustained is a broader question of motivation. Though I don't support the idea of an endless education for the sake off getting and keeping a job.

Motivation and Lifelong Learning

> Above all, current debates on lifelong learning need to move beyond naïve notions of motivation which seek to explain non-participation solely or mainly in terms of individual characteristics…[as] motivation is not a stable, individual personality trait which remains relatively uninfluenced by external factors, but a complex

social construction: motivation is best examined at the intersections between history, geography and biography (Coffield, 2000, pp9-10)

For all the extensive discussion and developments of the learning age it is notable that the role of motivation has received scant attention, unless the debate is about disaffected young people, college 'dropouts' or coerced adults, and then the concern is with a 'lack of motivation' a concept deficient in explanatory power. Although people lose interest in something (e.g., young people and school) nothing may have happened to their 'levels' of motivation but rather their motivation may have changed direction. The notion of 'interest' is also a complex construct with a long tradition of theory and research but used in simplistic ways assuming that we all know what it means and how it operates in everyday life. There are other problematic or as quoted above naïve conceptions of motivation in the lifelong learning literature including ideas like self-esteem, intrinsic and extrinsic motivation, reinforcement or the terms like'motivations' and motives or reasons (Martin, 2005). All of these lack definitional clarity and are inadequate formulations of the process, dynamic, socio-cognitive and embedded nature of motivation presented earlier. As such they will not be reviewed.

Although motivation may be considered important in education, the tendency is to reiterate an assumption that we know what it is and as a commonsensical term, once used we can move on without discussion. So for instance in an early book in the modern era on lifelong learning called 'The Lifelong Learner' Ronald Gross (1977) states, 'the people who get the most out of attending college are usually those who have already developed such a compelling motivation to learn that they would probably educate themselves' (p.67). But how did this 'compelling motivation' develop, what is it and what supports and sustains it? Likewise in an edited volume by Tuijman and van der Kamp (1992) '*Learning Across the Lifespan*' the opening

chapter 'Effective Adult Learning' starts with 'Much of the increased knowledge concerning learning, cognition and <u>motivation</u> has found wide application' (p.1), only for the term never to appear again, let alone be given nominal discussion.

Only recently have researchers and policy makers turned their attention to the accumulated modern literature on motivation (Smith and Spurling, 2001) and begun thinking about how this might be incorporated into strategies for lifelong learning. Unfortunately there has not been a great deal of progress and the literature is therefore very limited.

There are two book length studies worth reviewing.

The OECD's Centre for Educational Research and Innovation in 2000, published an eight-country investigation called 'Motivating Students for Lifelong Learning'. The opening chapter of this recognises the importance of motivation, though again ideas like 'challenging the unmotivated' arise. The authors are pessimistic about the value of 50 years of motivational research by psychologists and educationalists 'which has made relatively little impact on classroom practice' (p.27) because 'there is still no unifying theory' (equally you could level the same criticism at physics, which also has no unifying theory even after two millennia). Instead, they conclude that the field is so complex and multivariate that the waters are hopelessly muddied. As a result of this conclusion the opening chapters contend themselves with picking out some 'significant, but often ignored, research findings' (p.27). Unfortunately this sets the trend for the ensuing case studies, such that they make no mention of the 'many library shelves…filled with books and academic papers' on motivation, but go on to discuss issues of dropout and alienation in school children or recent leavers. The overall conclusion from the case studies is that there are no conclusions and it is up to individual governments and teachers to decide what works and that 'it could be

argued that none of these initiatives will…guarantee that lifelong learning habits are embedded in the young' (p.57). Odd conclusions considering the subtitle is 'What Works in Innovation in Education'. Perhaps this disparaging of the literature however, has some merit as experimental science and theory has not often engaged with everyday understanding and practice and researchers have rarely developed or evaluated *policy*. However, it is unfair to contend that research into motivation has had no impact on pedagogical practice as Wigfield and Eccles book on 'Development and Achievement motivation reviews hundreds of papers on motivation, student behaviour and classroom practice (2003), it is true that the literature is disparate but not that the 'waters are hopelessly muddied'.

The second main text to appear recently on motivation and Lifelong Learning is Smith and Spurling's (2001) *Understanding Motivation for Lifelong Learning.* This is part of the work of 'The Campaign for Learning' a UK charity that aims: 'to stimulate learning that will sustain people for life'. The book provides an overview of the literature from a number of disciplines, psychology, sociology, politics and economics. The authors examine motivation to learn from the individual perspective, within the family and at work before outlining a policy for motivation for lifelong learning. This eclectic approach is a good start as the subject is complex and there are many competing and contrasting viewpoints in motivation to learn. However, whilst highlighting the elements that are important, the broad brush approach taken is superficial and there is a clear preference to see motivation in a rational-cognitive light and to ignore emotion, irrationality unconscious processes and real social contexts which are very important (Claxton, 1997). This short book has tried to cover everything but rather than simplifying is simplistic. For example the chapter on the family essentially states that families are different, have different levels of capital

(economic, social, cultural) and therefore have different effects. So that when it comes to policy we need to assist those with deficit. How? At heart, they state, you need a redistributive strategy to reach the excluded and provide sufficient resources. But we do not know what will be sufficient and as the new politics of poverty wishes to blame the motivationally poor for their own condition, these resources are not likely to be adequate.

Smith and Spurling's review of the literature and the policy development to offer is at least a start. However, it does not report on work with actual lifelong learners (even their case studies are fictional). What is needed in all the policy and rhetoric are stories from actual people and their biographies, from this we may learn what parts of the theory fit and what may need revision, from this, policy is likely to be better positioned to help. To that end there are some biographical studies in particular the two research programmes by Stephen Ball from the ESRC programme (2000) and a major study by Gert Biesta et al (2006).

The Ball study entitled 'Worlds apart' was conducted in an inner city borough of London and centred around a large comprehensive school. The project tracks a group of young people (16 through to 19) and uses qualitative and ethnographic methods (interviews) and uses a grounded analysis, 'to elicit detailed narratives…dealing with key events in their education or employment and their social relationships, aspirations and family lives' (p.47).

At the heart of the research the team describe the young people in terms of their 'learner identities' and attendant view of the process of learning' (p.51). For those that might be embarking on a life of learning and educational opportunity (group 1) 'their centre of gravity and sense of self is well rooted in education' and they are well supported by their families (ibid). The next group also have clear ideas about the

future however, theirs is one located more in a vocational route based firmly in their interests (those mentioned are the RAF, acting and dancing and horses). The third group is tentative and uncertain employing a step-by-step approach to the future, very much transitional. The fourth group are 'locked into the here and now' they are characterised by learner identities that are 'estranged' or even 'damaged', they have had enough of education and they want to work. These identities sound remarkably similar to the 'identity status's' proposed by Erikson and developed by his student John Marcia (1966), however this work is not acknowledged.

In terms of the trajectories of these different learners there are clear extremes on the continuum the first group appears to be on track to a 'glossy' life whist those at the other end are 'struggling to make a life for themselves often in very difficult circumstances' (p.63). Overall the authors conclude that the young peoples socio-cultural systems exert strong influences on their identities and horizons and these are established long before leaving school.

Likewise in the Rees and Gorard (2001) study place, history, social patterns and individual biographies generate identity and structure opportunity in an interactive process. In this study lifelong learning trajectories are collapsed into a 'five-fold' typology (p.177) again there is a continuum from lifelong learner to non-participant, with transitional, delayed and immature lying between. Time, place gender, family and initial schooling all provide co-acting variance to account for, or in the Rees and Gorard term –determine- learning trajectories. They conclude that a person's social class, educational experience and religion are the 'most important determinants of participation in lifelong learning' (p.180). In terms of educational experience success or failure lays the foundation for a future 'enduring learner identity'. Although not explicitly concerned with motivation it is clear that the desire to participate is tied up

in the multiple social, geographical, historical, familial and individual processes that impinge on life. One problem of this work is that although they encouraged their respondents to speak freely, they nonetheless used an '*aide memoire* to direct the discussion to a predetermined analytical agenda' (p.189). They do not say what this agenda was but it may well have influenced the bracketing of their learners identities. In all of the research there is a tendency to see or fit people into one enduring identity, but of course people can and do change.

Understanding how these multiple processes produce motivation for learning is important and using the theoretical advances of the psychology of motivation and learning, insights from NDS and a focus on life stories can contribute to that aim.

CHAPTER4: METHODOLOGY

'The resource of highest value in adult education is the learner's experience…'
(Eduard Lindman, 1926)

Biography as case study

The case study approach to social research is enjoying a renaissance amongst social scientists, though it remains a controversial and misunderstood one (Gomm et al, 2000; Thomas, 2011). This chapter outlines the case study approach and briefly considers the main 'problems' claimed for it: generalisability, validity and reliability. Some further features of case studies are discussed and an example of a case study is described before a particular approach (life story) and specific analysis (thematic field and use of complexity concepts) is proposed. Following this the design of the study is outlined.

Whilst there are tensions existing between quantitative and qualitative approaches, the rationale is to argue for the choice of method or approach and any quantitative data must be *interpreted*, therefore words and numbers exist not in an either\or relationship but in a yin and yang one, being two sides of the same coin. Considering the different kinds of questions educational researchers ask it may be necessary to rely of a number of research approaches.

The various ways in which motivation has been studied reflects the theoretical approaches of different writers, however it is fair to say that qualitative methods other than (brief) interviews lack prominence in the literature on achievement motivation. Psychologists predominantly study motivation and the major tradition in psychology

is a quantitative one. 'The bulk of the literature in achievement motivation and school success is grounded in quantitative methods' (Bempechat & Elliot, p.1)

The research design employed here is a qualitative one using case studies in the form of life stories. Case studies are not necessarily qualitative and a case study 'is not a methodological choice but a choice of what is to be studied' (Stake, 2000). In this case however, a qualitative approach is used. (The pilot study referred to later uses content analysis, which is a quantitative approach, however this is discussed in a prelude to that study).

The case study does not stand alone, outside of the contextual world in which 'it' lives and the research here is not a single case but a number of cases. There are some features of the case study described by Stake (2000) and Thomas (2011), which are worth summarising before outlining the life story approach.

Stake's Typology

Three types of case study are identified and they are organised in terms of their genuine interest:

The intrinsic case - cases are studied for the inherent interest they contain, not for the sake of understanding an abstract construct or to build a theory but rather because the case is in itself of interest.

The instrumental case – is subordinate to our understanding of something else, it is studied nonetheless in detail, but it is used to illustrate an external issue. The case may be used because it is typical or atypical.

The collective case study- jointly studying a number of cases to investigate a phenomenon or general condition. The cases are chosen because they shed light on an even larger collection of cases.

Stake recognises that certain studies and researchers *purposes* do not slot neatly into these categories. Indeed it is recognised that most case studies have some instrumentality even if the writer did not set out with any agenda other than to record their interest.

Thomas's Typology

Again three main types 'routes for selection' (Thomas, 2011) are suggested, before considering these Thomas defines case studies as:

> 'Case studies are analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more methods. The case that is the subject of the inquiry will be an instance of a class of phenomena that provides an analytical frame—an object—within which the study is conducted and which the case illuminates and explicates.' (2011, p.3)

In this definition cases contain a *subject* which is a 'practical, historical unity' and an *object* which is an 'analytical or theoretical frame' (ibid). This is a very useful way of viewing case study enquiry as it asks the researcher to be clear about what is being studied but also the purpose, which is, the intention to *explain* what is being studied.

The local knowledge case – this is selecting the subject on the basis that the researcher has familiarity with in order to achieve an 'informed in-depth analysis' and quoting Bates et al, (1998, pp. 13-14) the opportunity to discuss "the actors, the decision points they faced, the choices they made, the paths taken and shunned, and the manner in which their choices generated events and outcomes."

The other two are: *the key case and the outlier case* – here choice is dictated by the capacity to generate 'exemplary knowledge' therefore in the key case it is a good example of something and in the outlier it is 'interesting because it is different from the norm' (Thomas, 2011, p. 77). Of course arguments have to be made for the criteria in determining the typicality or not of these cases.

The cases reported here are examples of 'local knowledge cases, they are of interest in themselves I hope, they are after all lives lived. However, they have a purpose and that is to help show the context in which motivation for learning has developed for the individual and to contribute to an understanding of development of competence motivation. Because of this focus, the life stories collected for this thesis are constrained in particular ways, they are in essence not whole lives, that would be an impossible record, but rather 'themes' or threads within lives and even then they are necessarily partial. One of the reasons they must be partial, even distorted, is because they rest on autobiographical memory and it is well established that most people have no recollection of the first few years of life and further that memories can be changed by later events.

Partial they may be, but they are certainly richer and 'thicker' than the results reported in most quantitative studies of achievement motivation or even qualitative studies. For instance the project by Linden West (1996) entitled 'Beyond Fragments: adults, motivation and higher education. A biographical analysis' Linton examines the lives of a number of men and women studying on Access to Higher Education courses in England in the early 1990's. It is possible from the excerpts presented in the text to get some idea of the motives and life stories of the students. However, the project ends after the transition to University so it is not possible to follow the further

progress of the students and what they did on graduation (or even whether they graduated). West's case studies essentially illuminate the struggles of the men and women, unconfident and previously oppressed by education as they begin to grow and see the benefits of higher education beyond the narrow limits of a better job, or even a job, but to develop as a person. The transition from further to higher education is not easy for many of the students (pp189-204) but as noted the study does not follow them throughout university so it is not possible to see how further obstacles are managed and what this tells us about motivation and persistence in HE. In this respect the project has not been comprehensive enough and indeed West concludes that his book can offer no more than an outline of a theory of the 'cultural psychology of learning' and how this might influence practice. Another approach would have been to take a smaller sample and document lives and the transition through higher education to completion or non-completion and then to draw conclusions. P's story later covers some of a career through university.

Generalisation

One of the major weaknesses levelled at case study research is that you cannot generalise from a case. But before considering that, you have to ask why you would want to generalise.

The main reason given is that generalisability is taken to be a major plank of science, the aim of which is prediction and control. Prediction and control is based on general laws of behaviour. To understand all the general laws of nature is to have a theory of everything, apparently the final solution for scientific enquiry. Such an assumption derives from John Stuart Mill's assertion that nature is uniform in time and space and

the aim of both natural and social science is the discovery of general laws for the purpose of explanation, prediction and control.

The problem with this is that universal laws pertaining everywhere for all time are context free (Lincoln & Guba, 1979), the idea of context free social life is untenable. Also, as the history of science shows, 'generalisations decay' (Cronbach, 1975, p.122), for example Newtonian mechanics, extended by relativity theory in turn challenged by quantum mechanics. Furthermore, establishing the truth requires the search for all exceptions or counter examples as suggested by Popper's falsificationist approach, to quote Cronbach again 'any generalization is a working hypothesis, not a conclusion' (p.122). To go further, you cannot fully generalise from any research method in the human sciences, not even the gold standard 'large randomised controlled trials'. The reason is that generalisation is a process of moving from the particular to the general or universal and it is built on the assumption that your sample is representative. But if you want to say something that holds for all humans everywhere at all times, then you would need a sample that included the dead, the unborn and a random selection of the whole human population. Generalisation is impossible you can only achieve what Donald Campbell called 'proximal similarity' (Trochim, 1998).

Case studies in this respect then are important for they can point up exceptions or provide counter examples and so challenge existing theory. For example in brain research it is noted that certain areas of the cerebral cortex are functionally localised, one of the first of these areas to be identified was Broca's area after Paul Broca (1865). This area is responsible for speech production. However, in 2009 in a case study by Monique Plaza and colleagues, they observed a patient who had a tumour removed that also involved the complete destruction of Broca's area, the patient LV

after recovery, could still speak. This of course requires explanation and may even mean abandoning the theory that Broca's area is needed for speech production. Indeed the story of Nico at the beginning and other hemispherectimised children requires a better deeper explanation than localisation of function, or adjacent area compensation. The 'explanation' comes in part from the structure and dynamics of the brain which conforms to a 'small world network' (Watts and Stogatz, 1998) a structure, in turn conferring resilience (Martin and Greenway, 2010). All brains show this resilience, however, this capacity may extend out as embedded cognition, in that some people are more resilient (in the face of say stress/failure) than others. Do they have a different brain network structure? Whilst there has been many network analyses of vulnerable brains especially those that are associated with neuro-developmental or psychopathological conditions (Martin, 2012), I don't believe the brains of resilient individuals have been subject to these analyses.

With generalisation this can happen from single studies or a small number of studies and it comes through the transferability of experience. Stake (1978) calls this 'naturalistic generalisation', explained by Schofield: 'it is possible to use a process he [Stake] calls naturalistic generalisation, to take the findings from one study and apply them to understanding another *similar* situation (cited in Gomm, 2000, p.75). So for example, when we develop our transferable skills and knowledge we engage in naturalistic generalisation.

Alternatively use the 'case survey method' developed by Yin and Heald (1975) a approach for comparing many case studies (if they exist).

However, as Thomas argues the case study is about exemplars, not generalisability , representativeness nor typicality, rather it is about 'discovering or testing tools of explanation' (Thomas, 2011b, p. 5).

Qualitative criteria replacing validity and reliability

In 'What's wrong with Ethnography?' Hammersley (1992) outlines a number of criteria by which ethnographic and wider social research should be assessed and these contrast with those of quantitative science, especially generalisability, validity and reliability.

Trustworthiness

Trustworthiness in qualitative research refers to the extent that research findings 'are worth paying attention to' (Lincoln & Guba, 1985, p. 290) and represent a credible account of phenomena. Credibility is a criterion of qualitative research that replaces the quantitative concept of internal validity, the extent to which the 'truth' of research findings can be established. Instead Lincoln and Guba have argued for a focus on the degree to which the findings make sense or the how 'credible' the interpretations are of the original data (p. 296). One of the ways in which credibility is sought is through 'member checking' and this involves providing the participants with their transcripts and subsequent analyses and asking for their agreement or disagreement. All the participants were given copies of and read the transcripts and where they made observations on the analyses, these are included in the case study write ups.

Bassey (1999) considers 'trustworthiness' as a criterion in relation to case study over the experimental constructs of reliability and validity and in his model builds in respect for truth to include consideration of the following:

1. Has there been prolonged engagement with data sources?

2. Has there been persistent observation of emerging issues?

3. Have raw data been adequately checked with their sources?

(Bassey, 1999, p.75)

In developing the cases and conducting the analyses I tried to keep these guiding questions in mind.

Transferability

Whereas trustworthiness replaces the criteria of internal validity transferability replaces the concept of external validity, confidence in the extent to which results from unique and particular studies can be generalised to populations and wider conditions, using approaches such as random sampling, experimentation and probabilistic reasoning. Rather transferability asks to what extent the findings might transfer beyond the bounds of the research study and are applicable beyond the particular research context. So quantitative ideas of 'generalisability' are rejected whilst retaining some belief that a 'degree of transferability is possible under some circumstances' and ' those circumstances exist if enough "thick description" is available about both "sending" and "receiving" contexts to make a reasoned judgement about the degree of transferability possible (Guba & Lincoln, 1982, in Hammersley, 1992, p. 63-4).

The goal then is not to achieve findings that generalise to 'diverse populations and times(Smith, 1975 in Schofield, 2000, p.67). Instead ethnographic and other interpretative work is valued for the rich description in can afford of human experience and not the uncovering of universal laws of behaviour. This degree of transferability should be considered and proposed by the researcher to suggest the applicability of the work beyond the confines of the research project.

Tensions between the status of data and the role of the researcher

The case study does not stand alone, outside of the contextual world in which 'it' lives and the research here is not a single case but a number of cases. Before discussing the features of case studies it is important to acknowledge the role of the researcher in the process of gathering evidence and to appreciate that such evidence does not exist autonomously. The ideas of objective detachment and research techniques that lead to truth and certainty are 'illusions' (Kemmis and McTaggart, 2003, p.357). The researcher and the researched represent an inter-subjective group 'us', collaborating in the telling of a story or stories. The researcher eventually offers an interpretation of what the stories tell and this interpretation of course is open to acceptance or rejection or alternative explanation. The finding and interpretations are always provisional, perspectival and fallible coming as they do from the researchers own history and knowledge.

Important features of the case study

There are particular features of the case study worth considering. The case study research may consider the following important aspects:

Case selection

The context of the case

Learning from the case

Ethics

I want to examine these in turn and then consider a particular case to illustrate these and other features of case study research in action. (The case discussed later is a

hundred years old, but demonstrates how a document of a life experience can generate a whole hermeneutic literature still vibrant today).

Selection

Cases are either revealed to the researcher or they are chosen or they are manufactured. For instance medics through the course of their practice come across cases that have unique or typical features that will be of interest to others and are therefore recorded (in the past physicians often gave their names to particular disorders e.g. Alzheimer's or Zollinger-Ellison syndrome[36]), they are not chosen as such.

Where choice exists, cases are considered on the basis again of uniqueness, typicality or convenience. Choosing on the basis of typicality, it is argued, is preferred over the other two criteria (Schofield, 1990 in Gomm et al, 2000). Convenience (as in ease of access) may mean that the research question is compromised because the case does not contain the features that were originally of interest, so studying special needs pupils in a school that has only a handful of pupils over a school which has a substantial number could distort the original aim.

Uniqueness or idiosyncrasy will inevitably be a part of the situation studied. No case is absolutely typical (or even unique) typicality comes from comparing a number of like situations, institutions, occupations, people etc. Therefore if you want to study the experience of students in an inner-city college, you could choose amongst a number on the basis of such features like, location, budget, curriculum etc. Typicality is favoured because of the scope for generalisability and generalisability increases when

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[36] An extreme form of peptic ulceration

a number of similar cases can be aggregated (ibid). However, as noted generalisability is not the aim of case study enquiry.

A manufactured case is one that is generated anew by the researcher, life-story researchers do this when they record an ordinary persons history. The subsequent document then stands as a case to be studied (biographies and autobiographies do this also, but usually, until recently did not take ordinary folk as their subject).

Context

'With its own unique history, the case is a complex entity, operating within a number of contexts, physical, economic, ethical, aesthetic…The case is singular, but it has subsections…a concatenation of domains, many so complex that at best they can only be sampled' (Stake, 2000, p.440).

The issue of domains is an important one, in anyone's life multiple domains exist and within those subsections appear, for instance taking 'relationships' - in form these can be familial, romantic, friendship, professional etc. or in intensity/duration they could be intense, ambivalent, weak, long or short.

In holistic work the context has primacy, the culture and history of an individual means tracing the inter-relations of life because these will have a bearing on the current experience. In asking questions about motivation for learning I need to know about the formative experiences of those who have agreed to talk to me. If your family background is one where resources are abundant, family life is stable, supportive and encouragement to study hard is present, then these are important factors in shaping your motivational pattern. Dweck argues that the basis for motivational pattern is laid down in early childhood (1999) likewise the converse may be true. However, should an individual with a highly adverse background have a strong mastery approach to learning and been very successful, this would need to be

accounted for. The only way to do this is to have sufficient 'case' detail. Again I can't see how a battery of psychometric tests would reveal this, what might happen rather is that the contradictory case is simply viewed as an aberration and discounted. This is contrary to the falsificationist approach to science development and at odds with complexity views.

Learning from the case

Case study research extends knowledge that is both tacit or experiential knowledge and prepositional knowledge. Stake and Easley (1978) takes this distinction from Polyani (1958) and states that:

'Propositional knowledge…was seen to be composed of all interpersonally sharable statements, most of which are observations of objects and events. Tacit knowledge may also may also dwell on objects and events, but it is knowledge gained from experience with them, experience with propositions about them and rumination:

> Through reason man observes himself; but he knows himself only through consciousness. (Tolstoy, 1869)

Tacit knowledge is all that is remembered somehow, minus that which is remembered in the form of words, symbols or other rhetorical forms. It is that which permits us to recognize faces, to comprehend metaphors and to 'know ourselves'.' (Cited in Gomm, 2000, p.20)

Tacit or experiential knowledge may be considered weaker for explaining things and formulating laws, whereas prepositional knowledge drawn as it is from Propositional logic is considered a better method for establishing 'proof' a foundation of science. However, you have to bear in mind that logic is predicated on the truth of the propositions and you can have reasoned and logical conclusions from false premises. However, this is not the point, the point is that cases function to increase knowledge, a

case does something, it offers description and invites analysis and interpretation. Case studies, written and recorded, are the food of hermenuets.

Some case studies are capable of endlessly generating new hypotheses, interpretations and insights.

To conclude this section before taking ethics and the value of an actual case I want to outline Thomas's (2011) arguments on how case studies might be better conducted using his distinctions of the subject and object of a case and the value of abduction over induction and phronesis over theory.

A case has both a subject and an object. The subject the 'practical unity' is a case of *something* and the object is the analysis in terms of 'why' the reason(s) for the observation.

As case studies are not about generalisation from inductive research then it matters what they are about and what their strengths are and these are according to Thomas should be 'abduction not induction, phronesis not theory' (2010).

Abduction is making a *judgement* concerning the best explanation for the facts' collected (ibid, p.212).

Phronesis is 'practical knowledge. It is a model based on practical experience... and helps us to make sense of particular situations' (p. 214)

It may help to illustrate this with a particular famous case from epidimology and a map at the heart of the issue.
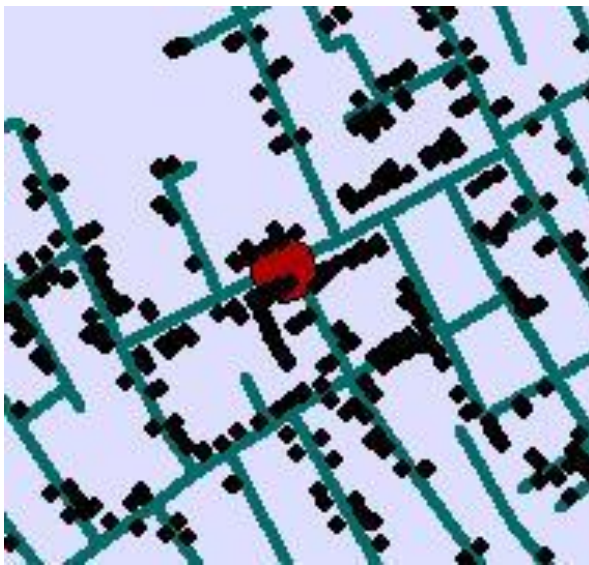

Figure: Snow's 1854 Cholera Map

This famous map (reduced here to its central features) of the 1854 cholera epidemic in London represents a dynamical structure. John Snow used this map to convince the authorities that the cholera deaths were happening due to contaminated water from a pump at the epicentre of the outbreak. He used numerous approaches to collect data and assembled a number of arguments against the 'Miasma' theory, that polluted air was spreading the disease. He reasoned (**abduction**) that the pattern of the spread of the disease and those it was affecting meant that the mode of transmission was unlikely to be the air but rather water and at that a particular water pump was likely. He noticed that the physicians treating the sick did not fall ill, because they did not eat or drink in the working class homes they visited and wealthy citizens were not becoming infected as they had their own wells to draw water from. Identification of the index case, led to the discovery that the contamination was leaking in from a nearby cesspool.

His conclusions were not arrived at through induction, the reasoning did not emerge from the map, he had already hypothesised and published arguments that cholera was a waterborne germ and infection of the gut because of his experience of treating cholera patients in the past (**Phronesis**) who he thought must have ingested contaminated food or water. The pump he thought was responsible for the outbreak was removed and the disease subsided. Snow had no direct evidence but by the processes of abduction (hunch) and application of his practical knowledge he solved the problem.

Twenty five years after his death the bacterium Vibrio Cholerae was identified.

Snow's map is an example of a thematic map and was used for analysis not just description. This is an important value of a map, as Simon says "Solving a problem simply means *representing* it so as to make the solution transparent" (Simon. 1981).

Snow's legacy was the transformation of cities as places where millions could live in relative safety due to improved sanitation.

Ethics

"Language can never contain a whole person, so every act of writing a person's life is inevitably a violation," Josselson (1996, p. 62).

All research with people requires the highest respect for the individual and research in the human sciences cannot progress without the freely given help of others. Life story research is no different from other in depth interview work that asks people to divulge personal information. All research with people must satisfy a range of ethical principles including, consent, privacy, the right to withdraw, freedom from harm and safe storage of any data. Participants gave their consent (see appendix 2 for consent form), were assured anonymity and informed of their right to withdraw from the study. All interview data was stored safely of a password protected drive.

An example of a case study

What follows is a brief example of a case study and how a case can be approached according to issues discussed above, viz selection, context, learning and ethics. It is not a case study of someone's schooling or learning (as that comes later) nor is it a case study of motivation in itself or analysed as such. (One could of course take a biography of someone with a strong motivational character, such as Nelson Mandela, and examine the development of his remarkable resolve, drawn from the ideals of democracy and universal freedom.)

Rather this is a classic case from the psychiatric literature. It nonetheless shows the development of learning and how persistence leads to desirable goals (in this case freedom from years of incarceration in mental hospitals), it is also in the opinion of

many fascinating in itself. I don't conduct an OPS analysis of this case, but rather use it to show how a content analysis of a narrative can yield fresh and valuable insight.

The Case of Daniel Paul Schreber

In 1893 at the age of 51 the eminent German Judge Daniel Paul Schreber suffered a mental breakdown, which led to his 'readmission' to the Leipzig Psychiatric hospital (he had suffered a previous breakdown and had been treated at the same hospital 8 years earlier). Unlike his first period of 'nervous illness' as he termed it, during his time in the hospital his mental condition deteriorated to a psychotic state characterised by delusions, hallucinations, paranoia and persecution by supernatural powers.

Paul Schreber is arguably the most famous mental patient in the history of Psychiatry. In 1903 Paul published his memoirs[37] relating the history and content of his illness. The memoirs are an important 'record' of his years in asylums and have been described as 'the most important document in psychiatry bar none' (Canetti, 1972) and Paul Schreber has been 'the most frequently quoted patient in psychiatry' (Isreals, 1989)[38]. The cause of his breakdown has been the subject of quite a few explanations, notably psychoanalytic accounts of oedipal crisis in particular Freud's seminal paper declaring Paul Schreber's illness the result of repressed homosexuality (Freud, 1911). Or the cruel and abusive upbringing meted out by his father, the so-called despotic father tradition (in Martin, 2007) or even Zvi Lothane's thorough analysis as an inherited depressive illness (1992).

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[37] Memoirs of my mental illness Daniel Paul Schreber, 1903.

[38] I don't know why he is described in this way unless you consider Psychoanalysis as a branch of psychiatry, I think in the US it is. What is sure is that Paul is certainly one of the most discussed cases in psychoanalysis.

Selection

His fame undoubtedly results from Freud's paper. It is remarkable for a number of reasons and this case study based on an existing case can illustrate some of the features mentioned above. There are multiple reasons Freud chose Schreber's biography as a case study. One, as he notes in his introduction, is that private practitioners lack the opportunities of those working in public institutions (an issue of access); secondly patients suffering from paranoid (schizophrenia) disorder as was assumed for Paul Schreber are not amenable to psychoanalytic therapy (a long drawn out process requiring some stability and insight on the part of the analysand) and three, the book is incredibly detailed and therefore a unique insight into madness from someone who had recovered sufficiently to write a thorough account.

Context

The context of the case is important, Schreber's prominent position in life, his academic background, his family circumstances, Saxony at the turn of the nineteenth century, the practice of Psychiatry at the time are all important factors in understanding what happened to him and the outcomes of his life. It is not possible to go into these here however, they are covered in some detail by the works cited above. Taking two contexts however, illustrates important parts of his case. Firstly Psychiatry in Leipzig where Schreber was first treated, had begun to assume the highly biomedical approach common today in western society. In particular Schreber was treated with drugs which may or may not have exacerbated his condition, he was as his condition deteriorated constrained and incarcerated in padded cells (indeed he spent years imprisoned in a padded cell). His hallucinations soon coalesced into a delusional system in which God initially persecuted him before being chosen as a redeemer of the human race. As time went on his conditioned improved such that by

1900 he had written his memoirs and was given more freedoms in the mental hospital to associate with others. He did not then begin to distance himself from his delusions but continued to insist they were revelation.

Secondly, at this point another context became important, Paul Schreber was intimate with the law (he had helped write a good deal of it), he was a legal ward of the state and the state having declared him insane could keep him locked up in an asylum. He decided to challenge this and prepared a defence. Paul was ultimately successful, though it took a few years to secure his release. Had he not succeeded in gaining his freedom it is unlikely he would have been allowed to publish his account.

Not that publishing his book had been easy (one chapter had to be completely removed and this has intrigued researchers ever since) once it appeared his family tried to buy up as many copies as possible to suppress its dissemination.

His biography has undergone a century of hermeneutic analysis and is regarded as the most intensively studies case of a psychiatric patient. But as one of his modern biographers has said, 'it is so full of mad details…' (Hans Israels) that much can still be learned. I decided to carry out a content analysis using the simplest method, word frequency, from this analysis I noted that Schreber referred to a 'miracle' that interfered with his daily living to the extent that the Asylum locked him away in solitary confinement for two and a half years. Freud doesn't make any mention of this as he is more concerned with his a priory view that Schreber's desire to be transformed into a woman (The Entmannung Miracle) is symbolic of his desire to have sex with his father. This is discredited by Zvi Lothane (2004) who notes that Schreber was a transvestite and had no homosexual history or tendencies. What I found following a word count analysis was that another 'miracle' was twice as

commong as the Entmannung one, which Schreber labelled the Das Brullwunder or the bellowing miracle, literally bellowing out loud. This is dispersed throughout the text and had significant impact on his experience in the asylum, from being locked away to being attacked by other patients. My conclusion was mundane, that Schreber was suffering from an Adult Tic disorder (co-morbid with his psychiatric condition).

Learning from the case

Because Schreber has left such a detailed account of his experiences it has been possible for researchers over the past century to come to many insights into the nature of psychosis and to offer many theoretical explanations. But the memoirs have not only attracted Psychiatrists and Psychologists, many other social science researchers as well as theologians, dramatists and ecologists have used his text to advance theory (Isreals op cit). The memoirs and Freud's case notes have spawned a vast literature, which is testimony to the power of case studies in promoting the opportunities for learning and theory.

The Schreber case however is not a life story as such. The memoirs cover a ten-year period and it has been up to others to fill in the gaps in Paul's life. Nonetheless, a great deal is now known about Paul and his family and his life. Taken together the literature is a life story as well as a life history and the history and function of a document.

However, although a great deal is known about Paul Schreber it is not possible to conduct an analysis of Paul's motivation and development of learning. To do that it is necessary to conduct a life story interview themed on learning and motivation with someone currently alive and able to relate their experience!

There does exist some recent case study work explicity examining motivation. Kurt Fischer (2003) has examined the attributional bias of a 17 year old girl severely sexually abused from early child hood. Explain further and relate to above case.

The life story interview

The life story is a qualitative method for collecting subjective experience of a persons' life and producing a primary document for critical analysis. It is a collaborative project between the researcher and the interviewee (Atkinson, 1998). The use of life histories for psychological study is usually traced to Freud's case studies in the development of psychodynamic theory and developed fully by Erikson in his narrative studies of life to explore life span development (Freud, 1957/1958; Erikson, 1958/1969). This approach is sometimes referred to as Psychobiography (Runyan, 1982).

The advantage of the life story is that it allows the study of 'whole lives' without recourse to longitudinal research, although of course it is longitudinal except that the observer is not the researcher but rather the interviewee is the observer. As a method it is now a central element in the area of the narrative study of lives (Atkinson, op. cit.) To say that whole lives are studied needs qualification, lives in their entirety cannot be studied except in fictions such as the Truman Show[39]. Rather a whole life is taken to mean be a 'biography as a comprehensive, general pattern of orientation that is selective in separating the relevant from the irrelevant' (Rosenthal, 1992, p. 62).

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[39] The Truman Show - a movie based on the life of a man who exists in a fictional town. Unknown to him he is the main character of a soap opera completely fabricated by a media corporation and watched by millions of tv viewers.

Life stories are told, recorded and transformed into a narrative document, it is this document that then undergoes analysis and examination through the theoretical orientation.

The Study Design

'Given that human growth and development is quintessentially a dynamic system, responsive to its own internal variability as well as environmental perturbations, group analyses will obscure the dynamics of self organising processes. (Magai and Haviland-Jones, p.36)

The first phase of the study employed a pilot survey to consider and profile groups of students according to some features of NDS theory. This was a straightforward survey that used motivational measures to examine resilience and education attrition in a sample of adult students and to profile them as having particular attractor states. However, it had all the features of quantitative canonical psychology and was abandoned (see appendix 1 for the report).

The main study collected a small number of developed life stories centred on adult's experiences' of education across life. The narrators were mature adults who have achieved a high level of education, up to post-graduate study.

Life story interviews were conducted following the general guidelines proposed by Atkinson (1998).

Research participants were initially interviewed on three separate occasions to cover early childhood and primary schooling, secondary schooling and post 16 education. There were then follow up meetings after the transcripts had been produced, for purposes of clarifying and asking further questions. As noted a brief questionnaire

was also employed to compare individuals socio-cognitive orientation to achievement motivation and effort ability values (as described in the report in appendix 1).

Ethical guidelines particularly those produced by BERA and the British Psychological Society will be followed. (Consent form in appendix 2)

Design outline – Biography and motivation for lifelong learning

Life story research is by its very nature ideographic and the analysis that follows from this is usually interpretive and hermeneutic. The design outlined here proposes to examine the processes of learning and motivation in the individual over time. The philosophical underpinnings of the research are founded on the notion that everyone is unique and that everyone is connected, therefore in a broad sense universal processes of learning and motivation over time can be studied in the individual and give rise to conceptual generalisation, as opposed to statistical generalisation. Statistical analyses of group data as the quote above points out will obscure potentially important variables in the learning trajectories of individuals, variables that may well provide a patterned understanding of change.

As such the individuals chosen for study are not meant to be representative of categories of people or social groups, but in studying motivation for learning in the individual it is possible to illuminate the social or societal aspect of these processes, there is no contradiction here, people are *both* individuals and members of society. Though I recognise this is simplifying some of the tensions here.

Binary pairs or dichotomies such as, quantitative versus qualitative, nomothetic vs idiographic, sociology v psychology, are unhelpful and false divisions and positivism and disciplinarity according to the Gulbenkian Commission, have been pronounced

dead (Gulbenkian Commission, 1995). However, this is probably going too far as they clearly continue to operate in scientific and professional life.

We live in a complex interconnected universe, we use analytical concepts to cope with this fact and they are not necessarily real. Rather we are living in a period of exploration where the movement is towards examining ideas at the intersections of knowledge fields (transdiciplinarity) for the generation of new ideas and new insights (Byrne, 1998; Capra, 1996) whilst always bearing in mind 'the realisation that knowledge itself is provisional and socially constructed' (Ranson et al, 1996 p.16).

Inductive and deductive approaches

Inductive and deductive approaches are not mutually exclusive and can be combined as seen in the work of certain grounded theorists (see Charmaz, 1995, p.36). Indeed, it is common to that much research begins in a hypothetical deductive way, so that hypothesis are initially tested, then through analysis, further questions and hypothesis emerge from the data. So this is another example of binary distinction that does not hold up in the real world as Peter Medawar said, these are 'postures we choose to be seen in when the curtain goes up and the public sees us' (in Thomas and James, 2005, p.87).

In the design outlined here I do adopt questions to help generate the data and later use analysis to refine these and then explore further questions that come to light from that analysis.

The overall aim is to contribute to a provisional *dynamical* understanding of motivation for learning across life through the analysis of learner biographies.

As stated in the introduction and methodology this is a longitudinal study examining the life stories and learning biographies of a number of adults who have spent a lifetime committed to continuous education.

In particular the analysis is aimed at providing a rich conceptual account and explanatory framework of motivation for learning, drawn from the individual and social influences in the lives of the participants. As such I will draw on three main areas of theoretical development, Lifespan theory of control, Completion theory and NDS. Of particular interest are the impact of developmental events (normative and non-normative, explained below), cognitive/affective structures, family influence, the learner's identity (and identification with significant others) and the historical and cultural constraints on opportunities and desire to learn.

The study then employs a number of research approaches broadly from the strategies employed in ethnography and case study: Life history (for a social context) and life story (for an individual developmental perspective) as well as limited psychometric survey (for comparative analysis with current theory). The research approaches proposed have implications for data analysis, which are discussed below. In terms of data analysis as the approach employs a grounded theory one, however, this is a constructivist one which has been modified in light of the developments and criticisms of Charmaz, (1995, 2000) and Thomas and James (2006).

Important for the design and analysis are the theoretical underpinnings mentioned above. Lives unfold according to established constraints of maturation yet they evolve

uniquely through events specific to the individual creating an individual mental world ,or meaning system, which in turn has been shaped by the social, historical and cultural environment. These events of life can be categorised as either normative or non-normative (examples are given below). Lifespan development theory is a necessary framework for comprehending growth, but I come at it through a dynamical systems developmentalist approach.

Motivational theories have proliferated and provide deeper understanding of the cognitive and affective processes that drive achievement behaviour centred on learning, at the same time learning theories are beginning to capture the great complexity of multivariate behaviours and mental operations necessary for survival - physical and social.

Finally, one other theoretical consideration is dealt with that of identity, particularly that of the individual as a lifelong learner.

Sample Selection and Data Collection

In selecting lives for examination there are two main considerations the *how many* and *who* is to be included.

In choosing the number of stories or participants there are no agreed rules, just as with the who below, selection follows from interest, opportunity, chance, pragmatism as well as formal criteria. In psychobiography of the kind conducted by Freud (1911) or Erickson (1959) a single persons' life is examined.

When studying more than one life researchers have often chosen three individuals for comparison, examples include White's *Three Lives in Progress* (1975) and Magai and Haviland-Jones' *The Hidden Genius of Emotion* (2002). Or where resources permit large numbers of lives are studied (see Smith, 1995; Thomas and Znaniecki, in

Znaniecki, 1934) both of which had government grants or large private endowments to work with). The number then is influenced by the opportunity to study a life or lives and the resources available to the researcher.

I have collected three developed life-stories centred on adults' experiences of education across life, I chose three because life story transcripts can be extremely 'thick' or rich data; also this has previously been the recommended number for examining the 'essence of experience' or an appropriate number for in depth case study (Bochner and Ellis, 2003), however, there are no hard and fast rules. Furthermore, I used grounded coding techniques which are intensive and time consuming[40], with the expected pay off coming through the thorough excavation of the data.

In addition to these stories I sought collaborative data from those who know the *authors[41]* well (parents, children, siblings, friends) and I gathered some psychometric data to help 'profile' the learners' motivation as characterised by socio-cognitive models (cf Bandura, 1986; Dweck, 1999).

The who- chance and choice.

Chance

Who is selected is a matter of two main approaches: chance and formally chosen criteria. Ken Plummer (1995) notes that many life story studies result from a chance encounter or event. 'Thus, Bogdan met Jane Fry, a transsexual…when she was a speaker for a gay group at a social problems seminar (Bogdan, 1974, p.6). Sutherland met Chic Conwell, a professional thief, through 'The King of the Hobos', a man who was both literary and keen to 'learn an honest, useful life' (Snodgrass, 1973,

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[40] The first participant was interviewed 4 times each interview lasted just over an hour and on transcription had generated over 40000 words.

[41] I am referring to the interviewees as authors because they have generated their own stories, selecting what is important to illustrate their lives, but I will interchange this term with respondent and interviewee to avoid tedious repitition.

p.7)…While Thomas initially discovered some of his letters when some garbage was thrown out of a window down a Chicago alley and landed at his feet (Thomas and Znanieki, 1958)!' (pp.50-51). In these cases explicit criteria are not articulated rather the researchers are fortunate for a 'good find' (ibid, p.51).

Freud's study of Schreber is a story of both chance and pragmatism. The book was brought to his attention by Jung (chance conversation) and pragmatism prevailed because Freud wished to study a patient suffering from 'paranoia' but as a private practitioner lacked access to the public institutions where such patients were cared for. As he explains in the introduction to his famous study: 'The analytic investigation of paranoia presents difficulties of a peculiar nature to physicians who, like myself, are not attached to public institutions' (1911, p.387). In any selection of individuals there will always be some kind of restriction or limitations. However, where there is choice there are some explicit criteria that can be followed.

Choice

From the research (see particularly Plummer, 1995) there seems to be three main criteria that have been adopted for the selection of participants: marginality, greatness and ordinariness. However, none are expected to be fully *representative* as life story is generally considered an *idiographic* approach not a *nomothetic* approach. Nonetheless, as argued in the methodology, this was always a non debate. You cannot preclude generalisation from cases, but this generalisation is not of the statistical averaging for representativeness (a criteria with many problems) but conceptual generalisation. Furthermore, according to the Windelband (1894) the German philosopher who coined these terms, nomothetic laws can only come from findings originating from a series of N=1 studies because such laws would need to 'hold up across individual persons' (Lamiell, 1995). It is this that allows case studies

examining universal processes to be conceptually generalisable and why the distinction between the nomothetic and ideographic never mattered.

Plummer claims that the *marginal person* has often been chosen and is someone situated at a 'cultural cross-roads' or fated to live in two antagonistic societies (p. 51) and he gives a number of examples or these polarised people eg., Jane Fry and Agnes (Bogdan, 1974; Garfinkel, 1967) who inhabit male and female worlds, or more unusually, Victor 'the wild boy of Aveyron' a feral child described as living halfway between humanity and 'beasthood' (Lane, 1977).

Plummer feels that 'marginality can be fairly readily identified' (p.52). However, the examples above might not be so readily 'marginalised' in contemporary society, with greater expression of sexuality and diversity of cultures where many are living bi-cultural identities. Also there are many difficulties with definitions of marginality, like definitions of social class or conceptions of the normal vs abnormal, all kinds of questions arise as to the use of these categories. Who is it that signifies the mainstream and the fringes, do people remain stuck in one or other world, what does exclusion and inclusion mean to different people? These are important issues and will impact on the identity of learners.

The great person is also a contested admixture of attributes and circumstances. Not everyone for example considered 'great' was perceived to be so at the time they lived, for instance Vincent Van Gogh was long dead before his 'genius' was recognised and many 'great' people as Plummer notes were often marginal. For Erikson, great people particularly the two religious-political leaders he studied, 'namely Martin Luther and Mohandas Ghandi…were able to translate their personal conflicts into methods of spiritual and political renewal in the lives of a large contingent of their contemporaries' (1982, p.82)

Whatever, makes for greatness none of the people participating in this study would be recognised as such, rather they are ordinary individuals, however, there are always extraordinary aspects to everyone.

Sample

The interviewees were mature adults who have achieved a high level of education (up to post-graduate study). All have sufficient experience of formal and informal education. All those who took part were well known to me and have given their full and informed consent to participate. This is important because I required 'access' over an extended period of time to build rapport and to be able to re-question them after the production of their transcripts as well as asking questions of others who know them. Any or all insights gained from this study were shared with the participants.

The study collected a small number of developed life stories centred on adult's experiences' of education across life. The three participants were mature adults who have achieved a high level of education, up to post-graduate study.

Life story interviews were conducted following the general guidelines proposed by Atkinson (1998).

Research participants were initially interviewed on three separate occasions to cover early childhood and primary schooling, secondary schooling and post 16 education. These interviews were digitally recorded and lasted approximately an hour each. There were then follow up meetings after the transcripts had been produced, for purposes of clarifying and asking further questions. At further meetings I had opportunities to talk to other members of the participants' family and notes were taken, where appropriate to the study analyses some of this supplementary data is given.

The participants were a retired Public Administrator aged 75 and attending college, an English Lecturer age 42 working in an inner city Further Education College taking a part time Masters degree and a District Nurse also completing a Masters degree. All have sufficient experience of formal and informal education. All those who took part were well known to me and had given their full and informed consent to participate. This was important because I required 'access' over an extended period of time to build rapport and to be able to re-question them after the production of their transcripts as well as asking questions of others close to them. Any or all insights gained from this study were shared with the participants. Further demographic details of the participants are given in the analyses of the individual stories and what has been learnt is the outcome of these analyses and the dynamic model of motivation for lifelong learning outlined in the conclusions.

Age is an important variable in any 'developmental' study, particularly one that aims to understand motivation for lifelong learning. I have chosen adults who have sufficient life experience to trace back over their lives and present as complete a story of their learning experiences that they can.

Class, gender and ethnicity are important structural aspects of people's lives and in this study there were two men and one woman, all working class who have Irish, Scottish, English heritages. The demographies of the authors are given in the analyses of the individual stories. How these structural aspects affect learning and motivation will need to be examined from both the life story data and the life history context, they will likely have different meanings and impacts according to the authors own sense of identity and the socio-historic context of their life.

A rationale for choice is that they have had sufficient experience of formal and informal education, have lived, experienced struggle and are alive.

The life story interview

Life story interviews were conducted following the general guidelines proposed by Atkinson (1998) but are substantially centred on the domain of education, mostly formal but also some informal experiences.

Procedure: Research participants were interviewed initially on three separate occasions to cover early childhood and primary schooling, secondary schooling and post-16 education and professional development (if relevant). Each interview lasted approximately an hour. There were then be follow up meetings after the transcripts had been produced, for the purposes of clarifying and asking further questions. This was an important part of the process as it allowed the participants the opportunity to amend the text (or as is their ethical right, withdraw the material). Equally, it is an essential part of the data analysis approach adopted here, using some of the techniques of grounded theory. A brief questionnaire was employed for the purpose of comparing individuals' sociocognitive orientation to achievement motivation, the 'goal orientation' questionnaire outlined in the pilot study (appendix 1 from Dweck, 1999). The life story data is then textual material that can be subjected to a number of qualitative data analysis techniques (see below).

The life story interviews conducted are not about all domains of life but rather take a thematic framework, or simply threads. The questions however, allowed for the entire life course, in a coarse grained way, to be assembled chronologically. The main domains covered were family and neighbourhood, early years up to primary school, schooling, FHE and work education.

Each session started with a broad question or couple of questions such as 'What do you know about your birth? And what are your earliest recollections of your life up

until starting school?' As the interviews developed further questions were asked, but these were kept to the minimum or reserved until the participant had finished.

All interviews were transcribed and put together as one continuous text with no editing of the material, every word and paralinguistic utterance wass kept as it was produced (my questions/questioning were also included in the text).

The original recordings and transcripts were preserved safely and securely until the completion of the thesis.

Ethics

There are important ethical issues attached to the research here proposed and the guidelines particularly those produced by BERA and the British Psychological Society will be followed, ensuring that interviewees are fully informed as to the purposes of the research; what their participation entails; that their consent is voluntary; that they have the right to withdraw and that privacy is ensured (unless waived) and that data will be maintained in a secure way.

The issues of informed consent, confidentiality and anonymity are especially important. Life history or naturalistic enquiry can be an intimate, emotional and 'vulnerable' approach to research (Bochner and Ellis, 2003) and as such is fraught with dilemmas for the participants as well as the researcher. There are potential risks that in looking back over life, painful or upsetting events are recalled and such moments need to be handled with great care and sensitivity. For the researcher there is the risk of being perceived as voyeuristic or of using others and these issues need to be worked through.

Data Analysis

The data consists of text and narrative, words, phrases and the stories that assemble from the words. According to Ryan and Bernard (2003) there are two traditions of textual examination:

1. The linguistic, which 'treats the text as an object of analysis' (p.259) and

2. The sociological tradition, which 'treats text as a window into human experience' (ibid). I'm interested in applying the techniques of the latter tradition. Within this tradition (more accurately described as a social science one), Ryan and Bernard further reduce written texts to

 a) 'words or phrases generated by techniques for systematic elicitation' (p.261) techniques such as free lists, pile sorts and triad tests with attendant analysis techniques such as componential analysis, taxonomies and mental maps are employed. However, the data from life story is categorised as

 b)   free-flowing text (narrative resulting from open ended questions) and as such can be analysed as words or codes. For the analysis of words the techniques of 'Key words in context' (KWIC) is preferred over simple word counts. Word counts tend to ignore the context and whether the word has positive or negative connotations. For example in the learning biography of H (described later) the word *nursery* appears 3 times. Once in the context of her experiences as an infant in nursery and twice as a mother using nurseries for her children. Here are two excerpts:

 H: 'I did go to nursery school... All I remember is we used to go to sleep in the afternoon and drink milk out of small bottles, and I used to…I didn't understand why we had to go to sleep in the afternoon.'

Then as an adult learner

'I pulled out of a lot of the modules because I'd already got a degree in nursing when most people hadn't so would put the baby in the <u>nursery</u> then go home... and did my assignments, so didn't really struggle again, 'cause I had enough time because of my prior learning.'

In both cases the nursery seems to be a place to 'put' children, a kind of babysitting service and not much else. There are similarities in the two quotes but also differences. H's early experience may not have been perceived to be positive (being forced to sleep), in the second experience it is allowing her time to work on her studies. However, both quotes could leave you feeling that she has a low opinion of 'nursery' education, but this isn't so. At a later point she states that 'nursery schools' have been of great benefit to her children 'preparing them well to start primary.'

In short if a word is considered to have significance it should be examined in all its contexts to try to determine the meaning for the individual.

However, in addition to techniques for individual words, when the text is free-flowing chunks of text can be analysed and grounded theory, schema analysis and classic content analysis are all valuable approaches. The major approach to textual analysis I employed is taken from 'Grounded Theory'. Grounded theory offers some useful techniques of qualitative enquiry. Grounded theory has evolved through a number of formulations associated with different proponents from the original positivist position of Glaser and Strauss (1967) then Glaser (1992) to Strauss and Corbin's post-positivism (1990, 1998) onto the constructionist position of Charmaz (1992, 2000).

Grounded Theory

Grounded theory (GT) is a set of methods and systematic inductive guidelines for the analysis of data and the construction of 'middle range' theories to explain the data (Charmaz, 2000). The life story interview was discussed previously, as GT tends not to specify data collection methods but rather analytical techniques.

Grounded analysis begins with coding, memoing and making comparisons within and between the data, later producing categories and themes which lead to theoretical constructs.

Coding – is traditionally done in a line by line fashion as this later helps researchers to ground themselves in the data, to fill in gaps and find new relationships or as Charmaz says 'gain intimate familiarity with the studied world' (ibid, p.267). Coding is not done by the use of standardised codes or coding dictionaries, but rather I created my own codes by examining the data. Open coding is done to construct concepts and categories that can provide the foundations of the theory, concepts can be events/actions/interactions/meanings or emotions related to events actions etc. Through a process of close analysis significant events are identified and these may be obvious or not obvious and even hidden in the data. Schematically the data can be arranged thus:

Memo

Transcript	code
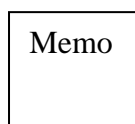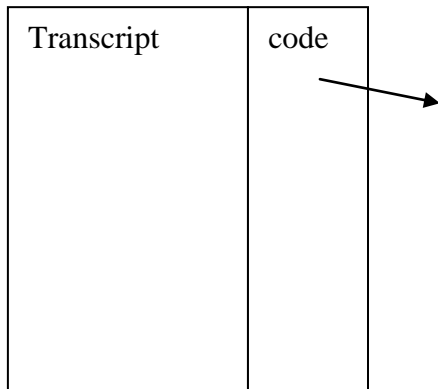
 Memoing -Alongside coding the data, comes the writing of memos. Memos encourage elaboration of the codes and concepts that are being developed, to further examine the actions/events and so on, to suggest new leads from isolated issues to perhaps larger processes.

A sentence or paragraph is scrutinised, codes are generated and questions are asked: What is happening here? What is the context and situation of this action/event etc? How does the actor feel?

Example of an everyday or normative event of significance drawn from a text:

From MD's transcript on his early life he is talking about playing with a toy called a 'Gird and Cleet' - a metal ring and rod. Here is a section of line coding and a memo:

Statement	**Code**	**Memo**
'…I must have ran thousands of miles with it. Lets face it you could go for miles without crossing a main road…So I went the two and a half miles to the park, then ran round all the paths at full speed for about three hours.	Exaggeration? historical context 1930's Stamina	Look for other e.g.s of this persistence

Having listened to the tape and transcribed this section I didn't know what to make of it. I wondered why D had mentioned it (at some length) and what it meant to him. He later states that he was about 4 or 5 when his dad's mate had made it, gave it to him. I thought he may be exaggerating the distance he travelled and his age. However,

through further questioning, I don't think there is exaggeration. He has always walked for miles, for instance now, he walks other people's dogs for enjoyment and to go on long walks, he takes part in sponsored walks and his wife stated that during the 'war' as a child/young adolescent he would walk for miles across the city in search of cigarettes for his father.

I also wondered what this early repetitive action meant in terms of his life and motivation. I want to call this normative event of travelling around the streets a 'behavioural fractal' a smaller *loop* of behaviour that can be seen in larger and longer processes of motivation. Like Hofstadter's strange loops, such recursive loops are important in the development of individual differences in patterned motivation over time.

 D is 'known' for his energy and determination (for instance he survived a stroke which retired him and although disabled went on to complete a degree in Law). He considers himself self-reliant (something you would need as a 5 year old travelling 3 or more miles from home on a regular basis) and can work 'doggedly' and systematically on his own for long periods of time. So here I am suggesting an early theoretical concept (a behaviour event contingency- mastery of which provides enjoyment) that may be relevant - that of small regular actions that helped develop physical stamina and in turn may be reproduced in activities that require cognitive or mental stamina (such as persistence in scholastic learning).

Non-normative events that transform motivation and learning.

It is known that significant or non-normative events can transform lives, 'Jung originally introduced the idea of non-normative , qualitative change in the adult life

course…He suggested that crises propelled individuals into a state of reassessment, with potential for positive ontogenetic change in patterns of behaviour, personality and affect' (Magai & Haviland-Jones 2002, p.468). It is an important process of 'significant learning', which involves 'a change in the organisation of the self' (Rogers, 1951, p.390).[42] This form of learning, critical, self reflecting for the purpose of change, is now called 'transformative learning' (Mezirow, 1990) and is argued to be a 'cardinal goal of adult education' (ibid, p.354). Furthermore, it involves not just a transformation of the self, seeing the self differently, but a desire to transform the world, to take social action therefore there is a transformation of will, motivation. These ideas form the basis of Ranson et al's (1996, 1998) theory of learning, whereby 'Learning is becoming' (1998, p.19).

An example drawn from three of the stories.

There are clear examples in three of the stories that can be categorised as transformative moments in the lives and learning of the individual. All of them centre on loss, though the loss is different in each case: H suffers a bereavement and an important relationship reaches a crisis; D suffers a stroke, leading to disability and retirement and P experiences a humiliation (a crystalisation of discontent) and identity crisis (a loss of face and self understanding). All of these experiences changed their lives and their subsequent learning trajectories. Theorising these influences will be a challenge, to account for why they lead to growth that will require the uncovering of 'underlying and historically aggregative dynamics that are not immediately visible' (Magai and Haviland-Jones, 2002, p.468) and the wider social context will undoubtedly be implicated.

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[42] The idea of 'self organising' processes will be important later on in the development of a complexity model of motivation for learning, processes that allow us to self-create.

Conclusion

The design outlined above sets out my approach to answering the research questions and the contribution to understand motivation for learning. It is an explicitly qualitative approach using life story interviews for data collection and elements of grounded theory for data analysis and theory extension or model building. Building or extending a theory is important, it is relatively easy to generate a list of codes, or cluster of categories or some themes and while these may be useful for *describing* what is going (has gone) on a conceptual framework is needed to move towards *explaining*, in a general sense, what is going on (Straus and Corbin, 1998).

The study can make a unique contribution to understanding learners' biographies and the motivational forces that have shaped their lives. Although there are an increasing number of biographical/contextual studies of 'learning' even lifelong learning the contextual approach proposed here is in contrast to the majority of work that has gone before in research and theory in the field of competenc motivation.

Furthermore applying a lifespan approach and insights from NDS should help in this aim.

CHAPTER 5: LIFE STORIES AND ANALYSES

Well you may ask yourself, how did I get here? (Talking Heads, Once in a lifetime, 1994)

Presenting a life story.

There are many different ways in which the life stories collected for this thesis can be presented and there is no one correct way of telling and then analysing a story (Hamersley and Atkinson, 1983). For instance as each interview tended to highlight a particular stage of life, the following sections could be organised to show each individuals early years, primary, secondary, further and higher education then work-learning experiences could be compared/contrasted for each stage, and this roughly chronological approach will be used.

The preference is to present the individual stories to try to show important events and patterns and examine how they construct identity and influence motivation in each individual before bringing them together in a conclusion formulating a dynamical model. In other words although the analyses follow sections of data, they can be cross fertilised with a range of concepts drawn from the theoretical frameworks, especially NDS as there is nothing inherently chronological in that that theoretical system.

I hope in presenting these lives and the socio-historical context of development that I can in some way bring to life as it were an essence of the person described, but inevitably a life story is still just that, a story, a re-presentation of a life and not the life itself, obviously no amount of documentation or documentary can make 'a life'.

Or like Magritte's point of his painting The *Treachery of Images* when he said:

'The famous pipe. How people reproached me for it! And yet, could you stuff my pipe? No, it's just a representation, is it not? So if I had written on my picture "This is a pipe," I'd have been lying.'

So in the end, these stories will be pictures, illustrations that attempt to capture some reality.

Whilst there *are* a number of ways in which a story or case can be presented, no one approach can be considered to be better than another, there is no established set of criteria to decide this. So I intend to present aspects of the life story covering the different stages of development, early years, childhood, adolesence and adulthood and then use control theory to frame these lives and draw on dynamical systems concepts to understand the motivational forces driving the individual through different learning phases. I will segment the individual's formal learning periods, because I feel that these need to be explained in each person to show an overall patterned trajectory which is non-linear, discontinuous but nonetheless, leading somewhere.

Data Analysis

'I came to ethnography because I wanted to be a storyteller who told stories about real people in real places…[and] the beauty and mystery of the ethnographer's quest is to find the unexpected stories, the stories that challenge our theories. Isn't that the reason why we still go to the field – even as we question where the field is located – in the 21st century? We go to find the stories we didn't know we were looking for in the first place' (Ruth Behar, 2003 p15).

Although the analysis of this research is guided by questions that I hope will shed light on motivation to learn across significant periods of time, lifetimes even, the approach used is one of gathering a life story and as such I do not have the same control over what the participants will tell me as I would have had I administered a questionnaire or chosen a more structured interview schedule. I didn't do that for the reasons outlined in the methodology, because I would have been imposing ideas onto

the storytellers and deciding a priori what they could tell me and what was important. But I wanted them to tell me about their lives and experiences of schooling and learning and then from the accounts to explore some of the reasons, their reasons (sometimes opaque) for continued engagement or interruption in learning. in the analysis I'm looking to understand how life events/experiences might shape the pattern of motivation that emerges for an individual and how this explains their engagement in learning and then their 'achievements'. Included as 'events' might be particular beliefs, emotions or memories, as these can be conceived of as attractor states contributing to the dynamic components (attractors) in the motivational system of the individual.

In undertaking these analyses the aim was to explore the narrative truth and the 'historical' truth (Spence, 1982). I expect through cross checking, that the chronology of events will be roughly accurate and where I have qualification transcripts/certificates of achievement for formal educational periods, these will be precise.

I wanted to gain an insight into the individuals' identity and personal meanings to understand how the events of their lives contributes to the structure of their motivation. The events of life are of course essential to understanding the individual and not just the experience of childhood, but across life. Though there is good evidence that pedogenesis is important in understanding the adult personality, as many psychodynamic and developmental theories have established. There is, it has been argued, a tendency for important experiences to be reproduced throughout life, 'individuals reproduce themselves not only biologically but also psychologically' (Magia & Haviland-Jones, 2002). Therefore, mundane and not so mundane events

will be examined for this reproductive or cyclical pattern and in NDS terms will be considered as self similarity leading to self-organisation.

Where possible I will check the veracity of the things the story tellers tell me through any documentation[43] and secondhand accounts to check my interpretations. As an example in the story that follows, and mentioned in the 'design', D told me that he played with a homemade toy, a metal ring you would roll around outside in the streets, he says he travelled *thousands* of miles with it, which seems difficult to accept, but it perhaps felt like thousands of miles to a small boy. When I probed the recollections of his sister, she said that probably wasn't far off. What this shows of course is that I have no way of knowing the actual distance travelled, however, there is possibly something important in this statement, and I offer an explanation in light of the analysis.

In laying out the stories here there is a dual function to give an account of a life and to make sense of it. I want then to let the individual speak and then to pause and make analytical comments. I'm also going to present a life chart as a graphical representation of the person's life. At the end of each case I want to draw preliminary conclusions. I also collected some very brief questionnaire data on 'effort and efficacy' which will make an appearance here and there.

Who to start with?

I'm starting with the oldest learner in the group, a mature student, he is 75 and his story spans from the 1930s to the present day.

All the participants were asked to recall their early years, what they could remember from infancy to starting school and to mention any formal learning/nursery school experiences, following this they were asked about their secondary and further

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[43] I have records of achievements in terms of formal qualifications for the participants

education, any higher education and their work lives and the educational experiences in that context.

I present a thumbnail before looking at the detail of the story and the detail is not constrained too much, sometimes there are large chunks, other times a short paragraph.

A sketch of D

D was born on the 28th of June, 1931 in Glasgow, into a working class family, his father was a butcher, his mother a housewife, he grew up in a typical tenement apartment. He is the 3rd of five children, his second oldest brother died of diptheria, when D was an infant. At five went to his local primary school where he was a 'very bright' child, but his education was interrupted for two years by the second world war. However, when he returned aged 10 he was awarded the dux medal at the end of that year for the highest grades in the city.

He did well in secondary school however, due to his family's resources or lack of, he left school at 16 to work. He began his working life as a civil servant then worked in newspapers. After marrying and starting a family he wanted a better career and returned to study, A levels at an evening college, taking a 4 year Masters level degree, he was the first in his family to attend university. He continued to work as a civil servant until aged 51 when he suffered a stroke, which disabled him and he retired. After an extended period of recovery he enrolled at his local further education college, taking short courses then an A level in law and later a degree in law. After graduating he returned to study for a paralegal qualification and is still a student, though he has no prospects or expectations of paid employment, he is nonetheless, active in his community and 'works' for the Citizens Advice Bureau.

'I was born on the 28th of June 1931 in the city of Glasgow, my mum and dad were butchers and I had an older brother, well apparently I had two older brothers, but one died when I was six months old, of diptheria which was an endemic disease in those days. Remember we are talking about the 1930's.

Now prior to going to school when I was 5 in 1936, I started school August or thereabouts, from then until school I can't remember a very great deal other than that we lived in a tenement building, these were surrounded by residential streets and every youngster could play out in the street. There was no traffic, if you saw a motor car once a week you were quite lucky, mostly you saw the odd horse and cart and the shops were fairly local, although, people would go down onto the main road, to use all the shops and our main road was called 'Duke St' and it was just a long' long street which went into the city centre and well out to a place called Park Head, where there was a big forge.

Now at various intervals along the street there would be various buildings, tenements and then shops, because of course Glasgow is built of tenement buildings…and a tenement buildings is quite long y'know, about 200-300 yards long and on the ground floor would be some shops all individual shops, there would be no such thing as, Sainsbury's, ASDA, supermarkets, they were all individual shops, so you'd get grocers, greengrocers, paper shops, newsagents, you get all that and in these days and this is an instance of today eh, not only attitude, but today's outlook, today's world. A mother could say to her children, her child, if she felt it was safe enough to send her child to a local shop, she would say to that child go to the local shop, which might be a newsagents and say get me half a pound of sugar and some tomatoes. Now if my mother was to say that to me then I would look at her like she was mad, go to the newsagent and get half a pound of sugar no chance! A newsagent? You went to the grocers for that. Today you can go to the grocers and pick up your newspaper. In these days if went into the grocers and said can I have today's Daily Record please, which was the Glasgow newspaper, morning newspaper, if you went into a fruit shop or a grocers and said give me a daily record please, you'd be picking yourself up off the street because they'd literally kick you, y'know? ah mean today you go into a green grocers and say I'll just have the Record or the Times or whatever. Now there's a thing that has changed quite radically and of course traffic has changed massively.

Well occasionally, my mother although she was a butcher she stayed at home because she had a young family it was… she had three young boys, I was the youngest then because, I was 5 years old before my, the eldest of my youngest sisters were born, then it was another five or six years before the youngest sister was born because there is a good, eh five years before each of us. So my oldest brother was five years older than me, there was a brother in between us who's dead. And well he was three and a half when he died and I was six months old, so he contracted diptheria, it was endemic, diptheria was endemic, yknow? It was like catching a cold anybody could contract it anywhere any time.

 At home then there was my mother my brother and me and each day, we just played out on the streets. This was from about aged two and the thing is, you could, let's take a decent summers day, y'know when it was quite dry and that, you'd go out in the streets, there would be dozens and dozens of kids out there little girls would be playing skipping ropes or what we called peevers or beds, they'd chalk what they called beds on the pavement, you'd call it hopscotch and used what you call a peever anything that was flat and round would do. And you'd get a burl of young girls playing that, you'd get a burl of young girls skipping, you'd another two or three groups of lads playing football on the streets, because each street had lampposts dotted down either side. So what they would do is use one lamp post and the building and that would be one goal post and further up the street would be that other goal posts and it would only be the width of the pavement and you would try to put the ball between the lamp post and the building. And you would play that for hours and hours and you'd end up sometimes with a fifty a side football match! You know? Everybody and anybody just played around the streets.

It was quite safe as I said no traffic. There was no such thing as a car in the residential streets they went along the main roads, the tram cars went along the main roads, busses, you'd see a bus maybe once a week, perhaps. You rarely saw a bicycle let alone a motor car, but occasionally you'd see the odd horse and cart come up the road.

You went out there just after breakfast, 9 half past nine, you'd play there till lunch time, you went home for your lunch, everybody went home for lunch, everybody. You'd have a lunch a proper lunch laid out on the table, say it'd be, you wouldn't have soup because it would be too hot, but you might have mince, potatoes, peas and after you'd have a pudding of say apple and custard and then you'd have a cold drink of some sort. Now in these days you'd have local manufacturers who made, you know the size of a big bottle of, what do you call it, Cola a cola

bottle, well that full of lemonade or 'iron brew' for a penny, in old money which is the equivalent of well probably about a halfpenny today, which you can't even get.

So everybody would go home for lunch and you'd also get men who worked locally coming home for lunch as well. Some factories did allow a decent lunch however, many didn't.

My dad didn't come home he worked in the meat market, it was only a few streets away but he would stay there and have whatever he would have (sandwiches?) No, no I don't think he ever took sangwhiches, there would be plenty of little places, restaurants there. In the meat market there was a lot of men worked there, it was very labour intensive, a factory really, you can put it that way. So he'd go to some local place in the meat market

But every youngster went home half past 12 and the streets would be empty and about 2ish they'd all start coming out again and by three o'clock when the other kids came home from school, it would treble and quadruple so there would be hundreds of kids out in the street playing football, skipping ropes, you name it.

Analysis

D's early life is situated in a context that could be described as typical of working class life in Glasgow of the 1930s, large communal living blocks, the tenements, surrounded by streets and local shops. The women, if mothers, stayed at home and the men, if employed, going out to work. Glasgow is a port and at that time a large industrial centre, so many working class men were engaged in manufacturing and manual jobs, though many men were still unemployed as the country slowly recovered from the effects of the 'Great Depression'. D's family would have had a roughly similar income to his neighbours, but in terms of 'socio-economic status' D was keen to remind me that his father was a 'master' butcher, belonging to a guild and therefore 'upper working class'. This influences I think his sense of himself as 'better' than others in the neighbourhood and may influence his approach to learning, he thinks of himself as intelligent, someone who should embrace learning as a middle class child might. This theme of superiority, for want of a better term, is important and I think provides a source of 'energy' that explains some of Dom's tenacity, it is not enough to claim to be better on the street or in school, you have to prove it and this is a repeating theme, an iterative force pushing him onward. Regardless of a sense of being a bit better than others, D lives in a poor neigbourhood, endemic childhood diseases such as diptheria, which his brother died from, are prevalent and they are associated with poverty, poorer housing conditions, overcrowding and poor sanitation. Regardless of the legacy of Snow mentioned in the Methodology, these conditions are replicated throughout 1930's Britain and much of the housing that working class city families lived in were squalid and the Depression had left millions unemployed and living in acute poverty. Unemployment remained high throughout the 1930's and

unemployment benefit was cut by the Labour government adding to the hardship. Hunger marches were common, culminating in the National Hunger march of 1932, when nearly a quarter of the workforce were unemployed (and the figures were higher for parts of Scotland, Wales and the North of England). All of which makes for tough conditions and develops a 'toughness' in the individual contributing to a resilience in later development. Each of the other stories reveal some hard conditions in which the individuals have to cope, though not to the extent of D's childhood.

D later moved home (described below) to a slightly better tenement building, however, his family which now consisted of two brothers and two sisters still lived in a one storey home with a bedroom, a bathroom, a living room and a dining room/kitchen . Nontheless, he said poverty in the District wasn't comparable to other areas, which were clearly 'slums'.

As soon as he was old enough to play out on the street he did so, he wasn't much older than two, however, mothers and older siblings would be keeping a look out. The streets would be full of children, Dom describes a football game played by 50 boys! This is a world where there are freedoms and threats and children are quickly expected to cope, to be independent and negotiate the physical and social world of the street. This expectation of independence and self-reliance is I think an important aspect for understanding D's motivation for learning in his life.

But there are other contextual influences, factors that I will highlight after presenting some more of D's story.

D: 'Now what I do remember because one thing I particularly got, and it was the envy of many youngsters, was what they call a gird and cleet, have you heard of a gird and cleet?

Well, listen my dad had this made for me, it was about the width of your little finger, you imagine steel, you know a round steel rod about that thickness made into a perfect circle and joined with, you couldn't see the join in it. He got it made, in the meat market there would be many other crafts and tradesmen there and this bloke madeit for my father. It would be about that height (indicates about thigh height) remember I was alittle lad so it would be about a couple of feet in diameter and the cleet made of the same stuff was a long rod with a handle on it a little poker handle on it and the other end was twisted around and you could hook in under the rim and (poke) it along and let it go and catch it and let it go so you could… and I ran, must have ran thousands of miles with that, because lets face it, in these days you could run, well you had to cross the odd main road, but my goodness, I used to go all the way up, from where we were in Denniston, eh we were bombed out so we moved to the Parade, but where we lived then to Alexander Parade Park would be about a mile and a half, through residential streets along the parade about half a mile and into the park and Alexander park was full of paths. And I used to start at home run through all the streets and along the Parade through the park, all round the park and round every path you could and back and that would take maybe three hours. But I ran as fast as I could for three hours solid.

I'd be about 4 or 5 at that time. Then I started school and after school, first thing gird and cleet straight out and in addition eh , But I'd also put the gird up against the wall and have a game of football or whatever came along at the time. Where we lived in Cardross street, there were lots of lads my age and I grew up with them. The street and the tenements were pulled down by the city council and it's still called Cardross, but it's quite different.'

Analysis

Although on the face of it this seems quite mundane, a small boy running around with a home made toy, I think there is more going on here. The context is an example of the independence afforded a child of this class and era that can have a formative effect on his life. He is travelling in a three mile loop from his home to the park and he is still not yet

five years old, he also claims to have travelled thousands of miles with this toy, requiring quite an amount of *stamina* regardless of how young and healthy you are.

But it is the obsessive nature of this activity and at first the seemingly lone aspect that I wondered about, what was driving this young boy to go out for hours on his own rolling a metal hoop up and down streets? I asked him to tell me more about this at a later point and he told me that many children had a gird and cleet and as you got more proficient with it, there were tricks that you could perform in competition with others (such as tossing it up in the air to land on a lamppost). As he described it, I thought of my own childhood and the many hours spent on my skateboard in the backyard practicing my freestyle routines to impress friends and rivals and what he said made sense. To become proficient at this skill is not solely for D's self satisfaction it is for competition with peers and to seek their admiration. My son practices his football skills obsessively in order to put them into practice on the field in a competitive game for all the rewards that this long and intensive work provides; just as the Charlton brothers would kick a ball off a wall for hours when there was no one else to practice with.

But the development of *stamina* is the potentially important idea here, D liked to, until recently, walk for miles daily (arthritis in one knee has curtailed this), taking friends or relatives dogs out on long walks. This physical discipline has stayed with him and is, I think, a part of his motivational pattern, to persist in an activity requires finding reserves of energy and concentration over long periods of time. This may be linked to his temperament which might be described as 'impatient', but which he has also considerable control over and as he can sit in study for long periods at a time. His long walks are also

employed as he says to 'revise' to think over and embed the material he is learning on his courses. He likes to be on the move to think and work.

These *aggregative life events* are important to help explain the established patterns of motivation that may emerge in an individual and the above routine or daily activity is an example of normative gradual changes that impact on the individual's motivation and identity as opposed to singular or non-normative crises that can occur to transform the person more radically. To understand this it is necessary to invoke the micro and macro time scales in dynamic systems suggested by Ester Thelen and collegues (Thelen and Smith, 1994). Real time activities (micro scale) are recursively folded into the system and influence the trajectory of the system over developmental time (macro scale). The stamina developed by D maybe a motivational pattern that transfers across domains, so it may appear to be physical activity, but there are social, emotional and cognitive elements. Stamina, persistence is a motivational 'pattern'.

Marc Lewis in his 'self organising individual differences' view states this:

'Specifically, real-time processes give rise to developmental trajectories, and developmental trajectories constrain the activities of a system in real time. How does this work? ...real-time activities converge to a particular pattern that lays down traces that facilitate the emergence of the same pattern in the future.' (Lewis, 2005 p.4)

Effectively patterns laid down in childhood, reoccur in the adult context. So micro, real time, daily mundane processes, reappear as longer future patterns, perhaps like fractals which show self similarity at larger and larger scales. This will be an important element of the model drawn in the conclusion. Van Geert has argued that to understand the emergence of development as 'long term dynamics out of short term dynamics of coordinated action' (2009. P.254), you need

to appreciate the underlying circular causality. This is I think an aspect of motivation which is the dynamic pattern **holding** the whole sense making, learning and identity system together.

In the next part of D's story the advent of the second world war brings significant change to his life, before that he describes his starting school at 5.

(D gives me a history lesson on the development of his neighbourhood and its boundaries, mentioning at one point that it was built on the estate of a tobacco 'Lord'. The street that he lived on later became colloquially known as 'Tobacco Road' as a number of cigarette factories were set up there. D would begin smoking one of these brands in his early teens and his habit would later have a catastrophic effect on his life and bring significant changes).

'A favourite pastime of many of us, just before the war, when I was about 7 or 8 was to hang onto or jump onto a horse and cart and just sit on the back and be carried up the road, you could stay on for miles and the driver never bothered his shirt.

Anyway I was five and I started school and I went to the nearest school called Golfhill, in these days the right hand entrance was to the girls school and the left hand to the boys school. We boys and girls were kept apart in the playgrounds and in many classes. Most of the teaching I remember was 'English' you got taught a lot learning the alphabet, of grammar, spelling, composing sentences.
I remember my first day at school, there was quite a big class more than 40 in it, I remember the two lady teachers in their green pinafores, they wrote some things on the board to see who could read or recognise the alphabet. Then I remember we were all given a tin of chocolates with the duke and duchess of York on it because he had become the King, King George the 6th. I could read a little when I got to school because I had an older brother at school…there wasn't big book shelfs at home but there were books and my mum always bought the People' s Friend' and it had Rupert the Bear in it and I wanted to be able to read the captions, to know what the story was and my mum would help me to read, I'm not saying I could pick up a book and read it, but I could read a bit before I started school. I could also write a bit, you were taught to write properly, with a pen and ink, light up heavy down.
We would have to write out passages of books that were dictated to us, so the teacher would take say a book like 'Kidnapped' something popular, dictate and we would have to write about three pages of it. We had a lot of that. Then say a couple of days later we would have to take out our school book, and précis that, summarise it in about a page,

with no help. Spelling you had to spell everything correctly, every single word (*was that boring?*). No It wasn't boring, you had plenty of time to play, I mean you had to go to school it was just one of those things, everybody suffered school, but I didn't find it boring.

(At this point Dom projects forward in time to when he was in secondary school after the war and tells me of an incident, he calls it a confession. Before that he describes the three tiered structure of secondary school, conforming to the newly established tripartite system academic grammmers, vocational technical and secondary moderns which he says were for 'factory fodder').

One morning I must have been about 13 I decided to bunk school that day, and so at 9 o' clock I went off to hang around the 'Sheepy' and area of spare ground that we used to play on. But I was bored out of my mind, I couldn't wait to go back to school and was back in school at lunchtime. I never did that again. I never missed a day off work and I have a hundred percent attendance record at college.

Analysis

My initial reaction to hearing about Dom's schooling was that it sounded long and tedious pre-war and pre –Piagetian organisation of learning and classrooms; large blocks of repetitive rote learning had to be endured, but he says that he didn't mind, 'it was how you learned'. This has stayed with him, the idea that learning is time consuming and not necessarily fun but the rewards are worth it, deferring gratification. D clearly values effort and conscientiousness as the truanting episode suggests. By using the term confession this suggest that he feels guilty and associates the experience with shame. This singular event has a lasting influence and he is determined not to repeat it, whatever the cost. Magai and Havilland Jones (2002) have characterised shame as 'an interpersonal repellor', in this regard then Dom identifies strongly with the idea that missing a days' school or work is a shameful event and is to be avoided where possible.

He has a strong work ethic and work identity which is probably modelled on his father who he says was very hard working and worked up until the day he had a stroke aged 70, on his way to work. It is clear that he holds his dad in esteem as he begins to tell the story

of his two years evacuation, he pauses to comment on his dad's involvement in the war and a dramatic event.

One Sunday evening a bomber attempting to climb above the barrage guns dropped its load and the bombs hit residential areas, Dom's home was destroyed and recalls vividly the experience, describing how he found himself lying in the street covered in glass. He described his father who had come home from six days of working on the docks wading through the sea of shattered glass.

His father had started work at 12 years old; he says his dad left early in the morning for work and returned late at night. D talks of his father never missing a days' work in his life and of his being on the way to work as usual one morning aged 70 when he suffered a stroke, which disabled and retired him.

Here is an example consistent with the idea from social cognitive theory of an important model affecting motivational processes. 'People are motivated by the successes of those similar to themselves, whom they strongly identify with and who share standards of conduct' or morality (Bandura, 1997, p.).

D then shares his father's protestant work ethic and beliefs about effort, indeed he strongly believes in effort over ability as measured by Dweck's scale (1999). Each of the participants completed the Dweck scale (see appendix 3) and all express strong beliefs about the value of effort, though they employ effort in different ways.

D had learned to read before he went to school, his mother had had an education up to the age of 14 which he says was quite uncommon for a girl from her class background. He

would sit with her at night when she read her magazines and look for cartoons and ask questions about the text he couldn't read and in this was he says he was taught or learned to read. He was clearly a bright boy, at the age of 8 due to the war, he, like his peers were evacuated to the country. For two years he received scant schooling, working on a farm all week and attending school for one morning, which he says he spent teaching younger children. Nonetheless, he returned to the city and went back to school and a year later won the Dux Medal, a citywide award for academic achievement. For many children such a disruption to their schooling would have been fairly detrimental. Research on divorce by Richards has suggested that the impact of parental separation can be equivalent to missing six months of school, which he considered harmful to a child's development (Richards & Ely, 1998). Yet for a child it was not, because already established patterns of high self-efficacy, strong valuing of effort and resilience to adversity.

After passing his lowers D left school at 16, his family income did not allow him to continue with his schooling although he was one of the most academically able children in the school. He therefore did not go to university but rather went to work as a civil servant before taking up national service a couple of years later.

I discussed this with D asking if he felt he had missed out on going to University, but he said no, 'all his China's'[44] had left to go into work and that was the expectation of his family and fine by him'. He later expressed some disappointment at not being able to continue his education. This is an example of a normative constraint and also a possible establishment of an attractor that will influence the learning trajectory of D. It is also an example of incompleteness, D did want to attend university and for his identity to be I

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[44] China Plates - mates

more complete he needed to go to university. However, there weren't many children from his class background who went onto university, but some did especially to the 'red bricks', though 'the securing of funding was a chancy business and most students depended heavily on their families' (Dyhouse, 2007, p.1). D's family were not in a position to help.

Middle learning period

D married in his twenties, worked hard, first in a national newspaper and later as a local government officer. He has four children the first was born in 1959, the last in 1965. In 1970 the last child began school, at this point D decides to return to learning. He has noticed a degree in Public Administration at the University near his home town and he talks to his employers about it, the degree is part time lasts four years with the option of Masters level courses to achieve a post graduate diploma. D decides to take Highers (Scottish A levels) and then apply. A year later he passes these with A grades and begins four years of part time University study.

'All my spare time was taken up with study and assignments, the degree was multidisciplinary, there were courses in Economics, Politics, Administration, Environmental Science, that course I remember went right down to the level of human biology, and there was Law, I particularly enjoyed the Law. The course was a slog, of the students that started only a quarter made it to the end'
'Why?' I don't know, it really was too demanding, in fact I learned that a year later the course has been stopped.'

Analysis

At age 39 D decides to return to school. He called it 'night school' and it the courses were held at the local high school. He passes and starts his degree. Why then and what sustained this period of five years of study, which he said was demanding?

Well in terms of control theory a number of constraints have been reduced, he starts when his youngest child begins school, so certain child care issues are relieved. His employers are supportive as are his family. The support and encouragement of others (time and understanding) is an important external factor, it is difficult to achieve in the face of rejection and discouragement, though it does of course happen.

So certain practical and financial issues are resolved. Lifespan theory of control argues that to 'increase, regain or maintain' primary control the individual needs to adjust their goals and engage in risks where the opportunities arise, and furthermore that this involves a disengagement from previous goals. In this case though D cannot disengage from the goals of raising a family and developing in his job, he has to find extra effort to take on another challenge in addition to the ones he has. He has to find a source of extra effort.

In terms of completion theory, this is an opportunity to take the Highers he was unable to complete 23 years previously when he had to start work. That was a long time to wait so this opportunity must have been very important.

NDS influences in this event

Returning to education after a gap this long represents a significant change, one that will transform D and his family's life, others of his age and generation may have felt they had 'missed the boat'. However, when something is important then there can be no giving up and giving in.

I suggested to D that being unable to complete his education as a young person was a source of regret. He said that he was disappointed at the time but soon forgot about it. D was capable of taking highers and going to University, but the circumstances were not favourable. His family at 16 comprised his mum and dad, an older brother and two

younger sisters. His older brother was training as a journalist and all were living at home. An extra income was needed.

Regret is an interesting emotion, Marcel Zeelenburg (2002) has studied experimentally the effect of action and inaction on feelings of regret and concluded that inaction generates more feelings of regret. Regret and disappointment are related but not the same emotion, D may have felt disappointment at not being able to study further, but he may have also felt regret that he had been unable to pursue a goal that was an aspect of his identity.

In the Rubicon Action Phase component of LTC, the action process is divided into four processes and periods: predecisional motivation, preactional volition, actional volition and postactional motivation.

In the predecisional phase a 'delibrative' processs goes on where the individual considers the pros and cons of action, Heckhausen suggests that these must be considered 'as objectively as possible' (p.111). D discussed with his wife the decision to return to learning and said that he didn't anticipate great adjustments to his life, though later on starting the degree the time and effort needed to continue was considerable and most spare or leisure time had to be forfeited. Although there is conscious deliberation and discussion going on and an opportunity has arisen, is this sufficient explanation for D's decision to act?

I think that the feeling of regret had stayed with D and was an attractor waiting in the background, an attractor that he had visited on and off over 23 years, an attractor who's strength had always been there, related as it was to an important identity goal, such

attractors are known as *latent* attractors as discussed in the learning chapter (Vallacher and Nowak, 2009).

As argued identity is a lifelong project and identity goals 'target overarching, long-term commitments to a certain identity status' (Heckhasuen, 1999, p.111), in this case D's desire to be a graduate and become a professional.

This attractor state pulls D towards his decision to return to learning and as it is closely tied to his identity project helps sustain his motivation. The attractor portrait here is similar to one in the 'gallery of basic dynamics' of Guastello and Liebovitch's Introduction to Nonlinear Dynamics and Complexity on page 7. Figure C shows a dynamic field containing two fixed point attractors with the system maintaining most of its time in orbit around one attractor but making occasional visits to the other, they state that 'pathways [can] take different forms, depending on the relative strength of the two attractors, their proximity to each other, and location [of point entry]. In D's case I would categorise the two attractors as his sense of responsibility and pride in raising a family and the disappointment/regret (latent attractor) thwarting progress towards identity completion, and that his volition was a pull towards that identity attractor.

The transition can also be cast in terms of catastrophe theory, a bifurcation point has been reached and he has crossed the Rubicon and two attractor states now exist and a cusp point, and oscillation between work life/student life. Existence needs to follow a path between these two dimensions and resources need to be allocated to each for successful goal achievement.

D successfully completes his higher and degree. This allows him to progress in his career and as he explained opened up new opportunities to secure a better job a more senior role elsewhere, which is what he did, moving to a different, better job and home.

Later learning period

D took up a new post as a senior administrative officer in a new City, he enjoyed his job was doing well and then aged 51 suffered a stroke.

Following his stroke he was disabled, experienced a major personality change and emotional changes, which are not uncommon for stroke patients. He went from being a mostly emotionally controlled person quite a conservative man, to an expressive, gregarious 'character'. In a conversation with his wife she said that it was hard to adjust to the 'new' person that returned from the hospital.

Interestingly, although his personality and affect changed, his motivation did not, he remained a dogged, energetic, persistent person, which is worth considering.

Does motivation like some kinds of learning (procedural learning) show immunity to certain influences, which may disrupt other mental processes. In cases of amnesia for example it has been shown that declarative memory can be affected by brain damage whilst procedural memory for skills is untouched (see classic study by Scoville and Milner, 1957) in evolutionary terms this makes sense, forgetting the capital of France will not have the same consequences as forgetting how to swim. Likewise D's stroke affected his personality and affect but not many of his competencies or persistence. His pattern of 'doggedness' remains and indeed this may have helped with his reorganisation and self organisation as a future learner.

Is motivation, in terms of primary striving, like a 'soliton'?[45]

His convalescence was lengthy, however after three years he had 'had enough of sitting around at home'. He said that he feared some kind of 'vegetative death' and went to his local college and enrolled in a part-time course (computing) completing this he decided to take an A level in law as he had a lifetime interest in the subject, he passed this and was offered a place at university, after 4 years he was awarded an LLB (Hons) and following this has pursued an number of related courses. His disabilities prevented him from working even though he takes vocational courses. He studies for the challenge, for the pleasure, for the social contact and because it is free, all of which are opportunities for optimisation.

D approached his study like he approached work, with substantial conscientiousness, indeed he dresses for college as he had done for work, in a suit with a briefcase and he leaves early in the morning and returns in the evening.

In terms of lifespan theory of control, D's stroke would seem to signal that a number of developmental deadlines had been reached, he is retired and disabled, it is as if old age has come early. Heckhausen categorises three types of failure and loss that need to be compensated for, the most serious are those resulting from 'non normative events in the lives of individuals (e.g., disability due to an accident)' (1999, p.88). These loss experiences can undermine the individual and need to be compensated for.

In D's case certain primary control potentials have been lost, most notably early on his communication and mobility were restricted. In terms of secondary control losing his job, a large part of his identity needs to be compensated for.

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[45] Although nerve impulses are propagated along nerve fibres as a soliton, I'm using the term metaphorically, meaning that like solitons striving to control the environment is in some way immune to the disruption of other systems after all primary striving is about survival itself.

Initially these adjustments were very hard to bear, particularly for his wife, who became his carer, not a role she had been expecting whilst still in her 40's. D's convalescence and recovery lasted a few years and certain mobility and psychological deficits were left, however, he did recover sufficiently to consider returning to learning. His approach was logical, start with something not too taxing and then move on to other challenges. So he starts with a non accredited computer course, computers were not something D had any experience of, but from that point on he would have an enduring interest in them. But more interesting to him would be 'Law'.

Heckhausen has developed a model for primary control following a major accident or illness, referred to as the "lines of defense" model (1999). In essence, this a retreat involving disengagements and reengagements to utilise remaining control potential – run away to fight another day. In rehabilitation Heckhausen states that where possible the individual 'advances the levels of control for which he or she is striving to higher and higher levels' (p.253, 2006). She notes that after a stroke 'rehabilitation may be possible, but uncertain' (p253). In D's case rehabilitation is slow and gradual, and he takes the descision to start of slowly and build up, and he achieves this when he graduates with a law degree. Although he is struggling with significant restraints he also has opportunities, in terms of time, also he is retired and his family has grown up and left home, so he can put his energy into the pursuit of learning.

The following chart sets out some of M's life events and his educational opportunities

Figure 10: A life chart for D
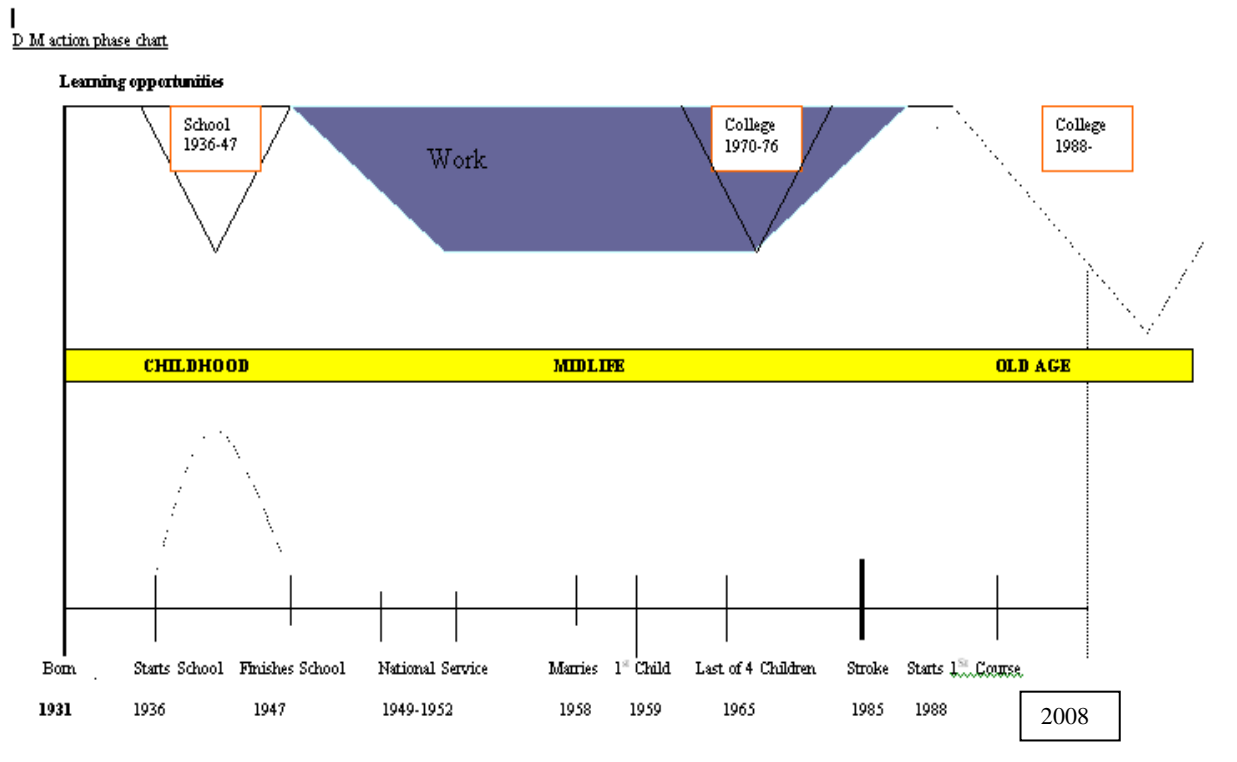
It is apparent from the chart that D experienced 3 major formal educational phases, schooling, college as a mature student following the last of his children starting school and college again following his enforced retirement.

As argued earlier there is no reason for education to end, there are no real deadlines except for of course death or significant disability and this can be seen in the chart, he is still at college. The constraints are interpersonal and socio-cultural. Interpersonal constraints may include not wanting to engage in further learning/educational opportunities or socio-cultural (lack of resources, money, support, time etc). Interpersonal constraints in terms of not wanting to engage in further study are not apparent in D's career and story, he wanted to continue his schooling gain Highers and go to university

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(he had wanted to be a lawyer), his circumstances and the expectations of his parents prevented this. In terms of control theory a deadline has been reached and MD had to disengage from the goal of further study, redirect his motivation (into getting a job) and engage in secondary (compensatory) control i.e., hope for future opportunities to achieve success.

Once he has established his family and began a new career in local government he then sought an opportunity to return to study (he was no longer working shifts at the newspaper and his children were at school). He wanted to go to university and found that his employers would sponsor him to do a work related degree (in Public Administration) but he needed Highers or to demonstrate recent study and ability. The local High School offered evening classes, he enrolled and after a year passed 3 subjects with good grades. He went to university and studied part time for 4 years gaining a degree and postgraduate diploma. After five years of study he concentrated on his career development, family and social commitments and so on. So once again after a goal has been achieved striving is redirected to other domains of achievement (career, family investment etc), which are extensions of the identity project.

In understanding D's motivation for lifelong learning the events of his life help explain the constraints and opportunities that he pursued. His doggedness I would argue stems from the support of family, identification with his father's belief in effort, his mothers belief in doing well at school, his independence and the stamina developed as a child on the streets and his sense of having lost out on not going to university as a young man left a continuing desire to avenge an injustice.

His identity, sense of self, is important, he had developed self efficacious beliefs and his school achievements confirmed this, however, this sense of self as someone who could achieve academically at a higher level, would need to wait until the circumstances allowed the pursuit of formal educational goals as when his youngest child starts school and he finds that a local school is offering adult education classes. Likewise when he is forced to retire, the self-image he holds as a worker is removed and leaves a gap in his identity that he can again fill with the pursuit of qualifications aimed at furthering a career which he cannot have.

His later education allowed him to fulfil his ambition of going to university to study what he liked and it wasn't until after he had had a stroke and retired that he could really pursue his interest in Law. A complex pattern of pedogenetic experience, sociocultural constraint and opportunity, history, geography and accident combine to offer some insight into why this man has the learning biography that he does. Experimental/psychometric studies cannot reveal these factors or capture this complexity well, also hypothetical examples will not do either, real lives, real people need to be at the focus of lifespan accounts of achievement motivation.

So what does this mean in terms of the lifespan theories of motivation described earlier?

In terms of self efficacy MD has a strong sense of can do, he demonstrates that in the face of considerable obstacles, missing two years of schooling he nonetheless finishes the year top of the class, across the whole city. His sense of self efficacy though has to be understood within boundaries of his culture and class position, it wasn't enough to be academically able, you needed the opportunities to be available for the expression of that efficacy and you need the resources to come together at the right time, as Bandura has

noted well a lot of opportunity is not planned. Nonetheless, with the support of family and experiences of success he developed efficacious beliefs about his ability to learn. What I would say is that efficacious beliefs do not need to be continually expressed for a domain of life they can remain dormant until it is possible to apply them. Also in D's case he is cautious in using his sense of efficacy as when he has recovered from his stroke he does not immediately believe he can study for a law degree he needs to build up to that point, through gradual successes. In other words efficacious beliefs have to deployed in a strategy that may be long-term.

To return to the acheivement of the 'Dux Medal' this needs explanation, it is anomalous, usually missing two years of schooling would be detrimental, however, D returns from evacuation and at 11 does very well, achieving the highest end of year marks. How?

I asked if he could remember anything to help explain this, but he said not really, 'he was glad to be home and back in school'. He showed me a photograph, the medal is around his neck and his mother stands proudly behind him. Did his mum help him to catch up, provide extra tuition; she helped him to read before he went to school. He said he had no recollection of any extra help, 'I may have worked harder, it was good to be home'.

In terms of control theory which argues that we attempt to control our experiences through primary and secondary striving, we can see from the chart that (Figure 10) D is motivated to secure the major developmental goals of life through selective engagement and disengagement. The pattern of opportunity and constraint weaving through his trajectory describes and I think helps explain, the temporal picture of D's lifelong

learning path and his persistence. This lifespan control framework of Heckhausen et al[46] has the potential for integration with a comprehensive theory of learning to provide a complex (or complexity/dynamics) account of motivation for lifelong learning and biographical accounts can contribute to a richer conceptual understanding of motivational processes. In the conclusions I attempt to integrate the control and dynamical aspects of the case studies in a model of lifelong learning.

Finally, in understanding motivation for lifelong learning an examination of this individual can illustrate that people pursue learning goals for very many reasons and any conception of lifelong learning that is rooted in a narrow agenda of economic expediency will make little contribution to the wider programmes of understanding of what moves people and how they become who they are.

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[46] Heckhausen and her colleagues at the University of California, Irvine, are engaged in longitudinal research to examine the theory in transitions from school to work but have yet to apply their theory and measurement scales to trajectories of lifelong learning (personal correspondence).

P.

Case analysis

This case is presented first as a thumbnail of P's education of formal episodes and story selections, followed by some analytical points for of each the stages. I haven't included a life chart for P or H as there are more continuous periods of learning apparent in their trajectories.

P is educated to postgraduate level. He was born in an East Midlands city in 1966, he had two older brothers and in 1967 his mum had another child. He attended his first Primary school at the age of five, when he was ten his parents moved from the town to a village and P started his new school half way through the term, he stayed at this village primary until secondary school. He attended his first secondary school from aged 12-14, when his parents moved again, this time to East Anglia and he attended his second high school. He left aged 16 and was initially unemployed, before joining a government youth scheme, after two years he returned to study at his local college. At college he studied for the GCSE's he had not attained, then for A levels, after which he went to University taking a three year BA. On graduating he worked as an administrator and researcher before joining a college of FHE. He then took a teaching qualification, an MA and then another post graduate degree. From the age of 5 to 40, he has had few periods when he was not in formal education studying for qualifications or working in a formal educational setting.

What was your early life like at home up until you started school?

I was born in 1966 according to my mum my birth was unusual as I was born breech, which only happens in about 5% of cases, but this breech was even rarer known as a face presentation. It apparently caused a bit of interest, probably the only time my face has been 'famous' though there was one other time…[47]

I obviously don't remember my first couple of years and don't think anything remarkable happened. We lived in a small 2 up 2 down house in a terrace near the city centre, till I was about 3. My first memory is around moving to a new house in a newtown estate. I remember sitting outside and it was quite sunny cause I had a t-shirt and shorts on and for some reason I was eating dirt and my mum came out and shouted at me.

I took my wife once to see this house and another where I grew up and she said 'well that explains a lot'. I think she was being disparaging about my 'humble' origins and inverted snobbery, but I've seen the council house she grew up in and her dad worked in a car factory, so, as they say, 'she can talk'. The old house and the street was a lot shabbier and poorer looking than I remember, my oldest brother also took his wife to see that house and said he didn't bother to get out of the car as it wasn't safe enough, though I think he was exaggerating.

I don't think we were poor, we had everything you needed, new clothes, enough food – I wasn't eating soil because I was hungry- a safe warm house. We were a usual working class family, my dad went to work, my mum stayed home to look after me and my little brother, my two older brothers went to school in the daytime.

I can't remember a typical day, but I remember Saturday mornings, cause then you got some pocket money and you could go over to the shops, buy some sweets and above the shops was a Saturday cinema, that showed cartoons and all the local kids went there.

There was a play park near our home but nobody used it, there was a sand pit that smelt of urine and some twisted metal stuck in the concrete. There was a lot of concrete, all the houses and blocks of flats, pavements, bridges and walkways, all concrete, I understand this form of architecture is referred to as 'Brutalist' which seems apt[48]. Under the blocks of flats were car parks without cars, people from our neighbourhood didn't own cars and we used to play under there, cause it was dark and a good place to hide or play war games. We played in and out of neighbours houses, gardens and the immediate street outside, neighbours were always called aunty this or uncle that, I don't know why, it was the convention back then. I didn't go to nursery, or preschool and I don't remember any teaching from my parents prior to going to school, they are very pro education but I think their view was that school and home are different and you do what (within bounds) you want to at home.

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[47] I've taken this story out here and placed in later in the text in its chronological 'place' I've done this at times with the other life stories. This was the story that P began to relate at the beginning of the story.

[48] The English architects Alison and Peter Smithson coined the term in 1954, from the French béton brut, or "raw concrete"(Wikipedia). Many new UK housing estates were built in this style, a public building example is Birmingham's Central Library.

I didn't go to the local primary school there because our house burnt down. Early one morning, a fire started in a store cupboard where there was some kind of storage heater and into which we had piled all our board games and whatnot, so we had chucked a load of paper and card on top of this heater and it all went up in flames. We woke our parents and they got us out, my dad went back into the house a few times to get stuff, the rented telly , then the fire engine came and put it out but the house was gutted. The next week my face was on the front page of the local paper and the story told of how I saved my family from burning to death. My second oldest brother to this day claims he woke my parents and I've stolen the glory that should be his. I can't remember, I think I did wake them, I mean they must of told the reporters the story and I know they can tell us apart.

We moved house, for me it was all adventure, but it must have been very stressful for my parents, my dad's hair fell out in clumps (alopecia).

When I started school it was in another part of the town, more small houses, more concrete. Though from there it was easier to get out to the countryside and I remember again in the summers, walking for miles, particularly to a local lake or to the canal, where me, my brothers and mates would fish.

I remember starting school, cause I felt a bit of an idiot. The morning was fine, we met our new teacher and were shown around the school and just played I think. Then in the afternoon we were supposed to go home. But I didn't, I must have hung out over lunchtime then when the bell went I lined up where we had lined up in the morning and after playtime and of course all the kids in the different years filed into school and I was still standing there until a teacher came up to me asked me what I was doing then sent me home. I ran home told my mum, can't remember her response.

The first year of school seems to have been mostly play, we played with sand, water, art materials had play shops and so on. I suppose we must have been learning counting and letters and the like but I wasn't conscious of any 'proper' lessons.

I remember that I had to attend some remedial classes for my reading, reading was difficult and I was slow to learn, I still read very slowly and methodically. We had to go to a room, there was about three or four of us and there wasn't even proper chairs we sat on those orange milk crates with little cushions placed on top.

Do you remember free milk, in those little triangular cartons? It was always warm and disgusting. Thatcher took those, the only good thing she did do, and I've no idea what the history of that decision is. It probably wasn't a good thing unless you were a kid that hated them, because I don't remember that you could say 'no thanks I'm not thirsty and if I was I'd like to drink something that's not going to make me feel like throwing up'.

I liked primary school, I was happy, had good friends, schoolwork got easier, but like all kids I liked to play. The playground games like mass football with a tennis ball, British bulldogs and the like were great. I had four or five good mates and we would be in and out of each other's houses, the usual. Everybody was much the same, they lived in the same kinds of houses, we were all white working class. Then one day an Asian boy arrived at the school, my little brother and me got to know him. Turns out he was from Uganda and his parents (his dad was a doctor in Uganda, but unemployed here) had fled Amin. He was a smart lad, very grown up for his age and he smoked. I mean, I was about eight, nobody our age smoked.

I don't know what happened to him as a year later, I'd moved house and school and was in another part of the town, well actually a village near the town, that the town was named after.

I liked my new school once I got to know some of the boys and another boy started at the same time as me and we became best friends. When I started that school I remember being given a reading test and I don't think I did too well as for a few months after that me and another kid had separate reading sessions with the teacher. My mate C had no such problems and sat on the first table, I sat on about the fifth out of six tables, those on the sixth table were well, have you ever lived in a village?...

But I did excel at art, I was so good at art that I was taken to the senior school one evening a week to be taught by art teachers along with three or four other children from the district and I loved this as my mate B from my first school was also in the class. We were taught a whole load of different styles. I always thought I would become an artist, I still do. That is what I set out to be...

Anyway I finished primary school in 1977 and went to secondary school, which was a bit of a shock, coming from a small village primary to this vast 2000 pupil secondary.

Analysis

P has moved home four times and attended two schools before the age of 10, there would be a number of other moves before he completes his schooling so this will be taken up then.

What struck me in this part of the story was the number of times P mentioned how he struggled with learning, he said that though he loved to read as a child and reads voraciously as an adult, he found reading difficult, he also found maths difficult and assumed that his teachers found him a not too bright student. Indeed at secondary school his grades went down steadily which is discussed below. He wasn't an academic pupil, but he loved art and sports and this compensated for his lack of academic talent. Considering his later anti-school attitudes and lack of attainment it is notable then that he should end up as a teacher.

This statement may be worth expanding on: 'I always thought I would become an artist, I still do'.

This is an identity project (cf. Gollwitzer) started early in life and still prominent in the motivational life of P, his wife is a photographer and art teacher. It appears to reflect Marcia's (1966) identity typology –foreclosure- whereby the individual is canalised early into a particular identity which then establishes a lifecourse. P maintained a strong interest in Art until his late teens, he applied to go to art school, unfortunately there were no statuary grants to study Art so he didn't go. But in further interviews with him it was clear that his parents and teachers supported his efforts at developing his artistic talents and he himself said that he drew considerable enjoyment (intrinsic motivation) from producing art, he would spend lengthy periods of time sketching and painting. I asked if I could see some of this work, but he explained that it had all be thrown away by his parents when they had moved house. He did produce an example though from when he was ten and it did show to me some considerable technical skill (though I'm no expert).

In terms of his motivation for learning Krapp's (2003) interest theory is useful here as is secondary control strategy. (Interest can also be considered in terms of dynamical processes especially as an attractor, a project one is constantly drawn too; art represents that for P but also Philosophy one of his current main interests and learner projects).

Personal interests tend to be stable and enduring preferences for a particular topic or activity Schiefele and Krapp (1988, in Krapp, 2003) proposed an 'Educational Interest Theory' whereby a 'specific form of interest between a person and object' exists. This relationship affects the cognitive, affective and value valences of the individual and provides meaning and intentionality towards the object and there are other qualities of persistence (enduring engagement) and selectivity towards the object. This relationship is

generally considered positive, providing enjoyable experience of education (personal satisfaction) and increasing motivation for learning. Large learning projects may be conceived of as complex attractors (strange in chaos theory) and they have many points on the trajectory and so may be endlessly engaging. All three cases are involved in interests which are in themselves endless – D the law, P philosophy and H, medicine. Lifelong learners may choose topics for which the learning cannot end.

However, in P's case the motivation was to improve his skills and this did not transfer to other subjects (being good at art did not increase his desire to be good at English and maths). Nonetheless, he remains interested in art, artists, art theory and history and some of his friends are working artists. He explained that what he meant when he said 'I still do' was that he considers it still a possible future career, art he explained doesn't need to be constrained to a certain age range, unlike being a professional sports player, you can become an artist/writer later in life, he cited examples[49].

In terms of secondary control strategies, his concern with art and to a degree sport (he loved and continues to play football and he was a county high jumper as a young teenager) can be seen as compensatory for more academic pursuits. He said that he may have had a dyslexic problem when he was younger that explains his difficulty with reading and maths, but this is difficult to reconcile with his later academic achievements. Though I know too little about dyslexia to say that it cannot be overcome, indeed I have had recent students who have graduated with first class honours who are dyslexic.

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[49] I recently saw a news item about a redundant tyre factory worker, from the Potteries Staffordshire called Sid Kirkham. He worked his whole life at the tyre firm and lost his job aged 60, he tried to find a new job but after years of rejection began painting, something he described as a lifelong passion. He approached it as he had his job, starting at 7 in the morning and finishing at tea time. A number of galleries now sell his work and other pieces are rented out to businesses.

'Secondary control refers to an individual's effective influence over his/her own emotions, motivational states, and mental representations in general…secondary control strategies refer to the cognitive and behavioural means employed to influence internal processes' (Heckhausen, 1999, p.64). P's secondary control strategy at this point in his education was to emphasise to himself, the importance of being good at art and sport, to take pride in achievements and to engage in effort to increase his skills. He states that this was fine during primary school and the first year of secondary school, then the advent of puberty and its attendant issues of development and identity began to have an influence on his progress through school.

Secondary School.

This started fine for me, I came up to the 'big school' with my mates, we were all close and I had an older brother at the school. At primary I felt like a big fish, I was good at footy, popular with my friends, got on ok with teachers. But now there were a whole array of different cultures, hundreds of new boys and girls, lots of different subjects taught by different teachers, some subjects English, maths even had two or three different teachers. Some of the teachers were frightening, intimidating even. At the time corporal punishment was still allowed and teachers could dispense punishments in the class without sending you to the head, and some it seemed to me were sadists looking to discipline pupils at any opportunity. The contrasts were astonishing, in the art rooms (and I knew some of the teachers from my extra classes) pupils moved about, were active on different projects, took responsibility for themselves, mixed paints, used chemicals in the dark room; but in the chemistry lab a dark Victorian atmosphere existed. On the first day of class a boy, small for his age, was late, he went to make his way to a seat, when the teacher grabbed his and hauled him to the front of class. The teacher demanded to know why he was late and the boy mumbled something, whatever it was it wasn't good enough. The teacher took a belt from his desk and told the boy to hold out his hands, he hit him with tremendous force, the boy screamed and tried to make his way to the door, he was stopped and sent to a seat where he spent the whole lesson sobbing. I have no idea what the session was about or subsequent ones, I just remember us all sitting in silence while the teacher talked or gave demonstrations. By the second year that teacher was gone and I never saw anything like that again, in fact I liked all the science subjects, especially chemistry and biology, even though I wasn't too good at them. I made new friends and bit by bit I saw less of my old friends, I began to hang out at school and on the streets with different lads. I wanted to be more like my new mates and adopted their views and

attitudes which were distinctly anti school and anti swot. At the time this suited just fine, not being a clever pupil, I wanted to be different from them, to be better than them in some ways, I wanted to be cool. Life was about hanging out with your mates, playing football, going to football and pretending that you could get a girlfriend if you wanted. I shake my head at the thought of it all now, I wasn't cool, I was deluded, but then what 13 year olds aren't?

At 14 we moved house. I was at a new school and I hadn't anticipated what this would be like, but I quite quickly came to feel like an outsider. At my old school I had lots of friends, I had friends who were neighbours, I saw them day in day out and I had a girlfriend, kindof, it wasn't official if you know what I mean. But now I was standing in the playground on my own, earlier that morning I had started talking to some of the lads in my new class and they took the piss out of my accent. For some reason I had thought people in this town would sound like yokels being from East Anglia, but they all sounded like cockneys. I soon learnt that the school mainly fed the new housing estates that were built for London overspill. Another thing that struck me was how many black kids there were, African Caribbean kids, who all spoke like Londoners too. When I opened my mouth I stood out like a sore thumb, I began to feel really self conscious, well I was a teenager so I felt extra self conscious. I remember standing against a wall pretending that I was deep in thought, had important things on my mind and I did, I was thinking this is hell I want to go back home! I recall enduring a few days of this until I was standing next to a group of lads who were discussing music, punk music, which I had just been getting into. I butted in asking if anyone had heard a new album I bought, they hadn't, but started asking me about it, then one lad J asked if I wanted to bring it round to his house. Did I? Fuck yes!

I made new friends and life began again, these new mates were in many way similar to my old ones, working class kids, anti school, anti adults, cool.

When I had joined the school I'd been placed in a middle set, by the end of the year I was in the bottom set for most academic subjects, the only classes I liked were cookery and art. I still liked art, they had some nice kit there, but my whole approach to school and teachers was of barely concealed resentment. School was suffocating, pointless, boring and I found it hard to endure. I started taking afternoons off and going into town with my new mates and I was soon on report[50] and developing a reputation. The last year came round and I was suspended twice for poor behaviour, I was truanting and forging sick notes, I was only entered for four O'levels and passed art, barely. Me and my younger brother were a strain on our parents during this time, I regret that now. They had strong convictions about the value of education, my older brother was doing great at school, applying to Cambridge, an exemplary student, but I just seemed impervious to this. I believed that parents knew nothing and teachers even less and I wasn't going to conform, I was going to leave school and do whatever I liked, and what I liked doing was nothing. There was mass youth unemployment so doing nothing was pretty much the only option.

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[50] Being on report means that the student has to be signed in and out of each class and the teacher writes a comment about the pupil.

Analysis

Secondary control in the form of compensation figures largely here again and social comparison and it is complex in a functional way. Before considering these I would like to consider a couple of other points.

Bandura (1997) has described situations where individuals who have low perceived efficacy can find life 'imposed' when they feel helpless to change the situation, so school is an environment where you have little choice in how to behave. P also experiences frequent changes in school and home because of his dad's job, they kept moving to progressively 'better houses' as he put it.

Many adolescents also find this stage of development too constrained, they can feel like adults being treated like children.

> 'According to Scarr and McCartney (1983), age, and particularly the emergence of adolescence, promotes a shift from passive to active niche-building and selection. They attribute this shift to the adolescent's increased capacity to choose which environments to attend to and to learn from, including opportunities outside the immediate family context. Other factors that contribute to this shift include an emerging identity, increasing access to more and varied opportunity structures, and the growing importance of peer and media influence' (Randall et al, 2007, p.4)

In P's case school is an imposed and uncomfortable place and he would rather learn from his peers and music (media) than from parents and teachers whose views he found irrelevant.

Feeling helpless and disaffected is not a very comfortable experience, so P engages in secondary control to cope. Secondary control is employed in the service of primary control and primary control is directed at manipulating the external environment, but the control of school and adult society is difficult, so one of his actions is to simply remove

himself from it (truant). Unfortunately that led to closer monitoring of him (being on report) and presumably even greater pressure of being controlled.

Secondary control involves strategies of selectivity and compensation and these will be considered.

Selective secondary control. As resources are allocated to a particular goal or goals it is necessary to determine what these might be for P at this stage. It can't be as he says 'doing nothing' as that's not possible. But he does direct his efforts at not becoming what he perceives the school and parents and other adults want him to become. However, he said he did not know what he wanted to do when he left school, other than what he was doing when he was not in school, that is, hanging with his friends, listening to music and seeing bands. P did mention that he was interested in the politics of his music, particularly the anarchist orientation of a band called CRASS, but that he doesn't remember any real political activity until after he had left school.

School then was a site of resistance and struggle, being a punk helped, anti-authority views were promoted and rejection of mainstream culture encouraged. [51] These goals could be achieved by direct action, which was risky and drew sanctions or could be supported internally through 'compensatory secondary control (CSC)'.

CSC 'buffer(s) the negative effects of failure or losses on the individuals' motivational and emotional resources' (Heckhausen, 1999, p.91). There are four associated strategies: First, disengagement from prior goals (defense mechanism, rationalisation, Freud, A. 1936). P didn't seem to have the goal of being an academic student so he doesn't withdraw from that, but he didn't want to be a 'badly behaved' student, however, he does

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[51] P commented on this and said, well you could say that, but really I was just a typical aimless teenager, into punk music and bored with school. But I think a more complex characterisation of what is happening is called for.

come to think that well behaved hardworking students are 'saps' and he isn't going to become one of them. Secondly to this end he engages in 'self protective attributions' denigrating some capacities and emphasising others. P states that he's not too clever at certain things and they become unimportant, pointless, things he feels he is good at are more important, creative things, sport, being popular, these buffer him against the failures/losses. But school as a whole is pointless and boring, it is life outside school and then after school is over (forever, he thought then) that keeps him going. He said that he had vowed to himself that when he left school he would never find himself in a classroom again. School, classrooms and learning can all be considered repellor states at this point, but they do not remain so. This is an advantage of employing these concepts, these dynamic states allow for change, they have different strengths and it is possible to escape to at later points in time.

Thirdly, he engages in self-protective social comparisons, he allies himself with the cool, punk kids and rejects the 'swots' and 'saps'. This has resonance with the working class lads in Paul Willis's 'Learning to Labour (1977), where the young men reject school, education broadly and authority. Heckhausen has referred to this as 'strategic social comparison with inferior others or social downgrading/downward comparison (p.169-170), though her evidence and context refers mainly to older adults. The terminology however, is somewhat elitists and patronising.

 In P's case the strategic comparison is with lateral/equal peers and the inferior others are the academically more able students. This makes sense as there are multiple cultures operating and one of the dominant cultures of the playground (and elsewhere) is popularity. Many studies attest to the potency of being popular, thin, attractive etc over

being academically able (i.e., Tiggeman, Gardener and Slater's article entitled 'I'd rather be a size 10 than have straight A's, 2000). Indeed P said he not only felt superior to those students on those terms, but that the 'smart' kids were far from smart, they were sheep, whereas, him and his friends had a better understanding of reality, were street smart, had a sharpness, sense of humour etc that were missing in 'those' kids. He then said that on reflection he really didn't know those other kids, so they probably weren't all that different but there was a definite class distinction between the kids from the new estates and those from parts of the old market town.

Again he said that he felt like an outsider here, he lived in a new detached four bed house with a big garden, but he wasn't friends with the boys on his streets, but rather with the lads from the estate.

By late adolescence, school had become something that P endured, his attitude he frankly admitted was a concern to the school and his parents. He would rather just not be there, indeed sometimes he simply wasn't there. He couldn't wait to leave school and when he did at sixteen 'vowed never to set foot in a classroom again.' As he noted it wasn't a vow he kept, as he noted to his surprise that other than his early years he has spent nearly his entire life in educational settings, joking that maybe he should be considered a lifer rather than a lifelong learner. But other than his teenage years, he has mostly enjoyed his educational career and learning path (though there was a period of time when he was working in a difficult environment with much change and pressure, that again he felt classrooms were the last place he wanted to be).

P left school at a time of high unemployment and very little youth employment (especially for someone with one O'level in art). However, in the September he enrolled

at the local college and began to take a City and Guilds in bricklaying at the same time he joined a Government Youth Training Scheme and continued with his qualification on a day release. Although he was back in a classroom for part of the time most of the activities were practical work and he found the environment of college, more relaxed, more grown up and less obsessed with discipline and 'treating you as a stupid, exasperating child'.

He didn't finish his college course as his parents again moved to a new home in a different town 100 miles away. P was nearly 17 and had again to make a new set of friends and a new life. But this time he would return to college to start on a programme of academic studies and gain the O levels he had not achieved at school. However, 18 months later he had only passed one subject (History) and was again working on a Youth Employment scheme.

During his time on this new scheme a sense of disaffection even greater than that of schooling overwhelms him and what he describes as a crystalisation of what the future holds propels him to return to college again, to retake O levels.

'Basically it was winter and I was sitting chipping the old shit[52] of them and thought – my mates are at college, talking about applying to go to University, and I'll be stuck in this crappy little town, doing this forever.

This time he has a sense of motivation and competence that leads to achievement, he passes all his O and A levels with good grades. At this point he was still intent on studying art and is offered places at a number of 'good' art schools. Unfortunately, he discovers that grants for places at art school are at the discretion of the local education authority who turn him down. He then applies through clearing to study English and

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[52] A brick layers term for mortar.

attends University, where he does well. After this he takes a Masters in English and a PGCE FE and becomes a college lecturer.

Analysis

P's initial return to learning seemed like a new start and can be seen in the wider set of constraints social and economic that channelled him into this course. However, this is not the start of a stable trajectory of learning and qualification into employment as once again he uproots and moves to a new home. In three years he has lived in three different towns, moved countries and made new starts which must have been challenging. P says that it was, but in some respects it meant that you got used to change and learnt how to deal with it and that is something he thinks is an invaluable capacity, although he also stated that continual change is harmful.

'Still you are blest, compared with me! The present only touches you:
But oh! I backward cast my eye, On prospects dreary!
And forward, though I cannot see, I guess and fear!' (Burns)

In terms of NDS an event occurs that is worth examining, P said that he experienced a 'crystalisation' of disaffection. He was working on a restoration project at a stately home near his home town and his job was to chip the old mortar off the original bricks that were to be used in the rebuilding of some stables. Whilst sitting on this huge pile of bricks in the freezing cold he said he realised that this was possibly his whole future as an unskilled labourer and the prospect was 'terrifying', in fact he experienced something akin to panic. He took the next day off, went to his local college and although classes had started two months earlier he was allowed to enrol in two evening classes studying English and Biology. He started his first class that evening. He 'loved' the English and

the following summer passes with an A grade, he states that this was the start of a life of study and learning.

A bifurcation: The change of life course that P takes is one he has taken before, however, this time the motivation is potent enough to propel him on a trajectory that continues today, for that reason this moment should be examined in detail in dynamical terms. This transformation can be characterised as a tipping point or bifurcation .

One form of bifurcation that is frequently applied to behaviour is the 'Cusp Catastrophe' Catastophe theory is drawn from the work of Thom in the 1960's (Briggs & Peat, 1989) and studies the sudden change that appears in systems from apparent small changes in the environment. This bifurcation was described in the literature review, its importance is that it captures significant dynamics of change. One is where order emerges from chaos and secondly that what appears to be sudden abrupt change, i.e., a singular event may be the culmination of many preceding points. Taking the second point first, crystalisation suggest a growth towards that moment in time, in physical terms it results from nucleation and accumulation processes, once the processes reaches supersaturation a state of equilibrium is reached. Equilibrium is an untenable condition for a complex adaptive system. P feels a sense of panic at what the future holds, forward looking he 'guesses and fears'. The feelings of anxiety he said, resonated for a long time afterwards.

A change in a control parameter, secondary control, telling yourself all is well, when it isn't, has occurred to the point where a change in behaviour is required. P said a sense of futility had been growing in him and he was frustrated that his friends and younger brother seemed to be:

'Pretending I was going somewhere, when I was going nowhere, or even backwards, I say that because, we would be out at the pub enjoying a pint and get into a discussion

about politics or the economy and they would start spouting stuff from their sociology class or something they'd read in the Guardian and I'd be lost. That was uncomfortable and after a few experiences like that, I'd had enough.'

The fold in P's case is a move from not being in education to being in education. Equally attractors and repellors might be suggested. A strong repellor for P is a sense of 'ignorance', of not knowing and feeling foolish. He says he recognises that you cannot know 'everything' but you can have a level of education that means you can be pretty sophisticated about a range of topics, he cited politics, economics, biology and health, the environment and arts. And then attractors are drawing him towards areas of interest in his professional life and in his leisure time (his hobbies are cycling, music and art). A particular attractor here and one that is general, is seeking novelty. This is a motivational source suggested by the work of White (1959) who argued that curiosity was a primary motivator and noticed that an animal would eschew food even when hungry, to explore a new environment. This makes sense as opportunities to learn are adaptive and developmental. White has argued that individuals assimilate their environments, this assimilation and integration could be seen as part of a process of creating 'new order' or self organisation towards optimisation.

Self organisation is order out of chaos .The chaos in this case is the crisis P experienced and the order is the movement onto a path of learning and subsequent learner identity.

As open, complex adaptive systems, we continue to evolve and self organise across life, new learning is continually incorporated into the structure of our psych, mostly this leads to stability as the learning is folded into the project of becoming who we are. Of course sometimes the experience is non-normative and results in a qualitative change that is rapid and long lasting, in the case of D his stroke, in the case of P his reflection on the path his life was taking. But why are these crises not harmful? In many cases of trauma or

disability the individual suffers pathological disruption, confusion and regression, though those processes themselves may be precursors to new adaptive structures of mind or transformation. Are they not harmful because of an underlying motivational/affective/cognitive structure, the sense of self that they have or wish to attain, who you are or think you are, these are important and powerful dimensions of mind, a loss of self is associated with maladaptiveness, disintegration, pathology. In the case of P his resilience may stem from the frequent changes in his life and getting used to change, however, the prospect of being stuck is not something he can be resilient to.

University

'I loved university by far the best time of my life, I loved studying and made lifelong friends. While I felt a sense of achievement at passing my A levels, at Uni any insecurities I felt about my intelligence disappeared, I was doing well felt confident in giving my opinions.'

Another crisis, new learning

After graduating P worked as a administrator and research assistant doing archival work at a University, he was encouraged to help out with some of the teaching and supervision of Undergraduates. At first this was fine as he was just doing some small group tutorials or demonstrating the use of computers and software. But then he was asked to do some 'proper' teaching, the University had accepted a contract to deliver a course to adults in industry as part of a return to learning programme and the dept he was in had over recruited students and needed extra tutors. He was offered these opportunities and took them.

'I thought, this is something I'd like to do, it would be a new direction and could advance my career, also the extra money would be handy. But I wasn't given any kind of training, I was just expected to write some teaching sessions and deliver them, it was only four hours a week, but I was so scared of standing up in front of a group of adults and an audience of students, that it took me all the spare time I had to prepare these sessions. And the first one was a near disaster. I'd attended a traditional university and my experience of this was large lecture halls where you were talked at for an hour. Interspersed with this were tutorials, where in small groups you discussed some idea or other with other students and a tutor. My first session was with the adults, in one of their training rooms at a factory complex. I hadn't slept the night before and was still writing my 'lecture' at work the next day. The class was at 6 that evening. I arrived, with my notes and a marker pen. I introduced myself to the group and launched into my talk. Being so nervous I hadn't thought to ask the students their names or if they knew each other and I didn't do any kind of ice breaker. I just started reading out my notes, only occasionally daring to look up. After 40 minutes, I'd delivered my whole two hour session. My students looked glazed and half asleep. I wanted to run away, this is not how I had anticipated it. Thinking fast I suggested that they had probably had a long day, that we should all get a coffee, take a break and then come back and discuss some of the things I'd been talking about. In the second half I grew from being an alien to a human being with something half interesting to say.'

From these experiences P went on to do a PGCE in adult teaching and then took up a post in an FE college.

P becomes a teacher, not because he found the experience enjoyable, though he later would, but because he found it challenging. The challenges were multiple, he had to grow into this role and develop socially, emotionally and intellectually.

The start of P's career as a teacher is interesting as he had said that after two years as a admin worker and research assistant on twelve month pro rata fixed contracts and little discernable career track, he was considering leaving and trying something else, when these teaching opportunities appeared, so in a sense they were not planned. In LTC terms P is still within an age norm phase where a career change would not be unusual or detrimental. He is still in early adulthood, less responsibilities to others, he has a partner but no children. However, it is during this phase that he decides that he needs to consider

establishing a career seriously and because of his experiences of teaching chooses this as a career.

From the excerpt above it is clear that starting teaching was an anxiety provoking experience, this is usually associated with avoidance of the fearful situation, but P persists. Although he says he now feels little or any trepidation when teaching there are still occasions when he gets 'stage fright' before a 'performance' 'but this is something that he finds useful now'.

P said that his anxiety stemmed from the fact that he had been quite shy as a child and adolescent, and that he was not happy with this shyness and contrary to the lyrics in the Smith's song "Ask", shyness is not nice, and it 'can stop you from doing all the things in life you'd like to'. Shyness could be seen as a constraint on his development and an impediment to his control striving, but not such an impediment that he couldn't in his late twenties overcome it and in a way this could lead to its effects being enfolded into his sense of self and made it a source of eustsress rather than distress.

P had to turn something that had previously been a source of some anxiety into something that was exciting and a challenge. And he was determined not to fail because as before he had a determination that his future identity would not be his past one, the shyness had to be mastered. He said he realised that the feelings of fear, whilst uncomfortable, wouldn't kill him.

In van Geert's discussion of the meaning of 'development' he points out that etymologically the term means 'unfolding' and also that there is an 'inner logic' to this process and that potentially must be expressed as well as finality. He states :

'Development implies a directed process from an immature state to a mature state, implying increasing complexity in terms of a system that differentiates... and at the same

time integrates (constructs connections between the components). Readers familiar with dynamical systems will immediately recognise these notions as methaphorical representations of self-organising dynamics' (2009, pp. 248-249).

In self organisation the system evolves towards a stable attractor, in P's case this might be an identity as a successful learner. Whereas D in childhood and youth was a successful learner and due to social constraints had to postpone his potential, P was unsuccessful and needed to affirm his capacity for success. Either way, both would be examples of an unfolding of an inner logic of potentiality to a mature state (identity attractor).

Development is an iterative process whereby learning is folded back into the system and new order emerges. Learning comes from both success and failure with different aspects taken from each and both are necessary and inevitable.

P's failure in schooling may have left him for a while with a damaged sense of self efficacy but not with a pattern of motivation that told him he couldn't learn. His successes in young adulthood confirmed this and has sustained his quest to show what he is capable of.

After his PGCE P secured a part-time post as a lecturer in an inner city FE college, after a year he was offered a full time permanent position. At the age of 30 he started a Masters course at his local university. He wanted to develop in his professional life and extend his subject knowledge, taking an MA in English and Education. He says that he asked his employers to help fund this, but that they wanted to have a say in some of the modules he would be studying. He didn't want his curriculum chosen for him so he choose to self fund. Masters are expensive, but he felt for the sake of his development, personal and professional, this was a necessary investment.

The course was three years duration, two years of taught study and a year of dissertation.

P's first child was born after the first two years of study, he then took two years to complete the dissertation as 'being a new parent was a demanding job' as his wife worked full time.

In terms of LTC the new demands of parenthood would represent a substantial demand on motivational resources. A new developmental goal with a very long action phase appears and draws resources from other areas of action, in this case completing a Masters course. This a case of proximal versus distal mechanisms in the individual and their context, but the trade off in time investment in one strategy over another, investing in the care of an infant, over spending time studying for a qualification, is not a trade off where one goal is abandoned and another replaces it. Rather this is a strategy for long term optimisation of primary control. P returns to his study when he can and the twin objectives of career advancement and raising a family are intact. These twin objectives relate to the conception of Charlotte Bühler's view that there are life themes or tendencies motivating individual biographies, these were:

- The tendency to strive for personal satisfactions in sex, love, and ego recognition

- The tendency toward self-limiting adaptation for the purpose of fitting in, belonging, and gaining security

- The tendency toward self-expression and creative accomplishments

- The tendency toward integration or order-upholding (Buhler, 1972, p. 48).

P 's actions at this point in his life could be an admixture of all of these tendencies.but two may be more salient, 'self-limiting adaptation' and 'integration' (inner order). As most parents recognise life adjustments have to be made and a reorganisation of priorities occurs. An extensive social life has to be curbed and the time, energy and money put into

other activities. In this respect P concerns at this time reflect the normative goals and future orientations found by Nurmi (1992), which were, gains in education and career and family and income building.

The concept of deadlines as argued above has to be stretched in the action phase model as deadlines are more flexible or can be in an educational context, P needed more time to complete his degree and this was granted.

In nonlinear dynamic systems research Thelen and Ulrich (1991) proposed that the activities of adaptive systems could be understood by different time scales, in effect two; the 'micro' and the 'macro'. The micro refers to immediate or real time processes and the macro to the developmental trajectory (again a proximal and distal analysis). So, for example, Thelen's research group showed that early infant stepping behaviour was a real time, micro process, related to and employed for the purpose of the long term, macro, process of learning to walk. What is interesting is that these time scales 'converged' on attractor landscapes, the micro on a particular attractor, the macro on the 'formation and disappearance of those attractors' (Lewis, 2005, p. 255). Therefore, early infant stepping is a reflexive behaviour seen in babies which disappears until sufficient muscle strength, proprioception etc appears and the infant begins to walk.

If a role or an identity status can be conceived of as an attractor state then P shifts from the role/identity of student to parent, in this case though the attractor disappears until such a later time when it can have a continued effect. So what has happened is that resources have been selectively applied to the proximal demands of life, but a particular life path, learner identity (a distal demand) is still on track.

A third phase of learning

After completing his masters, P was promoted in his job to senior lecturer and took on

more management responsibilities. Although there are many INSET opportunities and

much to learn in his job, he wanted the challenge of further study. He had a longstanding

interest in Philosophy and decided to enrol with the Open University on a

foundation/taster course and on completion registered for a higher degree. P choose the

OU for its reputation and flexibility, he has expended years of time, effort and financial

commitment.

I asked P about this commitment, why study this subject and where would it take him?

'Well I won't give a long justification for studying it, but in essence it is about
knowledge of deep questions in life and more everyday things. You might wonder what
existed before the big bang, are machines conscious or why some people like to watch
dog fighting. In any case you have to have the skills to think seriously about these things
and make sense or to make arguments. The thing about philosophical arguments as well
is that they are knowledge that you can transfer to lots of issues, you can have something
to say, you can ask difficult questions and you can offer solutions. I mean take you, you
(me) study psychology, it developed out of philosophy, some of the central problems are
shared, what is mind and consciousness, how does it arise etc. What I really get from it is
it teaches you how much you don't know and how to be ok with this.'

This last statement is a resonance, I think, of his start in adult education, feeling left out

in the conversations he mentioned with his friends, who were 'leaving him behind'. But

here what was once a repellor, fear/shame of not knowing, is now an attractor, he can

dwell in this attractor basin and be comfortable.

'Where will it take me? Is that a philosophical question, if so it has already taken me to
many places. If you mean, what will I do with it, in my work or career, I don't know. At
the moment, I'm enjoying the study, I'm busy with my job and home life. We don't
teach philosophy on any of the courses here, I did see a job for a head of Humanities and
that dept had an AS/A level in philosophy, but it was at my old sixth form college and I
won't be going back there.'

The learning being pursued here has multiple purposes, it is for self development and challenge and satisfaction. It is something that can be used in the world, to understand complex issues, to solve problems and it is perhaps a way into a new career, or a new subject. Interests, like life, change.

H.

H was born in 1963 in a market town in the Midlands, her parents are from southern Ireland and she was born at home into family with four older brothers. Both her parents were working and she attended nursery from aged 4 for a year, then went to the local Catholic Primary school and then a Catholic Secondary, a half hour bus ride away. H left school with two CSE's (equivalent to foundation GCSE's) in History and Cookery. After a year at college taking a secretarial and typing course H went to work in Holiday camps before returning to her home town to begin a job as an auxiliary nurse, from this she was encouraged to train as a State Enrolled Nurse, which she did for two years in North London, after passing the entrance exam. Following this she worked at St Thomas's hospital and then moved into community nursing which is the sector she has spent the majority of her career in. After 5 years in London she returned to the West Midlands and took a District enrolled nurse course. This was followed a couple of years later with a return to college to take A levels and then a degree in Nursing, followed by a degree in Community Nursing and then a Post graduate certificate. H is currently a Community Practice Teacher for the NHS and is completing a Masters Degree.

Early Life

'My name is H, I'm 41 years old, and I come from a family of 5. Four brothers and one girl – me, being the youngest. What else? I was born in T, which is a place is Staffordshire, the west midlands and I lived there until I went away to college. I lived in T until I was 18 years old, and then I went away for   two summers and worked in a Holiday Camp, and then came back and got a job in a local hospital, when I was about 20 or so. To work as an Auxiliary Nurse, which is a nurse that helps trained nurses in hospitals.'

H described her early years, which included nursery and primary schooling.

I did go to Nursery School. I can't really remember what it was like. All I remember is we used to go to sleep in the afternoon and drink milk out of small bottles, and I used to…I didn't understand why we had to go to sleep in the afternoon.

When I started school I would have been…well didn't start school till I was 5, so I would have been 4. Because I would have been five in the December, but I wouldn't have actually gone to school until the September, because in them days, you didn't start school until the year that you were five so I would have been five years and eight months?

The biggest memory I have of school is going to the first two years as a reception child. So, when I got to year one, I would be hysterical every time I was left at the school gates, and I would have to be prized off my mother, as I was crying because I didn't want to go into school. But, I don't remember what that was about.

But I'd be nearly 6 when I went to school and apart from the time in the nursery that's all I knew, home life. Probably, because you see…I don't know. Maybe…maybe I thought reception was less work. I don't know. Probably. And then, when you went on, it got a bit fairer. And I remember the teacher was Mrs Austin, and she had sweets in a tin and I think – I don't know if I'm making this up, but, I think I pinched a sweet out of the tin and got caught and got told off, and maybe that's why I then had this hysteria, but it went on for a long, long time. It wasn't just a few weeks, it went on for a real long time. So that's my memory, not about what we learnt.

H's initial experience of school was not particularly enjoyable, her mother confirmed that

for most of the first year she was very reluctant to go to school and would be very upset

when her mum dropped her off.

Year 2, out of reception and into…I just remember when I was quite young, I was very, very dependent on my friends being at school, so that if my best friend wasn't at school, I'd be horrified. If she was off sick or something. So, I remember... I probably used to cry and say I had a bad stomach in the hope that I would be sent home.

I remember, then after a while, when we were a bit older, I used to go to school with my brothers and, and then we would get this bus from school to the town bus station and we'd go to the sweet shop, and my brothers would have been beating each other up, and they told me to get on the bus, and I remember once getting on the wrong bus and instead of it turning right, it turned left and started heading towards Sutton Coldfield. And, erm, I didn't have my bus pass and I was sitting on the bus crying while my brothers were chasing the after the bus because they were going to get killed by my parents. The woman on the bus asked me what was wrong and I said I was on the wrong bus and they had to stop the bus and let me off.

A couple of things that strike me in this story of early schooling is that H says nothing about formal learning and the focus is on negative emotional events and her dependence on others, her mum, friends and brothers, which gives a picture of sensitiveness and vulnerability. I draw attention to this because it is in stark contrast to the impressions I get and others get of her as an adult, where she comes across as competent, confident, assertive, forceful even and self reliant.

Her family background is one in which her older siblings, brothers are competitive and teasing and being 'physical' are common, I guess after sufficient exposure to this you might develop a 'thicker skin'.

'I remember doing, erm, a project which really interested me, which would probably have been about year four. And, we did about Tutan Khamoun and Egypt, and it stuck in my head and I remember it really, really well and learning about Tutan Khamoun. I was so fascinated by it all. I think I really liked the cultural thing, the Pyramids, and I think the period when he died, and that he was only 20 when he died, and how he died, and the legend,the curse that was supposed to be with it.

(So the stories surrounding him?)

The stories around it. When I was at Primary School, I was very much… in those days we did lots of Drama, and I was active in the drama classes, and I would always be like, after comical parts and got lots of attention…from the audience, and I was also in the choir. I did a lot of singing.'

H said she liked performing, she would be quite competitive when it came to school plays and she really got into her part, so much so that she would adlib and 'it was always very noticeable when I was in a play'. But this, changing parts of the play didn't mean that she was particularly interested in English, composition or creative writing. H liked to perform and today she loves the theatre and reads a wide range of fiction. This is leisure though, not education, it is consumption for pleasure, it is not work and it is not education.

H said although she remembered much about school and still discusses her primary school days with her friends, she does not remember or choose to think much about what went on in classes.

Later when H relates her secondary school experiences, the emphasis is on events, personalities and relationships, when a subject is mentioned it is in relation to the teacher mainly and whether this was a person she liked or disliked. P had mentioned this in his recollections of primary schooling, that it was difficult to remember what was actually being taught, but when a male teacher took them for year 6 that school became a much more interesting place, as this teacher was interested in the lads, ran the football team and did science projects.

In the excerpt below, H relates an experience that soured her feelings about school to some extent and left a lasting impression.

At eleven I went to a Catholic school, which was about fifteen miles away, so we used to have to bus it in. My first year I went there, I went to the big school and wasn't with my best friends any more, and I was in classes where I didn't know anybody, and I was extremely upset by it. And, I got my mom to…I don't know what she did but I got my mom to sort something out, and I remember standing up in RE class with Miss T, who had a big nose and, she humiliated me by saying, 'this person thinks she should be treated differently and complaining that she wants to be in a different group with her friends'. It really humiliated me and I've never forgotten it. I think she was an absolute bitch.

The transitions in school are challenging experiences for some, H did not like the transition from home life to primary and here expresses the upset of the transition to 'big' school.

However, in trying to control this she applies a 'compensatory primary control strategy', this is invoked when the individual does not have the resources or skills to attain a goal, due to immaturity or inexperience (Heckhausen, 1999). H enlists the help of her mother

to try and get herself moved into another group, where her best friend is. H cannot apply direct primary control in this situation because of her status, she is an 11 year old pupil. Yamaguchi (2001) as noted, has argued that this kind of control can be common in certain cultures and he refers to this as proxy control. Individuals due to their position use another person or group as an agent to attain an end and when effective is a subtle form of control. In H's case it backfires. The resulting humiliating experience leaves a deep and long lasting impression.

Humiliation, is 'the debasing [of] people, putting them down through contemptuous treatment... Humiliation takes many forms and degrees; insults in public, social rejection and expulsion, being the target of discrimination...and most deeply and generally, being treated without the respect due to a human being' (Frijda, 2007, p.271).

H is publicly shamed and this is a painful and not surprisingly, lasting experience. Shame can have a negative or a positive long term outcome, unmanaged shame is a painful emotion that can lead to social anxiety (Kaufman, 1989). In H's case as well she links what happened to another incident related below.

In discussing the life and career of Carl Rogers Magai and Haviland-Jones (2002) argue that his sense of shame is a positive part of his emotional organisation giving him an 'emotional giftness' that he translated into professional success. This came about by provoking Rogers to examine himself and from this scrutiny developing a reflective self awareness that he could utilise in his intellectual work and practice. And later they point out that contrary to received wisdom that negative strong emotional events are not necessarily disruptive and maladaptive but can be creative motivators. In the case of D regret and in P and H shame.

For H the humiliating experience may have been embedded and it may well have an influence on her learning and work. H likes to question tradition and to find more efficient ways of doing things, she says she challenges working practice that is explained as, 'that's how we've always done it' or practice that is driven by a model of female, nurturing empathy, that is not in the best service of patients but comes from a stereotype of what a nurse is: 'we're not handmaidens anymore'. H says she sees herself as a professional an equal to other health professionals and that education is valuable for the status it confers but more so for the way it challenges you to think about what you are doing and why.

Does this ethos come from an attractor landscape with shame at its heart, well if so like Rogers' it is a functional driver.

H discusses the rest of her secondary schooling and mentions some of her likes:

'We had a very 'cool' English teacher who used to drive an open top buggy, and people used to speculate that she used to smoke pot because she was like a bit of a hippy, and she made things really interesting. English Literature, I really liked English Literature, didn't like comprehension, or modern, it wasn't like as good as the classics, but I like Literature in general.
And she did the Literature, and she made it interesting. Brought it to life made it relevant.

Also I liked Art because again we had a very cool Art teacher. He was good, I was crap at Art. He told me this, but in a nice way…but he was cool. I liked him. So, I liked Art.
We had HomeEconomics. One time, we had a teacher, who was very shouty, and had a big wart on the end of her face, called Miss Flannigan. And, I quite liked Home Economics actually. Even though she was shouty, she wasn't a bully. So erm, I liked Home Economics.
We had to Metal Work and Technical Drawing, which I thought was completely inappropriate for me to be there. I don't know why I was there. What is the point of drawing lines and triangles and protractors? It was a boys thing, I didn't need to know it.
But Needlework and Pottery. Pottery I was rubbish at, but I liked it. Needlework, I thought was a bit pointless.
History, we had a teacher called Mr. White, who all the children absolutely took the piss out of, big time. So, History was just a lesson in how to torment the teacher. Yeah.
But you know I liked History, I actually did quite well at History, and was arguing big time with the teacher to let me take an o-level because I was convinced I could do an O-

level, but he wouldn't let me do it. I was really pissed off. I really argued my case, and he just wouldn't let me do it. He said my grades weren't up to it, I don't know, but I was really confident that I could do it. But, he wouldn't let me do it. We had a Geography teacher who everybody was scared of, so you just did what you had to do, you had to do it. Not that I can remember much about Geography.'

This is an important incident regarding the desire to take History at O-level, in the historical context of schooling in England at that time. H feels that she is capable and argues that she should be given the chance. A the time 14-16 qualifications were divided into Certificates of Secondary Education (CSE) and Ordinary Levels (O-level), more academically able students were streamed into O-Level classes and O-levels were necessary for entry into further education, A levels. In turn A-levels were the passport to Higher Education, University. O and A levels were introduced in 1951 and were aimed at and mainly taken by independent and grammar school children, the rest of the school population in secondary moderns up until the mid 1960's did not sit these public examinations and left school with no qualifications (QCDA, 2009). CSE's were introduced to remedy this and were graded 5-1, with grade 1 being equivalent to O-level grade C (O levels were grade E-A, A being the highest). However, a decade later employers and college/university recruiters had become suspicious of these school based assessment and viewed them as inferior, to the effect that they would rather have candidates with O-level grades D or E[53].

H said that she felt that at the time if she had been allowed to study for at least a couple of O-levels her feelings towards school may have been different, there would have been something to aim for, as it was, she was on a dead end track and saw little point in

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[53] I didn't know that England, Wales and N. Ireland had this system of qualifications and progression. Where I grew up everyone took a range of subjects, studied at the same level and on passing could study at a higher level. That 80% of pupils were either studying for no qualification or ones that were virtually useless was quite surprising, No wonder that the then Education Secretary Keith Joseph was concerned about the large numbers of 'neglected non attainers'.

making the effort. At the same time as H was in her final year, the country was in recession and youth and adult unemployment was substantial.

In Heckhausen and Schultz early theorising on primary and secondary control they employ the notion of 'constrained pathways' (1993). In socially constructed age grade opportunities and constraints they argue that this guides the individual and helps them to 'shape and regulate their own development and life course' (Heckhausen, 1999, p.13). The idea is likened to Waddington's 'epigenetic landscape', where a metaphorical sphere, sits at the top of a sloped plane and then rolls downward. At first the sphere has many possible trajectories, or equal opportunities to roll down any valleys, however, the further it travels the more it becomes 'canalised' and specific pathways are then carved out. There is good evidence that this process is common in biology and neuroscience (Lewis, 2005), where it is a natural phenomenon that serves a functional organisation of structure for the organism. Heckhausen's view of this process is one of a 'scaffolding of individual development and aging throughout the lifespan... [with] societally determined opportunities and constraints... [that] The individual can use in efforts to actively shape her development and life course' (1999, p.14), which appears to be a positive outlook helping the individual to invest and focus on appropriate lifecourse pathways. However, in H's case and in terms of lifelong learning, being educated and socialised in a system that effectively stifles a sense of efficacy and educational ambition, represents a negative canalisation, a historical one that affected (still affects) generations of school children from the 1940's to the 1980's when a more equitable system appeared. These sociohistorical constraints are important in attempting to understand an individual's learning trajectory. In H's case it would be a decade before she attempted to return to

learning to achieve the qualifications that would allow her to further her education. In NDS terminology education and the purpose of education is a repellor, a place that as you approach it pushes you away to a space where you don't think about it or become upset. Of course repellors are strangely attractive, we are drawn to them perhaps to alter and defeat their reflective power.

The education system is a bounded structural age graded one of opportunities and constraints. From 1947 and the introduction of compulsory education till 1987 and the introduction of the GCSE qualification, the system was one that offered opportunity to progress to further and higher education mainly to those in Grammar schools studying for O-levels about 25% of pupils, the other 75% were educated in the secondary moderns without expectation of progress to further and higher education in terms of A levels and University.

The introduction of the General Certificate of Secondary Education (GCSE) changed that. All pupils could now study for a single qualification that if successful would mean progress through the system. This is an example of a parameter change in a system, the removal of a constraint that allows the growth of opportunity. Since that time the number of young people going into Higher education has risen from 14% to 43% (Guardian, 28/03/07).

In comparison of the cases of D and H, D had the necessary qualifications but contextual class and financial constraints precluded progress; for H the system had channelled her into a route that did not really allow for progress to HE.

It is necessary to examine more of H's story to see how she arrived at where she is now.

'PE was fun. I liked PE. I was good at PE.I loved Rounders. Hated Cross-Country Running. I loved Rounders, loved Netball. Didn't like running, yeah, didn't like running. Hated Cross-Country, you had to keep at it, too far to run. Funny, I love to run now, with my dog and cycling. I remember going to Athletics Club, and because I so tall, everybody expected me to be good at Athletics, and I never was actually any good at it. But, I certainly took part. I don't remember excelling at any particular sport.

What did I dislike about school? Well there was a time when I was bullied by the only black girl in the school, and that was horrible. But then my brothers warned her off, so I was okay. The bullying stopped. I'm not sure why she bullied me because it would have been different for her because of being the only black girl. I don't know how it all started either or even why she bullied me. I think maybe it was something to do with me and that RE thing, and me being insistent in being moved, I think, maybe, she thought like I've got a bit of a weakness and that I can't cope, maybe?

After the bullying incident H made friends with a new group of girls, girls who were

'cool', girls from the city, not like her old friends from a small town and little school,

girls with street smarts, perhaps she was drawn to them for protection, you don't bully the

cool kids. However, what interest she had in school work then fizzled out. H talks about

the rest of her school days as being opportunities to 'skive' either by truanting or when

there, finding short cuts to not study.

When we left for school we used to get a bus. We'd go to the top and get the bus in the road where the school was and then we'd get the bus driver to stop and say we were all going to the dentist, and why he would let us do it… We all used to go to my friend's house and put on the test card, because there was no daytime TV in those days, and we'd dance to the test card and have a right laugh. Because my parents never knew we were there, and one time the wag man came round and we were on the floor, hiding. We never got caught, and then we'd go to school at lunchtime and say that we'd been for books in the library and no-one ever questioned it.
Basically the people I hung out with skived school and thought that qualifications didn't matter and that it wasn't important and they were all different to who I hung out with at primary, when I was smaller, when I was little. Not all of them, but most of them, did very well. I moved in different circles then.
Erm, I know exactly why I'm always rubbish at Maths, because we had Maths books that had the answers in the back! I never learnt anything about Maths, I just wrote the answers down, and erm, while the teacher, who was known as Scanner, just sat there and maybe, looking back I don't know, maybe he was depressed or something. He was called scanner because he could scan a classroom and see nothing. People would be writing graffiti on

the walls, throwing things chewing gum and all sorts of things and he would see nothing. Hence the name – Scanner.

In all I left school with two CSE's, one in History and one in Cookery Grade 2. I left school with terrible qualifications. Zilch practically.

There are important themes here, peer culture and the attitudes displayed by H and her friends can be seen in terms of secondary control. H has disengaged herself from the purpose of education again in a protective way, and uses this strategy to compensate for the disappointment even failure; of course the failure is not necessarily hers but rather is built into the system, energy would be wasted on trying to pursue qualifications that were of little or no value. H like P engages with protective social comparison, seeing her friends as cool, but this has been discussed above. H uses a combination of strategies 1. She devalues competing goals and 2. This leads to goal disengagement.

These are not dysfunctional strategies but adaptive, realistic attitudes in the face of facts. H organises her goals around enjoying the time that you have to spend at school and looking forward to leaving school and perhaps getting a job and life of becoming an adult.

An attractor and/or repellor state equivalent to viewing education and qualifications as pointless may have developed here, however, this *changes* after a few years and the start of her career as an unqualified auxillary nurse.

H left school that summer with mass unemployment and signed on the dole, her twin older brothers were also unemployed but planning on going to college in the autumn. Youth unemployment in her town was extremely high, in the past many of the young working class men would have gone to work in the surrounding coal fields and the young women into factories or secretarial/clerical work.

H wanted to travel but there was little opportunity, she thought that going to college and

studying something that would allow her to travel, might be a good idea, but she was put

off this by her parents.

'So I left school with nothing really, went to Thomas College. I was going to go and do something at the College of Food and Art, in the hope of travelling somewhere but I got talked out of that and went to Thomas College. They did a course in Typing and English and RSA, and again, while at that school, we used to be able to go to Walsall College one morning a week and we would jump on the bus and we could learn Typing. And I learnt to type by looking, so I couldn't touch type, so I wasn't very good at typing. So, when I went to Thomas College, we would all sit in big long rows with our typewriter. And we had this really prim, and well snotty teacher – can't remember her name, but I can remember what she looked like. She would go, 'come on ladies', and you would start typing and it could be a headache and was really boring, and I'm thinking, 'what am I doing this for? Its crap! But I got my RSA again and hung out with mates at that college. But there weren't any office jobs at the end of it so I went off to work at a holiday camp. Then I came back in the winter because it was a summer job, and I did this for two summers, two winters unemployed.
I went with S, my friend, erm and we went to the Isle of Wight. And then in the winter, I came back. The culture of the holiday camps was that they partied all summer, and its all a bit depressing and you hardly had any moneyin the winter on the dole. So, the first year I did it, I thought it was very cool, and then the second year I did it, I thought, 'I cant keep doing this', because I realised there were people who were probably now my age, but spent their life doing this and had ended up just a bunch of saddoes. And I thought, well this is rubbish and suddenly, I don't remember how, but I ended up, maybe my Mother knew somebody who knew somebody, but I got a job as an Auxiliary Nurse at the local hospital, and cus I was so young, people always used to say to me, 'why don't you do your training? Why don't you train?' And initially, it didn't bother me cus suddenly I had a weekly tax allowance, and obviously you get into the culture of, 'I can better myself'. So, that's what I need to do. I was strongly influenced by the qualified nurses, because they are looking at a 19 year old kid going, why be an auxiliary? Because most 19 year olds like my best friend at primary school who left school and did a cadetship, and went straight into training nursing. Most people do that, but Auxiliary Nurses, you know, is not a job young girls tend to do. They tend to go into training, but you see, I was always aware that I didn't have the qualifications to do that.

H is in an employment situation with little control, doing seasonal jobs, punctuated by

periods of unemployment, but comes to realise as P did that there is no future or the

future is one that she does not want for herself, so with the aid of her mother she secures

a job as an 'Auxiliary Nurse'. At the time H began nursing the hierarchy of nursing was:

Auxiliary, State Enrolled Nurses, State Registered Nurses who would be graded as staff nurses, junior ward sister, ward sister, senior ward sister, Matron.

H had the duties of direct personal and social care, washing and dressing patients, feeding and talking, spending time with patients, essentially but fairly low grade, unchallenging routine duties that the qualified nurses around her felt were unsuitable for a young person. So they try to persuade her that she should 'do her training'. H is not sure, she doesn't have the qualifications and does not feel able to achieve them. However, there is another route into nursing and this is an entrance exam. What was previously dysfunctional control striving is now functional. So continuing to argue with her teachers to be allowed to take the public exams she wanted was futile in the face of their resistance and view of her as incapable. But now an opportunity exists to take an exam that would allow her to train to be a qualified nurse, second level, but qualified nonetheless. It would be a struggle and take some perseverance and self teaching to achieve.

'I'd like to say that I went to college to get the o-levels?', but I didn't. In them days you could do what was called an entrance exam, so you enrolled as a nurse, training, which was a second class qualification really but it was better than nothing. So, I probably wrote off to every single nursing establishment, and I also went to Birmingham and tried to join the QA's through the Army, and failed the test because it was like, logical thinking and stuff I didn't get, so when I went for the…I actually got, I don't think I got many interviews, but I got one in West London and I, gemmed up on IQ testing, because when I did the IQ test for the Army, I didn't understand it cus I'd never come across it before, but then I got these books to help me and I went down to London and I had to do an entrance exam, which I passed, and then I had to have an interview. I remember one of the questions was, what do you like doing? I said that I liked reading, and he asked me what I was currently reading and at the time I was reading a book called 'The Dolly and his Mother', and I thought, 'I can't tell them I'm reading that', so I made one upand said that I was reading some George Orwell novel to sound clever, and I got offered a place in London. It was pretty much the only place I could get in. So I ended up going to London for two years to train.

After that, I worked with an Orthopaedic Hospital as a nurse for about six months, and then I, and I lived in a dreadful, horrible hovel, and it was really depressing and I was really unhappy. But then the girls I trained with, we all eventually got a flat together, and that was really nice. Although, we never really had any money, cus it all went on this flat, which was nice but it was really expensive. And then I got a new job, I don't know how I ended up getting this new job, where the jump came from, but I ended up working at an STD Clinic, which was a VD Clinic basically. Sexually Transmitted Diseases and I worked there for quite a long time as an enrolled nurse. I can't remember how I got from one to the other, a bit of a strange jump from orthopaedics to a clap clinic but…there you go. And I worked there for quite a long time, and it was when HIV and Aids was fairly new, so I got into that then, really. We specialised in looking after people with HIV and Aids, and then we had a clinical grading thing which reshuffled how you were paid for what type of thing you did and erm, we, the nursing staff came out really poorly with this grading system. We got the lowest grades you could get and I got very angry and found I could get a job next grade up in the Community, so I got a job in South London in the Community as a Community Nurse., and I worked there on a higher band.'

H trains as an enrolled nurse and after a 6 month period in Orthapedics moves to work in an STD clinic. As she says she doesn't know where the jump in specialisms comes from but she makes the move. She described the work there and that the Unit she was working in was quite prestigious as it was the main centre for medical care in HIV/AIDS, its pioneering care brought patients from all around the world. However, following a re grading of medical staff in the NHS she finds herself in a poorly paid position and angry so makes the move to community nursing which has been the focus of her career since. H had said she was sad to leave her colleagues at the hospital and had been encouraged to pursue her education whilst their by senior consultants who felt she could do better in her career. However, she felt that money was an issue, she needed to pay London rents and to live, nonetheless, she said that her and her boyfriend were struggling to get by in London and decided to move. There is a continuing theme here whilst some individuals and the system are putting barriers in the way, others, her mom, nursing staff, consultants, are providing role models and encouragement to continue.

Why did I move back to Birmingham? I can't remember why I moved back, probably because of my boyfriend, who finished…he finished his degree or something and wanted to go back home, Cus, I went down to London first, and then he did, so then we lived in student accommodation and he was at college and I was working and, then he finished his course and I moved back to Birmingham and I got a job as an enrolled nurse in Birmingham, and did, at the time, a course that could allow you to become a District Enrolled Nurse. Therefore you got more money.

At this point H mentioned that her boyfriend was a graduate and I asked if she had not

considered going to University, but she said that she was still very unsure of herself

academically; she said that when she first met her boyfriends new university friends she

felt uncomfortable and thought they would be really smart and she would appear stupid,

but she soon came to realise they weren't that clever after all.

A further professional qualification then University

I went to the course, the district enrolled nurse course, which was held at the local Polytechnic, which later became the University. And I did this course and you hadto do…and I met lots of people, and I had a nice time and it was really interesting and thatthen made me think that I've come as far as I could go, as a district enrolled nurse. I cant get any more money, cant climb up the ladder so I then, in between that, I had a bit of a life changing event. I split up with my long term boyfriend and elsewhere, in between that, I had gone to college and started A-Levels in the first year, and in the second year, I didn't bother going or studying. I just went to the exam, and read one Sociology report, and as in school, I thought I could pass the exams in Sociology and I got an unclassified, grade so erm, obviously, that backfired. I liked the psychology teacher and actually got Psychology A-Level quite easily, If I remember rightly. Sociology I didn't, cus it was my own fault for being arrogant, but er I broke up with my boyfriend, applied for University, thinking I'd never get in as, I think though because of my prior learning it's called APEL…got into University, and my best friend, who I met on the D.E.N course, said, 'If you're doing it then I'm doing it too', and she did. On the last day you could enter an essay, we entered it and she got on it as well. So, basically what we did was, we packed in our jobs and became full-time students.

So I did my A levels from 90-92,Yeah. Not sure I want to… something else happened to me. It was very personal an it changed a lot for me anyway, and so, yeah, get to 92, pack my job in, go to University and I completely got no way of making a living, the grant was pathetic, I had a house, bills to pay…erm, I think my partner…I think I got back with him then, helped me out with the mortgage, and because I had this prior qualification as a student, I could work in the holidays and in the evenings and earn tax-free money. I also used to sleep on a woman's couch 2 nights a week for £25 . I hated it but it was twenty

five quid. And, because of my prior contacts, I was able to get lots of work on the community to back up my grant. So I did that for three years. I hated the wards, the being a student and being new and being treated like shit by most of the other staff, particularly as I was a trained nurse and not a kid.

G – You hated being a student?

I hated it…I loved being a student, but hated being a student nurse on the wards. And I never liked ward work anyway, hated it. So, anyway I finished my degree and I…I got a 2-1.That was quite a jump. I remember thinking, I left school with nothing, nobody in my family ever went to university and I've just graduated with a 2:1, that was great.

In a twelve year period H has moved from being an unqualified auxiliary nurse in a small town hospital through a trajectory of sustained training and education, taking enrolled nurse training, district enrolled nurse training, A-levels, staff nurse training and a degree.

The return to education transition was preceded by one or two personal crises, one she mentions was the breakdown of her long term partnership, the other she does not give any details of stating that it was very personal 'but changed a lot for me'.

Whatever the event it changes course for H so can be seen as a bifurcation perhaps leading to disorganisation and reorganisation. This emotional turbulence at the age of 29 makes her think that risks are worth taking and she gives up her job and takes on the struggle of three years full-time study. H goes to University because this is the way to climb the ladder, but to understand all this change means taking account of the personal and ecological forces at work in an individual life as there is no standard model or universal model of change to account for these observations.

H enters a new phase of life starting a family and establishing herself in her career, after a while she takes another undergraduate degree, then a post graduate nurse teaching qualification then begins a Masters. This is detailed next before a general discussion in light of theory.

So I'd graduated and for the flexibility I was working as a bank nurse, to be honest I'd had three years of being a student and loved the study and the social life and wanted to enjoy the summer before applying for full-time permanent posts until I found that I was pregnant. It wasn't a planned pregnancy but it didn't matter because I finished my course. But I had to secure a job, so I got a job and then told them that I was pregnant, and had the baby and stayed there. I then applied for a sponsorship to do a further degree in district nursing. Got that… another 2:1. But basically again, I pulled out of a lot of the modules because I already got a degree in nursing when most people hadn't so I would then go home, put the baby in the nursery nearby and did my assignments, so I didn't really struggle , because I had enough time because of my prior learning, I was confident, I had done well in my degree, got good grades, had the study skills and was organised. So I got that, and then got a job as a district nurse, G grade, which is the highest up you could get as a district nurse, really. Straight away, pretty much, and worked there for, I dunno, erm, yeah, probably worked there for three years or so. From yeah 96 Two or three years. And then, my motivation slowed because I couldn't go any further, so my motivation was, I'll get as near to my house as I possibly can from where I worked…it was about an hour there and back,every day, and I had this child and I just had to leave him really early and pick him up really late, and I waited and waited till a job came up near S, which is a very white, middle class area and jobs didn't come upthere very often, cus people didn't move. Whereas in the city, there's always movement. I waited and waited for when a job came up nearest to my house, went for it and got it, erm and I got it above everybody else and I was given first choice and I've worked for that trust since then.

In the meantime I had another baby and earned more money, so what I did then was, was a erm, a Post Grad course called, 'Community Practice Teacher', I got that, after a years supervision, I went up a grade. Which made a difference of about five thousand pounds. So I did that, did my supervisory year, and went up to a H grade. Erm, now once you hit the H grade, you you only get a H grade for being a nurse specialist, I'm a clinical specialist in wound care after this the only way up, is management or, pretty much that's the only way you'll acquire more money, is to become a manager erm, in the Health Service. But they have lots of changes, and they are quite frequently…I experienced…the higher up you go, the more unstable your job will be because when they have reshuffles, and there's too many managers, they halve them.

So for me, where do I go now clinically? Clinically, I would keep my foot in the door. In the clinical field you always need nurses. So, I thought right, how do I get more money erm, and then I found out that I could do a Masters called, 'First Contact Care', which is…would take three to five years to do and at the moment the government are looking at health promotion, and promoting health and using palliative care, reducing hospital admissions and they need people with the right skills to prevent hospital admissions. They're not only G.P's, but also appropriately qualified nurses. So…and they can command, quite large wages, not quite a GP's but a high salary. That's my expectation…once I have my Masters qualification, and it's expected that you can take on many duties similar to a doctors role and work for a decent wage.

So I've completed the taught part of the course and have a PG Dip and I'm starting my dissertation to gain the Masters. I'm looking forward to the dissertation, although I have enjoyed the modules, this is an opportunity to design and carry out my own project in my own interests, an area of wound care.

Eventually I expect to be in a very high position with the NHS. I don't expect, or want it right now because my motivation is to make sure that my kids are healthy and happy, they are only young and I don't want to be too bogged down with high flying status I want to go to the school sports day, or the nursery play or whatever, so I'm very aware that I've held back for those reasons, but once they're old enough, I'll spur on again. I want to get the balance right between raising my family and progressing in my career, but as I said I fully expect to go all the way to the top.
But at the moment I can't see the point of having to have a working breakfast and deliver power points at eight o'clock in the morning, not when I can have an equal wage as a clinical specialist and be pretty much my own boss.

H may have been propelled to enter this phase of her life because of personal crises, Jung (1913) proposed that significant qualitative change can cause an individual to re-evaluate their life and this can have significant positive transformational effects. Rogers also discusses the transformative and growth potential of crisis (1959) as does Erikson (1969) who build this idea into their views of lifespan development. These theorists are broadly ensconced in a humanistic outlook on human behaviour and potential seeing an *actualising* tendency if not an innate mechanism. Actualisation is a vague and poorly defined construct and as such has been subject to heavy criticism (Neher, 1991, in Kalat 2007). Rogers felt that this tendency was a higher order need that subsumed and coordinated other motivational processes and directed resources in the pursuit of growth and becoming, it sounds very like optimisation in the LTC approach The main problem with crises as dynamics of change in a growth direction is that there are no good theoretical accounts as to why that should be. As Magai and and Havilland-Jones argue, crisis can 'just as easily lead to disorganisation and entropic depletion' (p469).

H certainly shows a trajectory of growth following crisis so why? Well if you look at the biography of Carl Rogers, he experienced a significant episode of intense personal distress from which he recovered, was transformed and went on to gain some of the achievements that distinguished his career. But he didn't do it on his own, he needed the support of his wife and sympathetic colleagues to make this growth transition.

H said that she had support from her reunited partner, her close friends and her A-level tutors who were very encouraging, just as the qualified nurses in her first job had persuaded her that she should strive for the education and career advancement that she desired. In this instance then H is employing compensatory primary control (CPC), at school she employed the strategy of compensatory secondary control to buffer the frustration of being in a stymieing system, now CPC is applied to help cope with the decisions of giving up a good job and income to attend university. Regardless of the help, support and advice of others, H still had to perform, display the striving and necessary competence to succeed, which she did.

Although the humanist notion of actualisation may well be vague, lack operational definition and therefore be pseudo or unscientific, at its heart is the pull 'toward autonomy and away from heteronomy' that Rogers argued was the source of energy driving growth (1959). It can be argued that the constructs were vague but that new methodologies or theory can give a more rigorous account of the underlying processes or dynamics. Theoretical descendants of Humanism such as Self Determination Theory (Deci and Ryan, 1991) and Positive Psychology (Seligman and Csikszentmihalyi, 2000) are more scientifically, empirically driven. H shows that very trajectory of movement

from heteronomy to autonomy, she ended the interview with the words 'I can be pretty much be my own boss'.

Also of note is the statement about her dissertation and how she can pursue her own interests, this again is an example of the importance of intrinsic motivation which can be regarded as a strong attractor state.

CHAPTER 6: CONCLUSIONS

'The post-Cartesian conception rejects the model of mind as an atemporal representer and, like the dynamical approach to cognition, emphasizes instead the ongoing, real-time interaction of the situated agent with a changing world. The post- Cartesian agent is essentially temporal, since its most basic relationship to the world is one of skillful coping; the dynamical framework is a therefore natural choice since it builds time in right from the very start.' (vanGelder, 1995 p. 381)

A dynamical-control theory of lifelong education

In this concluding section I examine what can be summarised and briefly synthesised from the case studies and the theoretical framework and concepts from control and systems theory. The main synthesis involves the drawing up of an initial model of motivation for extensive learning.

Understanding the three individuals' motivation for their learning accomplishments clearly involves an appreciation of their biographies.

It is clear that each life path follows a normative, maturational and age graded sequential course, but that formal learning episodes are pursued when opportunities arise and constraints are diminished.

In the first learning phase of schooling D attends primary and secondary school, though misses two years of school due to the war. P attends primary and secondary schools, four in total and H attends nursery, primary and secondary schools. D has a fairly distinguished school record, achieving well at both levels. P and H leave school with poor qualifications. All, at various points in time, progress to Higher Education and achieve to post graduate level.

The brief summaries will be framed in the context of the LTC and NDS conceptual systems before general conclusions are drawn and a model of motivation for lifelong education offered.

D's life is framed in a developmental ecology and his life course in a biopsychosocial pathway of lifelong developmental growth. I say growth because although D suffered a serious illness (a non-normative influence), he recovered and went on to pursue further study which was successful and which continues today. This is testament to his remarkable determination and resilience. Although physical decline accompanies aging, the brain is a plastic and adaptable system (Martin & Greenway, 2010) and cognitive decline is individualistic. For instance the psychologist Jerome Bruner is 94 and still working as a senior research fellow at New York University. The reasons for these individual differences isn't well known but as the saying goes 'use it or lose it' and there is evidence that those who 'mentally exercise' suffer less cognitive decline (Doige, 2007).

This contributes to the importance of inter-individual variability as Baltes & Baltes put it: there are 70-year-olds who look and think like 50-year-oIds and vice versa (1987, p. 8).

D's story shows an age graded trajectory for his socio-historical era. He attended primary school, which was disrupted for two years during the war, then secondary school up to age sixteen when he leaves to start work. After a gap of twenty four years he returns to learning, when the opportunity is afforded by his career stage and the fact that his last child has started school. D completes this stage of learning after 5 years of part time study. Another 24 years passes and he suffers a stroke, retiring him but allowing after a

period of recovery, to start a new phase of formal learning. He successfully completes further A levels, a law degree and other professional qualifications.

In a respect this is a challenge to the idea of developmental deadlines suggested by the LTC and of course to any predominantly front loaded education or idea of lifelong education routed in narrow economic imperatives. With the population aging the educational opportunities and motivational support should be extended to older individuals for improved health and well being.

Nonlinear lifelong education

The cases are clearly not linear projections: whilst there is common transition through formal educational institutions in early life, later there is movement in and out of education when opportunities or internal needs dictate.

Nonlinear processes of complex feedback loops, negative, positive and forward are discernable here, which is discussed in the general model below.

Identity is not linear or static and we have multiple selves, who we were, who we are and who we might become along with the different roles we play, and this identity contributes to learner status and motivation for learning.

So motivation for learning is strongly tied to identity (in all the cases). In D's case his work identity, as a civil servant and a professional, meant his second major period of learning was pursued to consolidate that identity. When he retired the idea of not being able to work, was he said 'intolerable' such that when he was well enough he began to study again, and this became his new work. This accords with Gollwitzer & Kirchov's

Symbolic Self Completion theory, in that D was frustrated that his working career had ended but he still wished to be thought of as a worker and a professional, to achieve that he has to do something, and studying for a law degree fulfils this. He approaches his study as he did his work, treating the day like a working one. However, in this case he is working for his own development and self satisfaction, which he said was highly motivating. All the cases draw attention to how they are motivated to study and learn about those things that they enjoy and means something to them and it is this that contributes to their endurance.   Indeed having to learn about things that have no connection to you or are unstimulating, is tedious and stressful.

P also follows an age graded trajectory and a dynamic of primary and secondary control processes. Though I think secondary control processes are more evident in P's learning life (and I think secondary control is important generally, see below). He employs it to buffer the feelings of inadequacy through his school life and into unemployment and employment on a government scheme, however, these effort are not enough to sustain him and he takes action to pursue education and escape the prospect of a useless future, which appears to be primary control, but to reach the decision and sustain it must involve secondary control.

In the LTC primary control striving is aimed at controlling the external environment and Heckhausen and Schultz consider this a human 'universal' (Heckhausen, 1999), the concept of secondary control striving is aimed at internal regulation or 'an individual's motivation to influence his/her own emotion, motivation and mental representations [through] secondary control strategies [using] cognitive and behavioural means employed to influence internal processes. (Heckhausen, 1999, p.64). It is then argued from this that

this leads to 'relativistic' conceptions of people trying to 'maximise subjective well being', however, this cannot be the case because 'to maximise well-being individuals would have to stick to attained levels of performance' (p.65). Equally it is pointed out that strong positive affect (happiness) is short lived and we quickly move to more neutral emotional states, Heckhausen then quotes Frijda, (1988/2007) who argues, 'the human mind is not made for happiness but instantiating the blind biological laws of survival' (p.66).

This seems to me to be a deeply degraded view of humanity and an example of what Tallis (2011) would call 'Darwinitis'. Heckhausen further asserts that should secondary striving/strategy become an aim in itself the individual will suffer from the following: 'pathological delusions, self aggrandizement and illusory hopefuleness' (p.66).

I completely disagree, secondary control involves using all the substantial capacities of the mind, to regulate itself and to have an impact on the environment. The ability to plan and guess the future requires hopefulness, why is that an illusion? The opposite presumably of illusory hopefulness, is realistic hopelessness? How does that sustain people?

P is sustained in his efforts by pursuit of a subject that deeply interests him and that he can use to connect and understand the world. To be sure primary striving, getting up in the morning, keeping a job, raising a family are all happening, but the learning he is engaged in is more intimately connected with longer term well being.


H like P completes school with few useful qualifications reflecting an education system consigning large numbers of children to an economic track of low qualification and skills.

Following school experiences periods of seasonal work and unemployment. Her impetus to pursue higher education is a non-normative crisis, although not detailed in the biography, there is a sense of loss that and an important bifurcation, H realises that she is stuck in a career trajectory as a result of the structure of her job and to progress she must take a higher training qualification and a degree. Her approach is strategic and aggerative, employing feedback to develop, like D's in his third phase of learning. Although she is a mature student she takes A levels as preparation and justification of her progress into University. Her learner identity consolidates over the next few years as she achieves good Undergraduate degrees and takes on a Masters degree. The part of this degree that she is most looking forward to is the dissertation as this allows more control and freedom over her learning and therefore the potential for greater satisfaction – future wellbeing.

The quote at the beginning states that the 'most basic relationship to the world is one of skillful coping' which I agree with, but this is not subsistence or adaptation, but a more complex growth process achieved through motivated learning over multiple time scales, short and long, framed in the constraints and opportunities of the lifespan and involving an array of dynamical influences.

A complexity model of motivation for lifelong education..

Figure 10: A schematic diagram of continuous dynamics in complex systems, for the emergence of a motivational pattern.
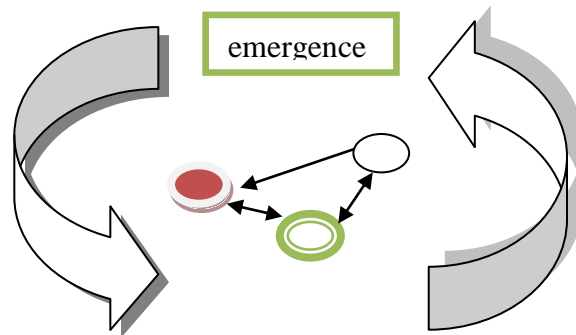
This first figure of the model is simple and tries to capture some aspects of the complexity.

Nonlinear Dynamical Systems (NDS) theory DOES NOT assume proportionality, that is large inputs can have little effect whilst small inputs can have a dramatic effect. Take the extensive primary schooling of P & H a large input with a small output low qualification. Contrast that with a small input and conversation of a Nurse with H encouraging her to consider taking the exam for entry into nurse training, a small initial input and a trajectory to post graduate qualification.

Dynamic systems have flows of energy and information which continually feedback producing change and stability which in turn produce emergent processes.
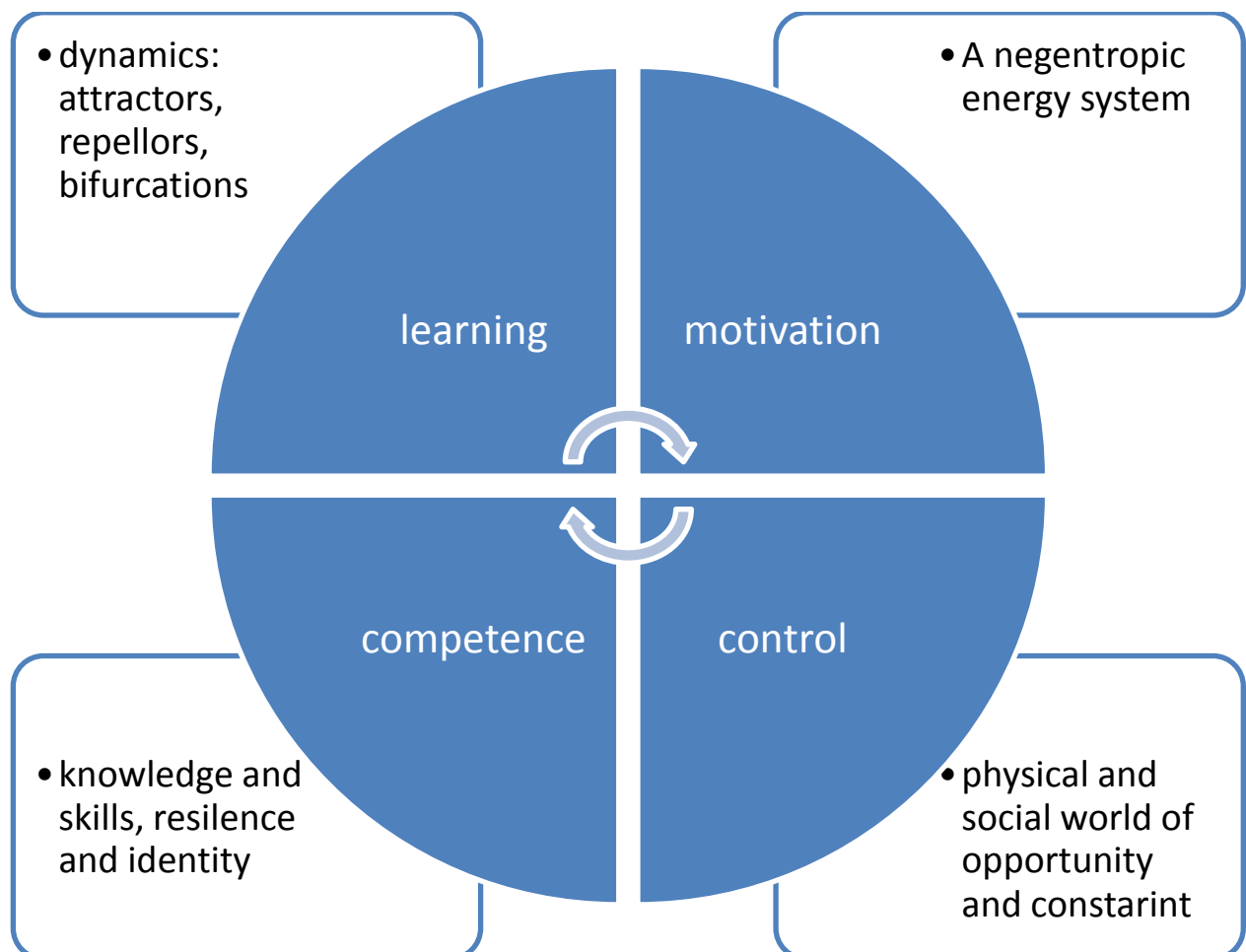
In understanding systems and changing them it is important to know what the components are, their significance and their relationships to each other.

In the model above the large circular arrows represent information and energy feeding continuously throughout the system and that information can come from the wider environment: (community/culture/society).

Inside this are components, brain, mind and society all interacting in a way to produce a dynamical pattern of motivation synonymous with an identifiable learner.

Figure. 11

A prototheoretical dynamical control model of motivation for extended learning

- dynamics: attractors, repellors, bifurcations

learning | motivation

- A negentropic energy system

competence | control

- knowledge and skills, resilence and identity

- physical and social world of opportunity and constarint

The whole set of components are processes nested in time scales from the micro, short learning episodes, to the macro, extended lifelong learning. In the centre is the fundamental iterative action of feedback.

The components

Control. We are born into a world of regulation through the constraints of our initial

helplessness, our physical world and the wider social world we have to negotiate. We are

controlled by our environment and we attempt to control it. Like other organisms we

strive to adapt and develop, however, unlike other animals we have a set of cognitive

capacities and complex learning capabilities that provide us with extensive flexibility and

therefore an apparent 'mastery' over our environments. Nonetheless, there are biological,

sociocultural and age normative constraints to contend with. More than this our

environments are exceedingly complex, indeed this complexity and its role in regulation

is probably very poorly understood, but important in recognising the wider sociocultural

constraints at play.

Motivation. We achieve control through the application of motivational resources.

Motivation is a form of negentropy, energy and information are imported from the

environment and used to fuel development and learning. The application of resources can

be likened to a laser, whereby energy (photons) are brought into a coherent state and

directed like a beam onto an object. Lasers vary in intensity so more or less energy can be

directed on the problem, whether in short burst or over longer periods of time. Motivation

can be seen as patterned by the events of life, by the experiences of opportunity and

constraint.

Learning. Is a deeply complex process spanning multiple scales, from the molecular

feedback seen in simple organisms to the capacity to synthesise disparate domains of

knowledge and gain astonishing insights into nature (e.,g., the work of Darwin or

Einstein). As a process it must be understood as *change* and change is currently best

approached from the conceptual toolkit of NDS, feedback processes, attractor states and

bifurcations are very useful in picturing the trajectory of a system over time. Events and

emotional states contribute to this dynamical picture. Individual occasions or feelings

might be identified as underlying factors in the process of change.

Competence. The purpose of development is to cope, respond and thrive in an

environment, acquiring the knowledge and skills necessary to be a competent member of

a community and to achieve an identity that confers well being, is important. This is

predicated on the processes outlined above in an interacting network of 'progress' to a

developmental end (though an end never reached).

At the beginning of this thesis I related a short story of a boy called Nico who through

disease had a hemispherectomy. The relevance of Nico's case is that he is unique

individual, although there are many other cases of people with half a brain (Doidge,

2007); that the plasticity of his brain allowed his near normal development and that his

capacity to learn is shaped by those around him teaching him and his motivational

pattern, a can do mindscape of attractors. But the relevance is that Nico as a learner is an

individual enmeshed in multiple systems and these systems should be acknowledged as

unique as the quote by Smith which opened this thesis states, 'All linear systems

resemble one another, each nonlinear system is nonlinear in its own way.' Psychology

too often loses sight of the fact that it is about actual people, in its search for 'universals'

and its mimicking of the natural sciences. All of the cases examined are unique learners,

their biographies have shaped their lives, their learning and their motivation to learn. Learning changes us and learning about the nature of change is crucial for better views of human nature.

Conclusion

The case studies, the lives, explored in this thesis illustrate the need for understanding commitment to extended learning projects or lifelong learning and point up the value of framing such understanding in a lifespan and dynamical perspective. The aims of the thesis were to examine motivation for learning in order to understand achievement or competence motivation through the life-stories of adult learners and focus on the impact of both normative events (e.g., formal educational episodes) and significant or transformational events or crises. From this I have offered a tentative model of lifelong learner motivation: a dynamic one showing the interplay of time, experiential events and individual differences in going some way to answer the research questions, concerning the complex aspects of what motivation is and does it become patterned in the lives of individuals and how does it account for the learning trajectories through critical incidents, attractor states and bifurcations of the individuals studied?

I want to end with an analogy from the brain and although we are not simply our brains, it is an exceedingly complex system that can tell us about other complex systems and the need to build that complexity into understanding phenomena like motivation and learning.

So the motivation system is like the glial system of the brain, to some extent neglected and poorly understood, perhaps because of its taken for granted, subservient role, to the

neuronal-synaptic brain that does all the learning and other spectacular cognitive feats. Glial cells, as their name suggests, glue and protect the system, they are the most abundant cells of the brain, but they are more than bubble wrap (Fields, 2010). From the beginning they help the neurones to grow and they direct their connections, they nutrify the neurones, they supply the oxygen and energy necessary for the work of the brain cells, they tidy up after them by clearing away synaptic transmitters, they repair damaged axons and finally and most importantly they are not passive onlookers of neurotransmission, of thought itself, but active participants in generating mind and behaviour. The motivation system like 'the other brain, sustains and maintains what we can do and who we become.

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APPENDICES

Appendix 1

Pilot study: Student survey on motivation and complexity applied to resilience and attrition in education courses.

Complexity in motivation, student resilience and attrition.

Abstract

Predictive studies of non-completion in education are mostly dependant on prior research measuring demographic and/or managerial influences on attrition, but tend not to distinguish between those who do or do not persist in their studies from a motivational perspective. Drawing on research into cognitive theories of motivation and dynamical systems concepts especially latent attractor and repellor states, it may be possible to profile the complexity of motivation in individuals more prone to attrition and to identify resilient individuals. The findings suggest that it is possible to predict those at greater risk of leaving education and that a dynamical modeling of this can inform future intervention.

Key Words: Attractors, Complexity, Attrition & Persistence

Introduction

The rates of non-completion for school and college are considerable in the UK and the US and disproportionately affect those from disadvantaged backgrounds or ethnic minorities (Quinn, 2004; Seidman, 2005). Over the past decade there has been a sustained examination of the extent and reasons for this problem and more needs to be understood from an individual differences perspective because these differences influence thinking,

motivation and coping. Furthermore, these differences can be characterized structurally and dynamically by the attractor and repellor profiles of students and provide a compliment to the demographic and institutional models and approaches to student retention. This is important as there are many benefits to remaining in education and most contemporary societies expect their citizens to be lifelong learners.

Broadly speaking much policy and research has centered on the demography of students withdrawing from college and/or how the resources (such as counselors) and procedures of government/school/college may impact on attrition rates (Barton, 2005; Davies, 1999b; Quinn et al, 2005; Rumberger, 1995; Thomas et al, 1996), whilst too little attention has been given to the students understanding of themselves in this research, particularly their motivation. Much of the individual level work concentrates on students own rationalisations for withdrawal, however, these are not likely to be based on underlying (unconscious) cognitive processes, implicit theories or 'distorted' ability conceptions, yet all of these have been shown to impact on student persistence (Wigfield and Eccles, 2002).

In part this may be due to simplistic or linear notions of motivation, conceived of in terms of level, high-low or lacking (Bridgeland et al, 2006), rather than in modern cognitive-process models of motivation such as Dweck and Leggett's (1988) Socio-Cognitive model, Covington and Dray's (2002) Needs-Based approach or Self–efficacy and Self-Regulated Learning (Bandura, 1997; Boekaerts, Pintrich & Zeinder, 2000) all of which emphasize an individuals' beliefs, goals and values and show how these impact on effort and persistence. For these reasons and because beliefs and values unlike demographics,

are open to change, such understanding should be applied more widely to tackling attrition.

Traditional Research

Present understanding of attrition suggests two main frameworks referred to here as the *Demographic* and *Institutional* models.

Demographic explanations consider macro variables as predictors of potential attrition including Socio-Economic Status (SES), poverty, ethnicity and maturity. In the UK, government reports have tended to emphasize the impact of these variables (DES, 1980; DFEE, 1998; DfES, 2005; DfCSF, 2007). A students' social class or financial hardship seem to be the most important factors (Burns, 2010; Callander, 1999 in Davies, 1999a). In the US significant levels of attrition are associated with ethnicity and poverty (Beatty-Guetner, 1994) with certain ethnic groups experiencing considerable social and economic disadvantages (O'Connell, 2008; Seidman, 2005).

The Institutional approach examines the impact of the school, college or university in terms of its procedures and resources, including course information, teaching, timetabling, tutorial support and other student support services. This research examines what colleges do and how satisfied students are with their experience (Connor, 2001; Lassibille & Gómez, 2008). The items on which students express dissatisfaction are very wide and there has been little comparison between studies and no meta analysis.

In tackling student non completion institutions can do little about the demography of the students they accept, unless of course they accept a student whose demography makes them less likely to leave college.

Distinguishing between students

It is reasonable to argue that if students have broadly similar SES or are non traditional students, then how is this a basis for distinguishing between those who stay and those who go? Whilst his limits the explanatory power of this approach it does not to argue that poverty and prejudice are not influential in the broader system, but rather this is part of the wider picture. College procedures and the institutions ability to provide a supportive experience may well matter. The dissatisfied leave and the satisfied stay, or do they? Why are some satisfied and others not? Why, if students do not differ on demography or the extent of their personal problems and a broadly similar student experience, do they leave?

It may be in part due to different internal world views which an extensive literature shows generates different motivational orientations. Approaches to achievement motivation examining beliefs, values and goals have a bearing (Wigfield and Eccles, 2002). Research by Dweck and her colleagues on goal orientation and implicit theories consistently demonstrates that motivation is compromised by how individuals think about their abilities and their personalities (Dweck, 1999). Motivation is key to persistence in any area of life and absolutely crucial in an extended (even lifelong) education (Smith and Spurling, 2001; Martin, 2005). This field of research concludes that people's beliefs about themselves generate different 'psychological worlds, leading them to think, feel and act differently in identical situations' (Dweck, p. xi, 1999).

Sociological and managerial approaches should then benefit from the addition of psychological level explanations for retention rates. The following is a brief review of the socio-cognitive process approach before a consideration of dynamical systems or complexity concepts relevant for understanding how motivation is a dynamic structural influence impacting on retention and attrition.

The social-cognitive approach to motivation

There are a number of social-cognitive approaches to motivation (see Dweck and Elliot, 2005). The empirical study reported below applies Dweck's ability conceptions model (1999).The evidence suggests that students on the whole display one or other of two behavioural patterns, in the face of challenge (Dweck and Elliot, 1983; Dweck and Leggett, 1988; Elliot, 2005).

One pattern is adaptive (mastery orientation) and the other is maladaptive (performance orientation). The mastery orientation is associated with the goals of growth and development, whilst performance orientation is associated with the concern for proving your ability and worth. These two patterns emerge in the face of challenge and are built upon self-theories of goodness-badness and fixed or incremental intelligence (Dweck, 2003). When faced with a difficult task or failure (real or anticipated) the mastery-oriented individual reflects, learns, changes strategy and persists. Conversely, the performance-oriented individual displays a set of responses typical of Seligman's (1975) descriptions of learned helplessness; in short they give in and give up. This is clearly a maladaptive response to inevitable challenge.

These cognitive-motivational orientations are associated with a number of emotional reactions that in turn influence thought and behaviour. In particular they correlate highly

with anxiety/depression proneness, leading to a loss of self-esteem and disengagement (Dykman, 1988). Test situations arouse anxiety and all assessments leading to qualifications, involve tests. Some assessments are more stress inducing than others, particularly exams and spoken presentations. Hembree (1988) concluded that test anxiety "causes poor performance" (p.47).

Measuring these patterns in college students then, may provide a predictive indicator of likely progress or regress. This profiling approach could be used to better target student support services or help to develop learning modules that directly tackle motivational patterns and test anxiety. To this end a number of surveys, described below, were conducted to test the predictive power of profiling at risk of early withdrawal. However, before this an introduction to some relevant dynamical concepts is needed.

Dynamical Systems Theory

Dynamical Systems theory (DS) is concerned with change and has developed a number of constructs "to conceptualize change" Guastello & Liebovitch, 2009, p.1). The problem of much of the literature on achievement or competence motivation is that although it is concerned with processes and lifelong ones at that (Heckhuasen and Dweck, 1998) there is a distinct lack of longitudinal research or a theory of dynamical development and as such, 'largely fails in uncovering the mechanisms of developmental change and the properties of the individual developmental trajectories' (Van Geert, 2009, p.271).

NDS is a part of General Systems Theory (GTS), GTS is attributed to the work of von Bertalanffy (1968) but has its origins in the work of early theorists such as Spencer, Pareto, Durkheim and Bogdano. Essentially GST emphasizes holism and organism rather than reductionism and mechanism.

NDS has its roots in GST and both are mathematical in origin. Simply put, a nonlinear system is one in which 'input is not proportional to output' (Goerner, 1995, p.19). A small change can produce a large effect and vice versa (known as *sensitive dependence).* So change is often not smooth and continuous but shows qualitative transformations (or bifurcations). A classic example is a horse increasing its speed and moving through different gaits, walking, trotting and galloping, qualitative changes as speed increases. These bifurcations come about through parameter changes, parameters are quantities that represent and define characteristics of the system, therefore in the horse example speed is a parameter that when increased changes the movement behavior of the horse.

The parameters of a system are important as they can be critical external values that shape the evolution of the system. An example is feedback, a continual and daily experience for children often in the form of praise. Conventionally, praise is considered as positive and supportive, however, global praise or praising the whole child (clever boy/girl or good girl/boy) rather than their specific efforts sets up *disadvantages* when it comes "to later coping with setbacks" (Dweck, 1999, p. 114). This is an important parameter of practice that could possibly be altered to change developmental trajectories.

In general then dynamical systems show sensitive dependence, are nonlinear and characterized by trajectories following attractors. Attractors and their opposite repellors are a useful way of viewing psychological processes as they account for fixity and change and can reveal underlying motivational orientations in a pictorial way.

Attractors

Attractors are points in state space[54] that pull other points towards them, like a magnet. So if you roll a marble in a bowl, it will swing up and down the sides until it eventually stops in the centre of the bowl. This central position is known as a fixed point attractor. An attractor is a stable point drawing objects towards its basin where they stay unless a strong enough force can pull them away. These spatial points represent energy hills and valleys and 'systems in nature are attracted to energy valleys and move away from energy hills' (Briggs and Peat, 1989, p.36)

Figure 1, A landscape with multiple point attractors.
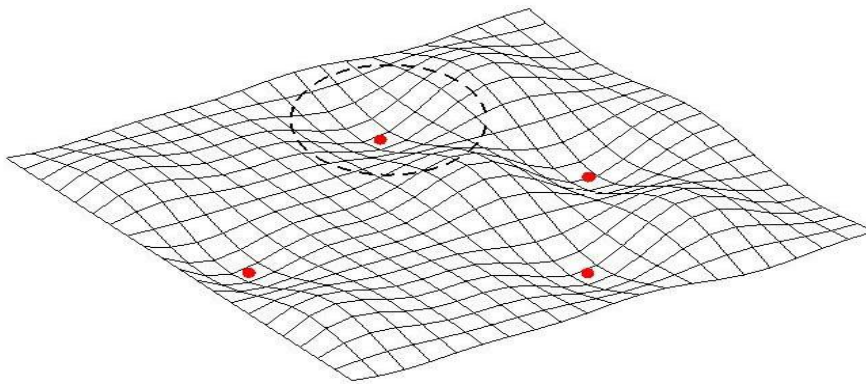
Any complex system is characterized by a multitude of attractors which 'expresses the intuition that people can have different (perhaps even mutually contradictory) goals, values, self-concepts and patterns of behavior' (Vallacher and Nowak, 2009, p.377).
'Some attractors are stronger than others and… have a wider basin' (Guastello and Liebovitch, 2009, p.6) and the strength of the attractors means that significant influence is

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[54] The space in which each point completely specifies the condition of a dynamical system (Smith, 2007)

needed to change the system. There are a family of attractors of which the fixed point is the simplest.

Figure 1. An attractor landscape showing a repellor, point attractors with different basin depths (strengths) and a strange attractor.
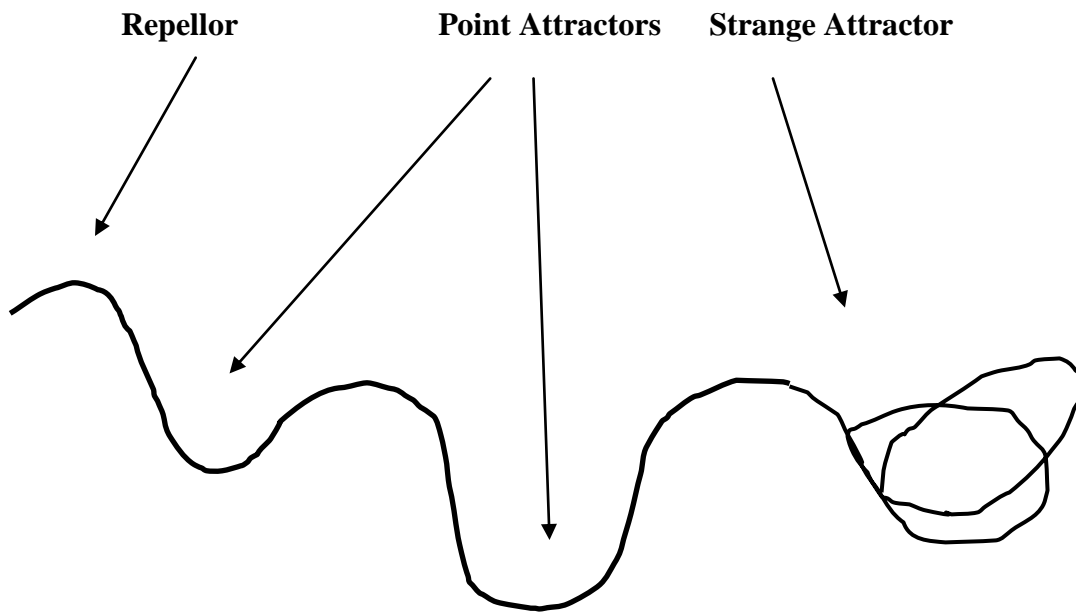
Some systems may contain more than one attractor with differing strengths. A dynamical system containing two fixed point attractors would show oscillating behavior, spending time on each attractor. So in the condition Bipolar Disorder it has been noted that depressive episodes are twice as long as manic episodes, this could be viewed in terms of a strong depression attractor and a weaker manic attractor. Or as a lack of attractors, such that mood responds to 'external and internal events' (Johnson and Nowak, 2002. p.381)

preventing stabilsation. Alternatively, the system may be characterised as being pushed between repellors (defined below). Each of these scenarios suggests complex patterns of attractor/repellor behavior. Indeed, Johnson and Nowak show that just one component, depression, has complex dynamical patterns and individuals can have a number of attractor configurations (2002).

Attractors in a psychological system might be beliefs and other cognitions, emotions, motivational patterns, identity and so on. In this sense the system after wandering around apparently randomly then settles on a particular path or position, or cyclical behavior. This is not the same as a simple, closed equilibrium model[55], with the system effectively 'static' and unaffected by energy flow from outside. Rather the system in open to change and even radical transformation.

Latent Attractors

Attractors pertinent to this study are those not visible to actors or observers and have been dubbed latent attractors because they reside within the system undetected. Vallacher and Nowak suspect that, 'These latent attractors may be highly important in the long run, however, because they determine which states are possible for the system when conditions change' (2009, p.378). There is very little research on these attractors, their identity and measurement, though some work on conflict in social relations has been carried out (Coleman et al, 2007). In this study I consider implicit theories as latent attractors, states not necessarily available to the individuals conscious thinking about the world but which nonetheless guide behavior.

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[55] Freud's Psychodynamic model is effectively an equilibrium perspective and for this reason the term dynamical is distinguished from dynamic. Dynamics is associated with the mathematics of Newton's clockwork universe, whereas dynamical mathematics are associated with Poincare's chaos and complexity.

Repellors are also areas of space, but rather than attracting points they drive away or deflect them. In Lewis's self organizing personality development model, emotions that need to be defended against are repellors, anxiety and shame are examples (Magai and Havilland-Jones, 2002), and defenses 'act to ensure stability of identity' (p.471). So fear of risk for instance may be a repellor, such that as the individual approaches the risk (challenge) they withdraw and take a safer path.

Motivational patterns then might be considered as a profile of attractors and repellors in a dynamic configuration unique to the individual and explaining a life trajectory; but still able to be organized into categories describing groups, in this case students holding particular profiles of adaptive and maladaptive orientations.

Method

Profiling the students

It was hypothesized that students showing a mastery/growth seeking orientation would persist in their course of study regardless of their demography or prior educational attainment and conversely students with a performance/validation orientation would be at greater risk of withdrawal.

The first aim was to simply measure relative rates of Mastery vs. Performance oriented students in the two education sectors and measure their outcomes (i.e. persistence and attainment) at the end of the year. Two inner-city Further Education Colleges and Two Higher Education Institutions were chosen, for the main reason that rates of non-completion were relatively high around 50% in FE (Access to H.E. and H.E foundation courses) and 15% in HE (Humanities/Social Science courses).

College tutors administered the questionnaires and provided feedback on the students' outcomes.

Three main measures were given to students at the beginning of the first term for both FE and HE students. Attrition can be at its highest in the first 2/3 weeks of the academic year, therefore the measures were taken after the initial adjustment phase (end of first term/half semester, 5/6weeks in).

The sample

322 students participated, the students were predominately female (n=283) and comprised the following main ethnic groups South Asian (n=143), Caribbean Heritage (n=72), White (71).

Measures

The FE students (n=186) and HE students (n=126) were administered three questionnaires:

The Implicit Theory of Intelligence Scale and the Goal Choice Questionnaire (Elliot and Dweck, 1988; Dweck, 1999) were used to measure Mastery vs. Performance orientation. The two scales correlate well and are short and easy to score. Dweck et al (in Dweck, 1999 ch.7) report a characteristic pattern of mood change associated with failure or the prospect of failure referred to above as helplessness. To measure those more vulnerable to such reactions the following scale was employed:

The Goal Orientation Inventory – GOI- (Dykman, 1998) this instrument was developed to expand upon achievement situations and to measure the goal strivings that might characterise depression prone and resistant adults. The GOI is a 36-item questionnaire

consisting of two sub scales or factors known as Validation Seeking or VS and Growth Seeking or GS. The two orientations describe individuals thus:

'Validation-seeking individuals are those having a strong motivational need to establish or prove their basic worth, competence or likeability.' Whereas,'Growth-seeking individuals are those who have a strong motivational need to improve or grow as people, develop their capacities and realize their potential.' (Dykman, 1998, p.143)

In summary a cognitive/affective-motivational pattern can grow out of certain beliefs and goal-strivings, which in turn lead to self-evaluations that can promote or erode academic persistence. Students whose responses indicated that they held an entity theory of intelligence, pursued performance goals and were validation seeking and deemed to be the most vulnerable to the challenge of college/university life. Equally, those who persist and attain their qualification or complete their year should hold the opposing profile.

Students whose combined scores lay in the upper quartile of the distribution were considered to have the vulnerable profile. (Students with a high entity/goal choice and VS score are referred to as 'Fixed' students, the opposing profile is referred to as 'Flexible')

Results

Table: Students profile and withdrawal rates (fixed only)

Vulnerable Profile (i.e. 'fixed)		Withdrawn	
FE	HE	FE	HE
54	14	41*	14**

* 18 students with other profiles also left college (all from the mid range of the scores)

** 5 other students withdrew or deferred (all from the second upper quartile)

Findings

Persistence

There is a significant difference between the motivational profiles of FE and HE students ($p<.01$), n=322. There are many more students with a vulnerable profile in FE.

Students with a 'Fixed' profile were significantly more likely to withdraw from college ($p<.01$) in comparison to 'mastery' or 'Flexible' students (n=186).

Students with a fixed orientation were more likely to withdraw or defer from H.E sample ($p<.05$)

There are more students with a vulnerable fixed orientation in the FE sample than in the HE sample ($p<.01$). In other words FE students were more likely to subscribe to an entity theory of intelligence than HE students; they were more likely to pursue performance goals and they were more likely to hold a validation seeking perspective.

This might be explained by the fact that adult students in HE had entered with a recent record of attainment, mainly in college. They had shown persistence at foundation level and achieved. In contrast the FE students had low or even no qualifications (hence their participation in college). The FE students had their academic skills tested and although there was some variation in abilities, the lower ability students were not concentrated in the vulnerable group (this is consistent with previous work, see Dweck, 1999).

Two categories of attractor profile.

The fixed, avoidant, vulnerable group (FAV) as opposed to the flexible, approaching and resilient group (FAR), are much more prone to attrition. An attractor profile representation is given below in the discussion.

General discussion

Holding a particular motivational orientation suggests vulnerability in the persistence of particular students. The self-report measures used, identified those most at risk and furthermore, those at risk expressed attitudes and beliefs that were consistent with their profile. In other words, entity theorists, did question their abilities in light of their perceived 'limited' capacity and this led them to despair at their suitability for study at their current level.

College non-completion remains a challenging problem for the education system and government (Burns, 2010). Moreover, it can be a significantly adverse experience for individuals and their families. The approaches described earlier (demographic/institutional) go some way to accounting for withdrawal rates, but in themselves tend lack specific explanatory power; they nonetheless identify important influences on the problem.

It has been argued that students from lower socio-economic groups have lower attainment 'targets' and lower aspirations (Schoon, 2002; Bridgeland et al, 2006). This may well be true and the socialising culture of the child must be an influence in setting these aspirations. There is some older work on cultural reproduction of lowered aspiration (see Willis, 1977) and more relatively recent work on ethnicity (e.g. Mickelson, 1990; Steel and Aronson, 1997) discussing how this operates. However to reiterate, when an institution or programme of study is primarily composed of students with a non-

traditional demography, this provides little basis for distinguishing between those who stay and those who go. In other words there is insufficient fine graining to aid understanding.

Furthermore, there is little reason for supposing that the sample was comprised of students who did not want to succeed. In the Further Education sample, many had applied early, or had planned their enrolment (and embarked on a course that lead to further study), many had made life adjustments and sacrifices. In the HE sample most had undergone Further Education and were now realising their goal of HE study, in there favoured subject. In the 'Silent Epidemic' Bridgeland et al report that many students who dropped out believed they could have succeeded (2006)

Students who hold the vulnerable profile are higher in test anxiety than other students. Testing is an integral part of all levels of education, however, for those with a less optimal orientation this is a distressing process. Being evaluated is very threatening for some, unfortunately for the students, this evaluation begins early in their programme, particularly in the form of skills audits.

Self report measures.

Theory of Intelligence. The students from the two sectors showed different patterns of belief about intelligence. The FE students were far more likely to report an entity theory of intelligence with a ratio of approximately 3:1 whereas the HE students showed the opposite pattern 1:3. Holding an entity theory has been shown to give rise to concerns about ability, effort, affect and achievement. Generally the pattern follows from: theories leading to goals that lead to outcomes.

Fixed theorists believe that ability is limited, such individuals are concerned to show that they have the necessary ability (i.e., they pursue performance goals, discussed below). Evidence that one lacks sufficient ability e.g., a poor grade or test score can lead to reduced effort (if you have to try really hard, you haven't got what it takes) producing less adaptive strategies, negative affect and ultimately poor attainment. However, there is evidence that this is not inevitable (see Pintrich, 2000a, 2000b, 2003).

The goal orientation of the students shows that performance goals can lead to adaptive as well as maladaptive learning patterns (Elliot & Dweck, 2005). This scale, in itself, does not distinguish between those students who may have a maladaptive approach. However, coupled with an entity theory of intelligence and a validation-seeking outlook, it is likely that these students pursue 'avoidance-performance goals' as opposed to approach performance goals. The approach-avoidance distinction is of fundamental importance in understanding motivation and emotion (see Elliot, 2008). In essence those with approach goals are trying to 'get the better of' others, whilst those with avoidance performance goals are trying to avoid looking stupid.

'Approachers' are more likely to seek help when necessary, whilst those with avoidance tendencies tend not to seek help, as this may show up their incompetence. This is consistent with the observation that students with poor study skills, do not tend to take up learning support classes, as these would confirm weaknesses, construed as a lack of ability, leading to ego-threat (Martin, 2002).

It is possible to measure the two orientations using the Midgely et al scales, which distinguish between these two 'goals' (Midgely, 2000) or indeed multiple orientations (Pintrich, 2003). A further survey is planned that will utilise these differing scales. The

scales were developed for adolescents and children, but can easily be adapted for college/university samples.

Dykman's GOI (1998) measure correlates well a number of other constructs, including depression proneness and evaluation anxiety. It can be described as a measure of contingent self-worth, built on achievement strivings. Therefore, basing your sense of worth on your academic progress would leave the individual stress vulnerable. Unless the student can maintain success, then their sense of worth and competence is at stake, in the face of failure the student may consider persistence as too threatening and instead decide to change course i.e., leave. Students entering college after a long gap in study, have to adjust to new and challenging tasks, inevitably assessment and evaluation are part of this process. However, if being evaluated negatively challenges your sense of self-worth, then this may erode your confidence and trigger negative affect. Many of the adult students in the sample reported their lack of confidence in their abilities (even in HE where they had already successfully completed recent study).

The students who reported problems of anxiety concerning tests and presentations may be particularly vulnerable. Evaluation anxiety is likely to be high and continuous as assessments are obviously a regular aspect of their experience. Continual strain is highly aversive and impacts on functioning across domains. Not being able to cope with college will likely have an effect on external relationships and daily living.

Gender and Ethnic differences.

It is important to note that the sample was comprised of mainly women and some studies show that girls and women are more likely to have an entity orientation and that they may

underestimate their abilities and expectations of success (see Dweck, 2003). Certainly in the discussions with students regarding exam anxiety, most said that they expected to do badly and were often surprised when they did well. Furthermore, women students do have greater pressures on them in terms of domestic and family commitments. I would not discount this in the sample, taking into account the large number of South Asian women with significant obligations to extended family life.

Research in the US has explored motivational patterns in different ethnic groups (see Graham, 1994 & Graham and Taylor, 2002), however, no parallel research exists for the UK. It would be possible to check for any differences amongst the three main groups in this study, South Asian, Caribbean and White but this has not been done and larger samples would be needed for useful comparisons.

Dynamical Profiles

The final purpose of the study was to consider motivation as a dynamical pattern in terms of attractor states. The strength of relative attractors in this case is the combined scores of the various measurements that determined whether a student had a FAV or FAR profile. Taking the FAV profile and applying the diagram in Figure 1 the pattern can be explored.

Figure. 3 The FAV attractor landscape.
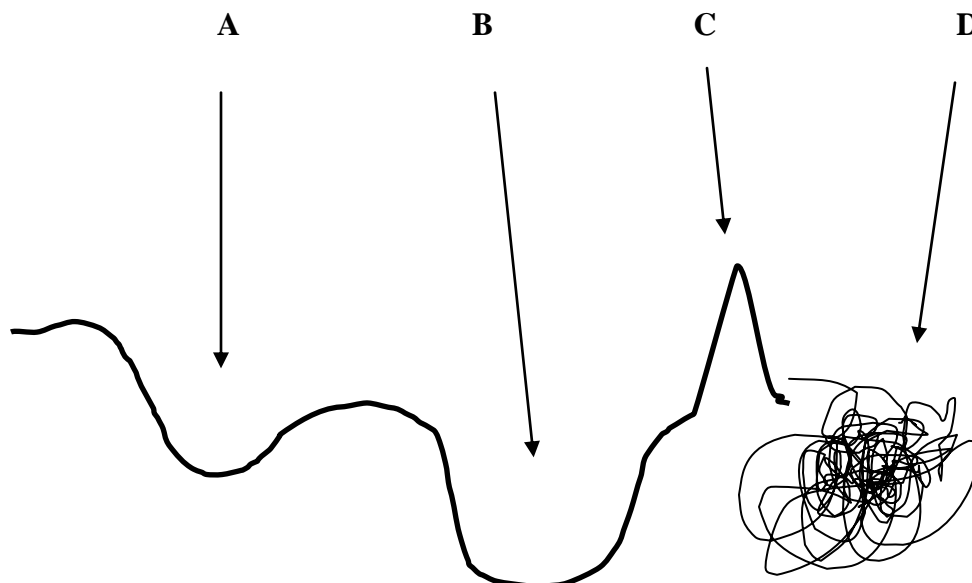
A. Represents a weak attractor for effort which may have changed over time in strength as a result of past success/failure

B. Represents an entity orientation and therefore security of performance, playing it safe, using what has worked before. The strength of this attractor makes the individual risk aversive and avoidant of requests for help for fear of appearing less competent

C. Represents a repellor an adverse place where failure is untenable and the system is reflected into another attractor state,

D. Represents a chaotic attractor, helplessness, incoherent responses where a myriad of distractions or irrelevant behaviours may be performed. Dweck and colleagues have noted some interesting responses to 'anxiety and self doubt'), some of the children in their study began to redefine the tasks they were set to 'make it into a different game and succeed on their own terms' or drawing attention to 'successes in other realms' (1999, p.8).

The attractor/repellor landscape represents a topology of mind whereby the individual can view their particular profile and consider what needs to be done to change and how change might be achieved. In the vulnerable depiction, the point attractors A and B need to be exchanged to look more like a FAR landscape below.

Figure 4

A   B

A. Represents a strong attractor for the implicit incremental or flexible orientation and therefore comfort with risk.

B. Represents a point attractor for effort with a shallow basin, such that it is easy to escape this perspective that effort doesn't matter.

Making explicit these and other more complex attractor landscapes could be used as a pedagogical tool for motivational change and importantly implicit theories are open to change.

Conclusions

Implicit theories have been shown to be relatively stable over a student's course of study (Robins and Pals, 2002). Maladaptive patterns of motivation lead to a decrease in self esteem, self doubt, vulnerability to stress and increased likelihood of withdrawal from college. Interventions based on the research findings are needed as is more case/biographical work, longitudinal studies and wider surveys.

Learning to learn about yourself is as important as learning to learn academic skills. Students would benefit from transpersonal development parallel to academic development. It could help individuals to learn about underlying cognitive processes, of which they would normally be unaware. Exploring visually the topology of individual mindscapes may help in a reorientation to a more resilient motivational pattern.

In conclusion, the cognitive-motivational paradigm presents sound evidence for individual differences in persistence, to account at least in part, for student attrition.

Dynamical concepts provide a way of characterizing implicit motivational patterns and an opportunity to explore current orientation and future trajectories. Furthermore, the insights from these extensive programmes should be applied in future intervention policies and practice.

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Appendix 2

Consent Form

Dear _____

Thank you for agreeing to participate in this research project.

The aim and purpose of the study has been fully explained to you however, if you have any further questions please ask.

You are free to withdraw from the study at anytime for any or no reason and have any data you have provided removed from the findings if you so wish.
Your privacy is guaranteed and all information collected is confidential and will be maintained in a secure way.

The data will be analysed and published as a (thesis) at the end of the study, however it will not be possible to identify you as a participant in this research

Please sign below

Name_____   Signature_____