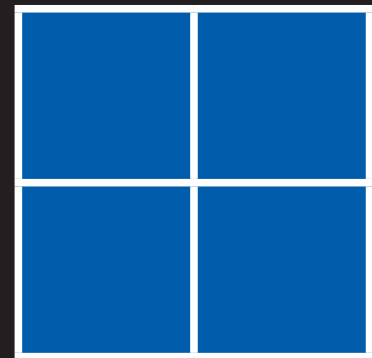


Life Chances, Learning and the Dynamics of Risk throughout the Life Course

Karen Evans, Ingrid Schoon and Martin Weale

LLAKES Research Paper 9



Centre for Learning and Life Chances in Knowledge Economies and Societies

LLAKES is an ESRC-funded Research Centre - grant reference RES-594-28-0001.

To request printed copies of this paper or other LLAKES Research Papers, please contact Jeremy Tayler, LLAKES Centre Administrator: j.tayler@ioe.ac.uk.

To view this and other LLAKES Research Papers online, please visit www.llakes.org.uk.

ISSN 2042-5929

LLAKES Research Papers – Copyright

This paper may be cited or briefly quoted in line with the usual academic conventions, and for personal use. However, this paper must not be published elsewhere (such as mailing lists, bulletin boards etc.) without the author's explicit permission.

If you copy this paper, you must:

- include this copyright note.
- not use the paper for commercial purposes or gain in any way.
- observe the conventions of academic citation in a version of the following:

Evans, K., Schoon, I. and Weale, M. (2010) *Life Chances, Learning and the Dynamics of Risk throughout the Life Course*, published by the Centre for Learning and Life Chances in Knowledge Economies and Societies at: <http://www.llakes.org.uk>.

Life Chances, Learning and the Dynamics of Risk Throughout The Life Course

Karen Evans, Ingrid Schoon, Martin Weale

Contents

Abstract	3
Introduction	4
The need for a unifying framework	5
Life chances and the outcomes of transitions in youth and early adult life	7
Rethinking the role of personal agency and its limits	10
Insecurity prevails.	12
The socio-economic benefits of learning through the life course	13
Patterns and socio-economic consequences of participation in education and training for people of working age	14
Measuring the effects of employment dynamics of life-long learning	15
Cross-country comparative analyses of the ‘social returns of learning’	17
Effects of globalisation trends	18
Adult Learning in Life Course Perspective: the significance of ‘literacy and basic education’ in adult life	20
Adult learning trajectories	21
How engagement in literacy practices leads to proficiency	23
Workplace learning at the lower end of earnings distribution	25
Exploring the Concepts of Risk and its Life Course Implications from Different Perspectives	26
Bounded agency: focusing on the ways in which individual agency can be supported without losing sight of the structuring effects of contexts	29
Risk and resilience	30
Variability in risk exposure	31
Statistical versus actual risk	31
Pluralities of meaning	32
Unanswered questions and research approaches: (LLAKES)	34
Making disciplinary connections and developing middle range theory: a social ecological approach	39
Learning and life chances	43
Policy significance of moving from ‘rational choice’ assumptions to ‘biographical negotiation’ models	45
References	46

Abstract

Social, economic and cultural factors influence and impede individuals' attempts to control their lives, their ability to respond to opportunities and to manage the consequences of their choices. The LLAKES research strand focuses on degrees of 'riskiness' in socio-economic environments for individual life chances across the life course, the ways in which individuals react to these risks and the extent to which differences in socio-economic outcomes are influenced by factors such as parental background, educational attainments and participation in education and training after entering the workforce. In particular we focus on variations and change in education and employment opportunities, the processes and consequences of participation in different forms of learning and experience beyond school and the socio-economic outcomes associated with different transition strategies and experiences. The importance of educational institutions and structural factors such as the labour market in mediating risk and shaping education transitions/transition strategies are highlighted.

This overview reviews what the literature and our own research to date tells us about 'risk' and the dynamics of learning throughout the life course: changing constellations of risk and opportunity in early childhood; the transitions from secondary, further and higher education into employment; the opportunities for different groups of adult workers to engage in life-long learning; and the changing fortunes of older persons. The evidence points to the need to consider heterogeneity in life and work experiences, the need for more flexible and diversified life course models, and the need for broader definitions of 'successful' transitions and outcomes, taking into account variation in resources among different subgroups of the population.

The paper concludes by bringing together what 'riskiness' in the life course actually means from different perspectives. It elaborates the most significant questions about riskiness and learning through the life course and shows how LLAKES Strand 3 research builds on existing research to explore and answer these questions. The analysis to date implies a movement from narrow versions of rational choice to biographical negotiation as a dominant life-course model for effective policy-making.

Introduction

Research into the ways in which life-chances are shaped by structures of opportunity and risk has been increasingly influenced by theories of reflexive modernization and the role of human agency, and the availability of large-scale data sets and cohort studies to model relationships from the early years into and through adult life. Arguments that the dissolution of traditional class, gender and family parameters has, in post-industrial societies, created the conditions for people to shape their own destinies (Beck, 1992; Giddens, 1991) are countered by consistent evidence of persistent social inequalities in aspirations and attainment (Bynner, 2001; Evans, 2002; Furlong and Cartmel, 1997; Jones, 2002; Schoon, 2006). This paper highlights variations in the processes and consequences of learning across different subgroups of the population, and discusses the socio-economic and wider benefits of different transitions strategies.

Although the polarization of life chances and transition outcomes is increasingly debated, variations over time, within and between social groups have received less attention. There has been a polarization of transition experiences into fast versus slow transitions (Jones, 2002), with young people from less privileged backgrounds following the traditional fast track transitions characterised by early school leaving and family formation, while their more privileged peers are participating in higher education and prolonging the step into paid employment and family formation. While a substantial body of research evidence on the wider benefits of learning through the life course has been established in the UK through the work of Schuller et al (2001) Feinstein et al (2008), empirical research on the economic effects of learning beyond initial and conventional, front-loaded higher education¹ is also extremely limited (Beder,1999), with assumptions about the general benefits of adult learning based largely on extrapolation from the benefits of mainstream education. For example, Jenkins et al (2003) showed little immediate earnings benefit from qualifications obtained in one's 30s, but indicated that enrolling for adult learning has a significant impact on the likelihood of unemployed adults re-entering the labour market. Their conclusions were limited, however, by the narrow definition of life-long learning adopted and neglect of the wider benefits/social returns, and, hence, the importance of learning 'trajectories' (Gorard et al, 1999) has also only partially been realised.

¹ ie end-on to initial schooling for 18-21 year olds

This paper shows how the research space in which LLAKES is working has been created, through an evaluation of the limits of previous work and the identification of conceptual and empirical approaches that can provide missing evidence and take research forward in new directions. It argues for approaches that can differentiate between subgroups, contextualised capabilities and actual life chances and opportunities (Sen,1985) to achieve a better understanding of human development over the life course and in different cultural contexts (Magnusson, 1995; Magnusson, Bergmann and El-Khoury, 2003). Furthermore, it shows how strengthening the empirical evidence of the economic returns to learning is needed to provide better explanations of the variations in earnings (of which only about 40% is accounted for by previously identified factors) and to take fuller account of employment prospects as well as the effects of education of all kinds on the uncertainties people are likely to face during their working lives. Finally, the authors outline ways in which the combination of perspectives and evidence identified can shed light on the social, economic and cultural factors that influence and impede individuals' attempts to control their lives, and their ability to respond to and manage opportunities. The analysis is informed by latest life-course perspectives and the potential for innovative research methods to map and model dynamics of learning throughout the life course in ways that can uncover diversity and fluctuation over time within as well as between social groups.

The need for a unifying framework

A comprehensive understanding of the multiple influences on individual lives requires the development of a unifying, interdisciplinary framework. Life course development is profoundly affected by macroeconomic conditions, institutional structures, social background, gender, and ethnicity, as well as acquired attributes and individual resources such as ability, motivation, and aspirations. Attempts to develop a common interdisciplinary or overarching transdisciplinary theoretical framework for the study of human development in context, bringing together expertise from the fields of psychology, sociology, and economics are exemplified by Baltes, 1997; Diewald and Mayer, 2008; Elder and Caspi, 1988, 1990; Featherman and Hauser, 1978; Featherman and Lerner, 1985. The development of such a framework has to acknowledgement,

first, that development takes time and that it reflects cumulative experiences (e.g. the accumulation of individual resources such as educational credentials or capabilities). Second, the social contexts within which human development is embedded range from interactions with significant others to macro-social circumstances. Third, life course transitions, such as from school to work or work to retirement, are not only shaped by institutional and labour market structures but also involve developmental tasks that challenge the individual actors as well as institutional regulations. Fourth, individual decision making is bounded by social institutions and the wider macro-social conditions.

As Schoon has noted elsewhere (2009) despite these commonalities, there continues to be a discipline-specific focus on dominant explanatory factors and guiding concepts. Economic models of life transitions focus mainly on the supply and demand side of the labour market and examine transition experiences in terms of ‘rational choice’ based on a cost–benefit analysis that aims to maximise personal profit. Yet, the notion of rational choice does not necessarily take into account the role of social and cultural resources, individual values, or preferences (Walther, 2009; Jones, 2009a, 2009b). Cultural variations and the role of social structures in human development are the primary focus of sociology, whereas the multiple facets of individual functioning are the main concern of psychology. The disciplines meet where they aim to examine the interactions between individual and context. This interconnection had been recognised; yet, research has developed independently in recent decades. Within sociology, research has focused on the study of the life course as externally shaped by institutions, structural opportunities, and historical change, in which life-course dynamics and expressions of individual agency are contingent on a given socio-historical context (Elder, 1998). Psychology, conversely, has concentrated on the study of individual adaptation and development across the life span, conceptualised as life-long adaptive processes. Its interests lie within the study of principles of self-regulation and psychological functioning, such as the model of selection, optimisation and compensation (Baltes, 1997). Although the malleability of individual development and functioning through social influences is acknowledged within psychology, the focus is mostly on the more proximal social contexts, such as the family, social networks, and peers, rather than on more distal socio-historical or institutional influences (Roberts, 2007).

We ask here whether increasing the field of view of sociologists and economists to take into account individual motivation and preferences will result in a better understanding of individual decision making and choice, processes involved in skill acquisition, and modes of individual agency?. For psychologists to take into account the role of institutions and social structures might contribute to a better understanding of individual adaptation in times of social change and provide the means to assess how social and institutional change is affecting individual functioning. Both might also learn from social anthropology in acknowledging how social processes are embedded in cultural and subcultural differences. An integrated approach would enhance our understanding of human behaviour in a changing social context and enable us to answer questions such as: How do, economic and cultural factors influence and impede individuals' attempts to control their lives, and their ability to respond to opportunities and to manage the consequences of their choices? In what ways do degrees of 'riskiness' in socio-economic environments have consequences for individual life chances across the life course, the ways in which individuals react to these risks and the extent to which differences in socio-economic outcomes are influenced by factors such as parental background, educational attainments and participation in education and training after entering the workforce. How do individuals respond to and cope with a sudden downturn in employment opportunities or increased pressure to continue with further education? What is the role of life planning and motivation in steering young people on their paths to adulthood? What are the incentives and disincentives to education, training and career change in adult life?

Life chances and the outcomes of transitions in youth and early adult life

During the teenage years the effects of cumulated experiences of risk and opportunities come to the fore, when young people have to make decisions about their future career. These decisions are shaped by earlier experiences in the family and school context as well as by the prevailing socio-economic conditions, as for example education and training facilities (Elder, 1998). Recent socio-economic changes, especially changes in education and labour market opportunities, place increasing demands on young people's initiative and ability to navigate possible options and multiple demands. While until 30 years ago individual lives were supposed to be more strongly shaped by structural forces, i.e. social class, gender, and ethnicity, it has been

argued that young people are now increasingly expected to actively shape their own destiny (Beck, 1992; Giddens, 1991). On the other hand, there is consistent evidence of persisting or even increasing social inequalities in aspirations and attainment (Bynner, 2001; Evans, 2002; Furlong and Cartmel, 1997; Jones, 2002; Schoon, 2006). Young people from less privileged family background are more likely than their privileged peers to leave school early and are less likely to participate in further and higher education. There has been a drastic widening of income inequalities since 1980 (Westergaard, 1995; Alderson, Beckfield and Neilsen, 2005). Although the polarization of life chances and transition patterns has now increasingly entered current debates, variations between as well as within social groups have received less attention. Adopting a life course approach (Elder, 1994) requires an examination of the notion of contextualised capabilities, differentiating between functional capabilities and actual life chances and opportunities (Sen, 1985) that underlie variations in transition strategies, their antecedents and outcomes in times of social change.

This has to take in a review of recent and projected future trends in the supply and demand sides of a changing labour market (Karoly, 2009). On the supply side, she identifies a marked trend towards slower workforce growth coupled with an aging population (which implies improved chances for employment for young people but also increasing burdens on national social-insurance systems and possibly an increase in immigration), as well as less rapid advances in educational attainment and acquisition of skills. Two key factors shaping changes on the demand side of the labour market are rapid technological change and global integration. These changes lead to changes in skill requirements – specifically in higher level, non-routine, and self-reliant working skills that characterise the knowledgeable worker – as well as the need for life-long learning. The need for and return to education are likely to remain higher in the United States than in other countries; however, there is also an increase in low-skilled jobs, especially personal and home-care aides, including home-health aides. All workers will bear more risks as access to traditional workplace benefits become more selective, especially in light of increasing freelance occupations. The implications for life-long learning are great: they require a rethinking of existing education and training institutions and the interaction between labour-market changes and aspects of family life. How are workers to maintain a motivation for life-long learning and

build up basic skills (especially in mathematics and science) as well as critical-thinking skills, ability to work in a team, and effective communication skills? Karoly (2009) emphasises the need for interlinked thinking about demographic changes, technological advances, and global competition and their impact on work and family life.

The most recent research findings, taken together, indicate that young people making the transition from school to work are experiencing increasing difficulties and uncertainties. However, given current demographic trends towards a slowdown in population growth and population aging in the developed world, prospects for young people might look better in the future. Conversely, the current economic downturn as well as increasing immigration might shift the balance of experiences. A key factor that supports a smooth transition into the labour market is educational attainment. When compared to their less educated peers, young people with higher level qualifications are generally encountering fewer problems in establishing themselves in the labour market. They are less likely to experience extended periods of unemployment or job loss, which in turn have been linked to lasting negative effects on employment and earning – the so-called scarring effect (Clark, Georgellis and Sanfey, 2001). There is also evidence to suggest that the problems young people face in establishing themselves in the labour market are also associated with problems in attracting a suitable partner (Blossfeld and Timm, 2003). Generally, the findings suggest variation in the pathways taken. There are differences between as well as within different countries regarding access into and selection of different pathways, depending on institutional filters, structural factors (e.g., social background, race, and gender), and individual differences and capabilities. These differences are especially obvious regarding entry into tertiary education and a smooth transition into the labour market but are already evident in the differentiations that are made during compulsory schooling. When the ordering, timing, and combination of social roles experienced by young adults are considered, the heterogeneity in transition pathways becomes even more obvious. Research has to uncover and contribute to a better understanding of how lives unfold in multidimensional ways, a process which challenges the assumptions that are made about the increasing ‘destandardisation’ of transition experiences. It has been argued that life-course transitions, such as taking the step into economic independence, have become more variable and less uniform; that the transition into employment has been prolonged; that it takes longer for young people to establish themselves in the labour

market than it was the case thirty years ago (Arnett, 2000; Shanahan, 2000); and that in comparison to the relatively smooth transitions from school to work experienced by young men during the postwar economic boom, transition experiences have now become less constrained by sociocultural expectations and more dependent on individual decision making (Beck, 1992; Buchmann, 1989; Shanahan, 2000). On the other hand, there is persisting evidence that points to variations in transition experiences and individual agency depending on structural factors and opportunities (Heinz and Marshall, 2003; Schoon, 2007; Shanahan, 2000).

Rethinking the role of personal agency and its limits.

Evans (2002, 2007a) points towards ‘bounded agency’ as an explanation of findings from a series of comparative analyses of learning in early adult life (between the ages of 18 and 25) in England and the old and new states of Germany. These support the thesis that environments which are highly ‘visibly’ structured are associated in people’s minds with the idea of reduced scope for individual, proactive effort. In highly structured environments opportunities are open only for those following clearly defined routes. Consequently, it is those same structural opportunities or barriers that are held responsible by individuals for any failure. Furthermore, findings suggest that one consequence of an environment such as the English labour market in which the workings of structures are strong but increasingly ‘illegible’ (see Sennett, 1998) can foster a belief that ‘opportunities are open to all’ is that people blame themselves for their failures in education and the labour market. In the highly structured western German system, external factors can more easily be held responsible for failure, giving people greater scope to develop a positive sense of self in early adult life.

The processes underlying perceived trends towards ‘destandardisation’ (or diversification) of transition experiences and whether such a trend even exists, however, are the subjects of debate. For example, in an analysis of the German Life History Study, Brückner and Mayer (2005) concluded that there is little evidence for destandardisation in the transition from education to employment. Likewise, a study of changes in the timing and sequencing of major life transitions in Australia showed that the majority of Australians followed well-established conventional life-course pathways (Martin, 2007). Evidence of stability regarding the timing, prevalence, and spread of role acquisitions of young Mexicans in their transition to adulthood was also reported

by Fussel (2005) using Mexican census data for 1970 and 2000. Evidence from the British birth cohort studies (Schoon, Ross and Martin, 2009) suggests mixed findings, indicating both stability and change in transition experiences and variations between as well as within social groups. All these studies report that transition experiences of young people have remained highly structured through institutional or social forces, although Evans et al have also demonstrated in the direct comparisons mentioned previously that the more structured environments of Germany and the less structured of England support different sets of beliefs concerning agency and individual responsibility among 18-25 year olds and adults (Evans et al 2001). There are however significant variations between regions in both countries. For example, within Germany, what happens when institutional and social forces change dramatically was the focus of Evans, Behrens and Kaluza in a study of young adults and their educators in Leipzig following the political changes of 1989 in the 'new Lander. Asking 'do social transformations create more open conditions for the exercise of greater personal agency' the study concluded that structural factors remained paramount in shaping life chances: 'personal agency, while significant in some situations, is unlikely to produce dramatic changes in stratification' (Evans, Behrens and Kaluza, 2000, p.134).

What do all these findings mean for the conceptualisation and empirical study of learning and life course transitions? Taking a closer look at how the transition actually unfolds, instead of conceptualising it as one assumes it to be, leads to a more differentiated yet nonetheless structured view. Contemporary youth and adult transitions involving learning and working life appear to be variable in the context of sociohistorical conditions and social location, yet they also remain highly structured. Might it be that standardised transition patterns continue to exist but that they have changed? Standardised models of the life course have never captured the experience of everyone, but they serve as models to describe the sequencing and ordering of life events. Researchers are guided by these models in how they conceptualise their studies, and policy makers make their decisions about how institutions and regulations should be designed based on their assumptions about the standardised life course. Research findings summarised in Ecclestone et al (2009) show changing labour-market opportunities, yet they also indicate differences in the way these changes have affected people at different times in the life course depending on social background, gender, race, location, and personal competencies. Policies

affecting young people and adults often appear to be based on rigid, outmoded constructions of youth, family life and working life, often involving universal models that do not recognise cultural diversity, multiple obligations, and competing priorities. Adopting existing ‘standardised’ models of the life course and life-work transitions without questioning or empirically testing their appropriateness can lead to unintended consequences. Wrong assumptions too often lead to inadequate responses to the life situations of young people and adults in ways that affect parents, educators and employers as well as the wider society.

It appears that structural, institutional and cultural processes produce heterogeneity instead of homogeneity in life-course patterns. According to Beck and Beck-Gernsheim (2002), the face of society is changing dramatically, with a clear distinction between individuals at the very top and the very bottom of society, the permanently underprivileged (which ‘is no longer really a bottom but an outside’), and those in between who have to bear the brunt of ambivalences and uncertainty, striving to move into the top category or to remain in control of their life but being in constant danger of falling down (2002, p. 49–51). It is interesting to note that these tensions appear early in the school context, as discussed by Salmela-Aro (2009), especially among those who opted for the more competitive academic track within the Finnish school system and who are experiencing increased raised levels of burnout compared to those who have entered the vocational track. The process of striving starts early and lasts a life-time.

Insecurity prevails...

Insecurity prevails at every location in society. The number of those excluded might be growing, yet there is also much movement of individuals in and out of poverty (characterised by indicators such as income, education, housing, employment, and temporal horizons). Beck and Beck-Gernsheim (2002) suggested that it has become necessary to develop new concepts and research methods to address typologically these fluid categories, differentiating between those at the top and bottom of the social ladder and the new ‘hybrids’ located in between. The diverse ways in which social roles combine within individuals and the way in which different typologies are associated with transition strategies is demonstrated by Garrett and Eccles. Investments of time and energy in different domains, such as education, work, friends, activities, are shown to be important in life course changes. For young people Garrett and Eccles (2009) have shown that

undiversified investments were associated with more problematic transitions, whereas both focused and broad investments in different domains were beneficial to the transition process. Schoon et al. (2010) have also shown that traditional templates are changing and that there is a polarisation of experiences in youth into fast versus slow transitions, calling for a more process-oriented rather than age- or situation-fixed approach to account for variations in role combinations at specific life phases. Future labour markets might accentuate this polarisation as the changing nature of job requirements calls for higher level skills, on the one hand, and increasing demand for jobs deemed to be low-skilled, on the other – especially regarding jobs in the retail trade and in personal-care services. Crucial to both types of jobs is the need to constantly update and learn new skills and ways of doing things, throughout one's career. It is now generally held that a single training period before entry into the labour market will no longer be sufficient, and future workers have to be prepared for continuous learning, and for upgrading of knowledge and skills, or reskilling throughout their working life. How under these conditions the demand for skills and training can be stimulated and policy support provided for their effective supply and distribution under conditions of uncertainty is an enduring question which keeps economists and policy analysts in business (see for example Keep and Mayhew 1999; Keep and Payne, 2002).

The socio-economic benefits of learning through the life course.

Schuller et al's (2001) research into the wider benefits of learning² have shown that there six social domains beyond and separate from employment in which the social benefits of learning may be manifested. These are citizenship (social participation) family, health, crime, leisure and lifestyle and the 'third age'. Although treated as separate from employment and labour market matters for the purposes of research into the 'wider benefits of learning' the impact of learning on employment, status and income is recognised as having influence in all of the above domains. Since different forms of learning have consequences for employment status and income, and employment itself mediates the impact of learning on social outcomes in all of

² Conducted through the WBL Centre : Centre for the Wider Benefits of Learning at the Institute of Education, University of London

these domains (p. 59) a better understanding of the economic benefits of learning is crucial to the understanding of life-chances and wellbeing through the life course.

There is for example, evidence to suggest that the rewards associated with increasing qualification level are changing for the 1958 and 1970 British birth cohort, and that they have different consequences for men and women (Schoon, 2007). Cohort members with higher level qualifications are more likely to be in paid employment, are more likely to vote and be members of a Trade Union. The rewards associated with higher qualifications are decreasing, especially for men in the later born 1970 cohort, suggesting that post-16 education is becoming less effective in this respect. For women, on the other hand, returns associated with investments in skills and qualifications are increasing with respect to women's employment opportunities, which might reflect the increasing participation of women in further education and in the labour market, even after child birth.

Patterns and socio-economic consequences of participation in education and training for people of working age

This section turns attention to available evidence on the factors which influence the pattern of socio-economic experience of people of working age, and the extent to which education and training both before commencing work and while of prime working age yields economic benefits. It is well-established that education delivers economic benefits to its recipients. Well-educated people generally earn more than poorly-educated people, although there are some exceptions; for example some degree subjects are found to be more valuable than others and PhDs have been found to have negative economic returns. Most studies of the effect of education attempt to compare the earnings of people with different levels of qualifications. McIntosh (2006) provides a detailed and thorough account of the effects of education to different levels computed on this basis.

However the economic benefit of education arises not only because education raises people's earnings but also because, in many cases, people with high levels of education have higher employment rates than people with lower levels of education. In some circumstances this may reflect people's choices. For example it is more worthwhile for a mother who can command a

high salary to pay for child-care and work herself than it is for a mother whose earning potential is lower. But it may also reflect other characteristics of the labour market, or the interface between the labour market and individual experience. People with high levels of education may be better able to adapt to changes to technology than people with low levels of education and this may make it easier for them to find work throughout their lives. Thus a full analysis of the return to education should take account of employment prospects as well as the impact on earnings for people who are employed.

But even when employment prospects are taken into account, analysis of returns does not take full account of the effects of education on the uncertainty that people are likely to face during their working lives. Wage dynamics are usually represented as a partial adjustment process, so that, after taking account of individual fixed effects, people with high wages should expect them to fall and those with low wages should expect them to rise. Dutta, Sefton and Weale (2001) suggested, however, that experience could be better described by means of a variant of the traditional mover-stayer model; the analysis can be conducted in the framework of a switching regression (Goldfeld and Quandt, 1973). People are either stayers, in which case they receive a wage related to that which they earned in the previous period or they are movers who take a wage from a random distribution with a fixed mean. Splitting the population into two groups, those with 2 A-levels or a higher level of education and those not educated to this level, it was found that the underlying processes were very similar except that education to A-level or better raised the expected earnings of the movers. The process which determined whether they were movers or stayers was assumed to be random and was not found to be affected by the level of education. Further research is needed to explore the dynamics of this process in more detail and, in particular, to examine how it is affected by the acquisition of qualifications from programmes of learning begun with a significant gap after people's first period of education; this aspect of life-long learning is being explored in the LLAKES Strand 3 research programme.

Measuring the effects on employment dynamics of life-long learning

There has been only a limited amount of past work that effectively measures the effects of qualifications gained in adult life on earnings and employment dynamics. Most of the work in

the UK (Jenkins, Vignoles, Wolf and Galindo-Rueda, 2003; Jenkins, 2004; Feinstein, Galindo-Rueda and Vignoles, 2004) has been built round either the 1958 or the 1970 cohort survey. Since participants in these surveys are interviewed only very intermittently, it is not possible to use them as a basis for exploring the impact of either conventional or life-long learning on earnings dynamics. Blanden, Buscha, Sturgis and Urwin (2008) explore the question using the British Household Panel Survey which provides annual data on people's earnings and on their education and employment history. Weale et al are currently making use of that to explore the effect of life-long education on people's earnings and employment dynamics, using an extension of Dutta, Sefton and Weale's (2001) model.

The studies mentioned above have found only limited benefits to life-long learning where the latter is defined in its most restrictive sense, as participation in further courses and qualifications separated from people's first period of more or less continuous education by a significant gap, with the most obvious beneficiaries being women aged 35-49 and men aged under 35. There is also the suggestion of a favourable impact on women's employment. By contrast much clearer benefits are generally found for post-compulsory education as well as for qualifications gains during the compulsory phase of education

An obvious aspect of all of these studies is that the benefits of education and training, whether conceptualised as the traditional 'front-loaded' pre-employment form or as life-long learning, are uncertain. People are asked to make a sacrifice in terms of earnings given up and other costs incurred which they can assess reasonably precisely in exchange for benefits which are risky in the sense that they is a large but reasonably well quantifiable margin of uncertainty surrounding them. Even if someone who embarks on a degree is confident that they will complete the course, the salary they can expect to earn afterwards is highly uncertain. While research generally finds that education and qualifications play a substantial and statistically highly significant role in explaining earnings, it is also the case that the major part of the variation of earnings across individuals is left unexplained. For example the study by McIntosh (2006) found that only about 40% of the overall variation was accounted for by factors which he could identify. If people are averse to risk, in that any given expected benefit to them is more valuable the more certain it is,

then there is the possibility that this uncertainty may limit the incentive to undertake both traditional and life-long learning.

This uncertainty is not, however, the only factor which may limit the take-up of post-compulsory education. From an economists' point of view, people may be myopic, in the sense that, year by year, they discount the immediate future at a rate higher than that at which they discount the distant future. This might be expected to be a separate factor discouraging investment in education and learning. Paradoxically, it could also be a reason why people might prefer to "save" by building up their human capital rather than by holding financial assets because myopic people know that they can be tempted to spend their financial wealth prematurely while educational capital is locked in. Separately, and quite differently, it is also possible that people discount the future more when they are young than when they are old. An important part of our work is to explore these effects using models of choice between uncertain alternatives solved on the assumption that people understand their environments (Deaton, 1991). It is now possible to use these models not only to explore the effects of myopia (Diamond and Koszegi, 2003) but also, using the methods described by Gourinchas and Parker (2002) to estimate the magnitude of these effects, and these techniques will be applied to the analysis of investment in education for the first time in the course of this work.

Learning investments may impact on the lives of others not undertaking such investment, for example, through the influence of average wages in the wage bargain for low skilled workers (Riley and Young, 2007), through learning spillovers or other complementarities in production between workers with different skills. These relationships may themselves be influenced by technical change (see e.g. Goos and Manning, 2007) and globalisation (see e.g. Abraham et al, 2009), and are likely to depend on the type of human capital or learning (Kirby and Riley, 2007).

Cross country comparative analyses of the 'social returns to learning'

Empirical investigations of human capital externalities and the social return to learning often rely on cross-country growth regressions and macroeconomic time series data. These

studies are criticised on the grounds of data problems and heterogeneity bias across countries (Sianesi and Van Reenen, 2003; Krueger and Lindahl, 2001; de la Fuente and Doménech, 2006). More recently a number of studies evaluate education externalities by including aggregate human capital variables within individual earnings equations. These include studies of spillovers from education at the city or state level in the United States (e.g. Acemoglu and Angrist, 2000; Moretti, 2004; Rauch, 1993) and at the industry level for a number of different countries (e.g. Sakellariou, 2001; Winter-Ebmer, 1994; Sakellariou and Maysami, 2004; Kirby and Riley, 2008). The evidence from these is mixed. Ciccone and Peri (2006) criticise the general approach taken in these studies, suggesting that they may conflate true spillover effects with the average wage effects that arise when the relative supply of educated workers moves along a downward sloping relative demand curve for educated workers. Iranzo and Peri (2009) use a two stage procedure to disentangle these effects by conditioning skill returns on the skill composition.

The literature suggests there are differential private returns to academic and vocational qualifications, although the evidence is relatively sparse (Dearden et al, 2000 and McIntosh, 2006), and to learning through formal schooling and job experience (Harmon et al, 2003). Existing study of learning spillovers focuses entirely on formal learning and pays little attention to different types of formal learning, with few exceptions (e.g. Murphy et al., 1991; Hanushek and Kimko, 2000).

Effects of globalization trends

Much empirical evidence suggests that the perceived move to a global knowledge society has enhanced the demand for and returns paid to skilled workers (for example, with the introduction of computers (e.g. Haskel and Heden, 1999), through skill-biased organizational changes (e.g. Bresnahan et al, 2002), and increased globalization (e.g. Haskel and Slaughter, 2001; Hijzen et al, 2005). Other studies explore in further detail the concept of skill in this context. Autor et al, (2003) suggest that computers substitute for routine tasks and complement non-routine tasks. Murnane et al (1995) find that an increase in the return to basic cognitive skills can explain much of the rise in the college wage premium in the United States between 1978

and 1986. Dickerson and Green (2004) suggest that the use of generic skills in UK workplaces increased between 1997 and 2001. Of these skills, high level communication skills and computer skills carried wage premia.

The relationship between learning and technical change has also been addressed in a number of theoretical models that are based around the idea that technology adoption and diffusion require workers to learn and adapt (e.g. Greenwood and Yorukoglu, 1997; Aghion, 2002). Learning is costly and hence fast learners earn a premium at times of rapid or major technical change. In a similar set of models new technologies are skill-biased if their use requires greater learning investments than old technologies. Individuals for whom learning investments are less costly (Caselli, 1999), perhaps because they have less to lose in terms of experience with older technologies (Helpman and Rangel, 1999), earn a premium when new technology is skill-biased. Krueger and Kumar (2004) develop a model to suggest that economies with education systems favouring general rather than specific skills are better able to adopt new technologies and hence grow more quickly in equilibrium. The predictions of these models are given some support by empirical study. In a study of French firms, Aubert et al (2006) find that the use of new technologies and associated innovative workplace practices has been biased against older workers. In a study of US firms over the period 1992-1997, Abowd et al (2007) suggest that firms using advanced technologies are more likely to use high-ability workers, and less likely to use older experienced workers.

Prior research using cohort studies and large data sets (reviewed in Reder and Bynner 2009) has identified the importance of basic skills, education, vocational training and work experience on dynamic progression through the life course, identifying both the average effects of such factors and their impact on the disturbances people face to their income and employment. Moreover, 'acquisition of skills generally is critically dependent on acquisition of the basic skills of literacy and numeracy, without which educational processes are unable to proceed' (Schuller et al, 2001, p 61). 'Basic skills' are identified as central to participation in society as consumers as well as producers. The magnitude of the incentives to take up education and training also appears to be a function of age.

Adult learning in life course perspective: the significance of literacy and ‘basic education’ in adult life

Pallas (2002) is an important source for theoretical framing of adult participation from a life-course perspective. Pallas (from a US perspective) shows how sociological theory has been slow to catch up with expanding opportunities for education and learning that are not ‘highly age graded’ and that take place outside formal systems. It is argued that taking a life course perspective can ensure that educational trajectories are studied in ways that recognise their ‘complex intertwining’ with social institutions and social roles as experienced at different stages of the life-course. The life-course perspective explores the ways in which individuals’ ages, work and family roles influence the dynamics of learning trajectories in and throughout adult life. It also moves beyond the notions of transitions introduced earlier by focusing on socially positioned processes of learning in and through life changes (see also Hager and Hodkinson (2009); Ecclestone et al (2009); Evans and Waite (2009)).

Before turning to the question of what those who participate actually gain, a first question is ‘who participates?’ Pallas critiques research that has attempted to model factors in adults’ return to learning in the US, including Bradburn, Moen, Dempster and McClain, 1995; Elman and O’Rand, 1998; Felmlee, 1988, where these focus predominantly on enrolment in courses leading to educational credential (credit courses). Pallas (2002) researches a broader array of experiences, drawing on the adult education component of the 1995 wave of the National Household Education Survey (US) that provides a nationally representative sample of 19,700 interviews Pallas analysed the probability of participation in three forms of adult education in 1994 – those leading to a college credential of some kind, work-related programmes not embedded in a credit bearing programme and ‘other structured activities or courses referred to as ‘personal development’ courses. This research also analyses the probability of participating in ‘any’ form including ESOL and adult basic education. The findings can be compared with the findings of Kerckhoff’s series of studies (1976-2001) that include some comparisons of British birth cohorts and their subsequent comparison with the US data. The latter concluded that patterns of upward and downward deflections are similar across the two societies – those in the

highest and lowest positions in terms of post-secondary schooling are deflected, with experience in the labour force, towards the middle of the distribution (males only) instead of continuing to disperse. (Among women cumulative education effects were shown neither to increase nor decrease.)

Adult learning trajectories

Life-course approaches have also underpinned the work of Gorard and Rees (2002) on adult learning trajectories. Adult employees who engage in basic education programmes through their work are distributed, according to Evans and Waite's previous research, across Gorard and Rees' 'non-participants' in lifetime learning (prior to engagement in the workplace literacy courses), 'transitional trajectories', involving periods of further education and training end on to schooling but not beyond) and the 'lifetime trajectory' (which accounted for almost one third of the respondents in the Gorard-Rees study - defined as those whose experiences of education/work-based training extend beyond initial schooling and includes at least one substantive episode of education/training in adult life.) These are adults held, in public policy discourse, to be most 'at risk' of unemployment and social exclusion. Significantly, Gorard and Rees's modelling of the determinants of lifetime learning (based on logistic regression) shows that those with no qualifications are more likely to return to learning later in life than those who do not 'achieve the benchmark of 5 GCSEs or equivalent). Furthermore, in line with the theoretical prediction of life course approaches, determinants of later participation are different, reflecting the circumstances of adult life and the access people have to learning, including through their work. According to Gorard and Rees, these findings provide 'important correctives to the conventional view of participation in lifetime learning', showing also through their individual accounts (10% sample, semi-structured, in-depth interviews) how it is the diversity that is the most striking. While there are no simple patterns (consistent with Evans and Waite's own qualitative evidence) the complexity is argued by Gorard and Rees as consistent with the theoretical perspectives that foreground the choices made by individuals over their own participation in learning – with the important caveat that any choices that were made were also seen as heavily constrained by external circumstances (Gorard et al 1998, 2001). Gender differences re social role and

expectations are highlighted; also highlighted are the learner identities that are rooted in prior experiences of education, particularly in schooling.

Studies that focus on differentials in participation rather than on what is gained through participation are very broad in their delineation of categories – they provide some (broad brush) backcloths. Skills, employment and earnings gains from participation in adult programmes, including adult basic education, are elucidated by research investigations such as those of Reder et al (2009), Comings et al (2009) and Bynner et al (2009) in the UK; gains in the wider domains identified by Schuller et al including gains of confidence, enhanced social capital etc are evidenced through other large scale ESRC studies with a more qualitative orientation, such as those conducted by Field (2005), and Maclachlan (2007) and by Appleby and Barton et al, (2008). There is also some evidence from the cohort studies suggesting that investment in further education is associated with political trust and liberal social attitudes (Deary, Batty and Gale, 2008; Schoon, Cheng, Gale, Batty and Deary, 2010).

Most importantly, Reder and Bynner (2009) have used a combination of statistical modelling methods to analyze changes over time in measured literacy proficiency, literacy practices, programme participation, employment earnings and other variables.³ Literacy (literacy proficiency; literacy practices); programme participation (formal adult education programmes, community-based programmes and self-study activities); socio-economic outcomes (labour market activity, educational progression, SES, GED attainment) are being linked into full models to address question of the extent to which adults' literacy abilities continue to develop in adult life; their patterns of participation in literacy training and education; the life experiences associated with adult literacy development and how organised basic skills programmes contribute to these learning trajectories (through workplace training, other contexts and activities.) The most important initial findings are that:

³ Latent growth curve models, event history models, and modelling techniques from economics and programme evaluation (treatment effects models; propensity score matching) have been used to make quasi experimental comparisons of participants and non-participants in adult education programmes).

literacy abilities clearly do change across life span after people leave school; with considerable variability in the amount and observed rate of change in their literacy proficiency (standardised literacy assessment) and engagement in literacy practices (reports/descriptions of use of written materials);

- neither a measure of literacy nor literacy practice measures alone are sufficient to characterise literacy changes that occur;
- variations in the extent to which individuals increase their proficiency or lose ground over given time spans is ‘patterned’ with respect to background, origins (where they grew up) and life experiences including access to adult literacy programmes or whether job facilitates learning and use of literacy skills in the workplace.

The notion that literacy abilities change across the life course are reflected in findings from the British cohort studies suggesting that although there is a significant risk for poor adult literacy among children with early language problems, the majority of children with early language problems develop competent functional literacy levels by age 34 (Schoon, Parsons, Rush and Law, 2010). Work related training has been found to be linked positively to levels of adult literacy among men, and the experience of paid employment is generally associated with the development and maintenance of basic skills (Parsons and Bynner, 1998).

How engagement in literacy practices leads to proficiency

Age is found to be important in Reder’s (2009) work, with evidence of both proficiencies and engagement in literacy practices tending to increase in early adult life, becoming constant in mid-life and declining thereafter. This pattern is probably related to combinations of maturational effects and changes in life experiences and activities. Among those who participate in adult basic skills programmes, participation is often broken up into multiple episodes, and often involves varying amounts of ‘self-study’. Statistical modelling shows that a 2-step process is taking place. Both programme participation and self-study positively impact on engagement in literacy practices and this in turn may lead to increases in literacy proficiency, according to Reder’s 2009 findings. The most direct and immediate impacts of participation are evident for literacy practices than for literacy proficiency. The latter appears in the longer term to be

positively affected by participation. The evidence also tentatively suggests that better jobs that may engage a broader range of workers' literacy skills are likely to support the development of literacy proficiency, a suggestion further reinforced by Evans and Waite's (2010) findings in UK workplaces.

In discussing implications for programme evaluation and improvement, Reder argues that looking for short term proficiency gains is very problematic – for detecting 'relatively short term literacy gains' programmes should assess literacy practices rather than literacy proficiency-arguing that proficiency measures may be more reasonable measures of programme impact only if longer term follow up is possible. Reder concludes a broader picture is needed of adult basic skills learners than just as participants in programmes – *active learners deploying different resources in and out of the workplace in efforts to improve basic skills over time are the ones who will improve*, and this needs to be viewed holistically within context of an adults' life (a point which is consistent with Evans and Waite's 2009 qualitative evidence). The research also finds that self-study to improve basic skills is prevalent both among those who attend programme and those who do not (in the US). Overall, Reder concludes that the LSAL (Longitudinal Study of Adult Learning) provides strong evidence that many adults experience literacy gains in adult life and that literacy programmes do have a positive effect on literacy growth curves. Furthermore, both Bynner and Reder, in comparing US and UK findings, have shown that adults' persistence in literacy learning, irrespective of whether instruction and support is provided in episodic forms or in sustained longer- term programmes, is a key factor.

Recent literature also provides evidence of gains such as confidence, wider engagement in activities involving communication of different kinds and social capital as shown in an expanding circle of contacts and relationships. Tett and Maclachlan (2007), Appleby and Barton et al (2008) have explored patterns of engagement qualitatively and, in the case of Tett, with reference to some quantitative indicators. This evidence further strengthens the case for focusing on the wider gains (proficiency, practices and social engagement viewed holistically) as advocated by Reder et al above.

Workplace learning at the lower end of the earnings distribution

Furthermore, findings from Wolf and Evans' 2010 research have confirmed that the workplace provides access to learning for some adults who have not found it possible to attend conventional classes. It also underlines the importance of a far wider range of factors than the wish to improve job performance; boosting confidence, helping children with their homework, pursuing interests outside work. Most employees are able to cope adequately in their jobs with present skill levels, although a significant minority report struggling with some aspects of literacy and numeracy. The underuse of skills is a bigger problem that is now becoming more widely acknowledged in the literature (see also Felstead et al, 2009). According to Wolf and Evans (2010)

- Workplace literacy courses produced very small average gains in performance, but participants' average performance continues to improve over a two year post-instruction period.
- Current policies are inefficient, as courses are too short to have much impact. But they may stimulate learners to use their skills more, and so continue improving.

Very few of the learners studied by Wolf and Evans had major job changes in the years immediately after their workplace course, although some did experience changes and increases in their tasks/responsibilities. Managers were motivated (to use the programmes) largely by factors other than the desire to plug skill gaps or improve productivity. Psychological contract, 'staying', morale, confidence were all important, with managers perceiving little impact in narrowly economic terms.

In-depth interviews underlined, in congruence with the findings of other longitudinal research in the field (see Reder and Bynner, 2009), that perceived and actual gains come with practice and with application. Unless people's jobs demand and encourage literacy, the effects of workplace interventions are likely to be small and short-lived. Conversely, among Evans/Waite's in-depth sample, it was the learners who used their literacy skills actively, in and out of the workplace, who showed consistent gains. Changes in job responsibilities are positively correlated with

progress in measured skills⁴. The relationship between job change and change in reading score was positive: learners whose jobs changed showed a 5 or 6 point larger improvement in reading scores between first and second tests. This was consistent with these learners utilising their new skills at work.

Overall, the evidence suggests that provision of ‘basic skills’ courses in and through work can more appropriately be considered a form of citizens’ entitlement than an immediate productivity enhancing intervention (Wolf et al, 2010 in press), since there is evidence that many workers in low-graded jobs cope well in their existing jobs with their existing skills, and have worked for their existing employer for an average of 9 years. Nevertheless, these workers are held to be at higher risk of becoming long term unemployed than more qualified workers in recessions and economic downturns (see OECD, 1997; Social Exclusion Unit, 2009).

Exploring the concept of risk and its life course implications from different perspectives

When Beck (1992, 1998) outlined the nature of an emergent ‘risk society.’ the emphasis was on the increased uncertainty and unpredictability of the individual’s life course. The person learns to ‘conceive of him or herself as the centre of action, as the planning office with respect of his/her own biography’ (p.135) trying to minimise risk and maximise personal opportunities. Beck believed that individualisation heralded the dissolution of factors traditionally seen as determining many aspects of life in industrialised societies – class culture and consciousness, gender and family roles. In England this work was paralleled by Anthony Giddens’ more critical accounts of reflexive modernisation (1991, 1998).

Furlong and Cartmel (1997) and Engel and Strausser (1998) have both contested these accounts of individualisation as misleading, claiming that the social world has only come to be *regarded* as unpredictable and filled with risks that can only be negotiated on an individual level, while, in fact, structural forces operate as powerfully as ever and the chains of human interdependence remain intact.

⁴ Using the specially designed ‘Go’ instrument developed by the National Foundation for Educational Research..

Evans’s conceptual scheme for further investigation of the individualisation ‘thesis’ sets out the dimensions of structure-agency, internal-external control, social reproduction-conversion that contributes to the search for an overarching interdisciplinary framework.

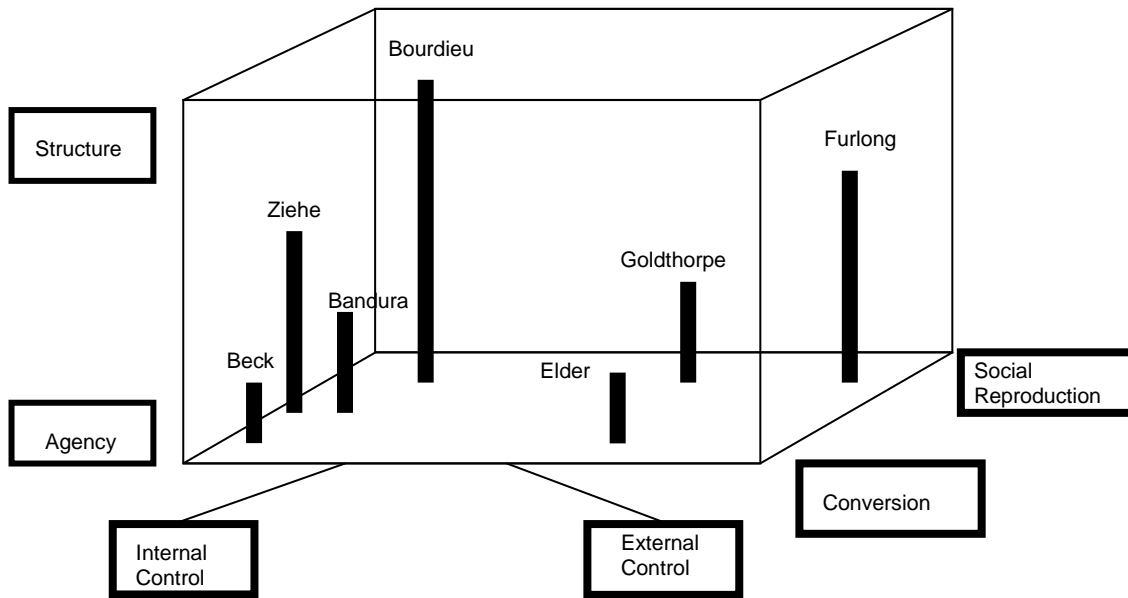


Figure 1: CONCEPTUAL SCHEMA – Source Evans, 2002, 2007

The first dimension is reflected, at its extremes, in social determinism versus individualisation and reflexivity in social biographies. The starting point for the ‘individualisation thesis’ is usually attributed to Beck's outline of the ‘risk society’ (1992, 1998) and its manifestation in the uncertain life situations of people. Baethge (1989) took this thesis further by applying it to the situation of youth in industrialised societies and the structural disintegration of social classes or strata into 'individualised' sub-groups, accompanied by the formation of individualistic identities at the expense of collective identity. As proponents of the idea that people are agents actively and individually engaged in the construction of their own biographies, Beck and Baethge are thus positioned close to the base of the cube, while Ziehe’s concept of ‘makeability’ with its emphasis

on internal control struggling with the effects of social forces, is placed higher on the structure-agency dimension.

The second dimension emphasises internal versus external control processes. Bandura (1995, 1998), Elder (1994), Flammer (1997), Rothbaum et al. (1982), Heckhausen and Schulz (1995) and other 'efficacy' researchers have emphasised internal processes of the 'acting individual' in relation to the external environment. There are limitations to personal control in all domains of life. Some aspects of environment and personal circumstances are extremely difficult to change. Others can be overcome by the exercise of initiative and learning. Social psychologists and sociologists who emphasise internal processes of the acting individual alongside reflexivity and individualisation are positioned at the intersection of agency and internal processes. Those who place greater emphasis the external limits on internal processes can be placed at the intersection of structure and external processes in Figure 3.

The third dimension places the focus on social reproduction/conversion, exploring the degree to which social mobility and transformation can be attributed to individual and collective scope for action. Rational choice theorists such as Goldthorpe (1998), who emphasise the overriding importance of analysing the conditions under which actors come to act, are positioned far along the social reproduction dimension, and close to the middle for control and agency/structure, acknowledging the interplay of internal and external factors. Goldthorpe's position overlaps to some extent with economists' perspectives that focus on the need to achieve a better understanding of the operation of incentives.

Economists' work on the issue of social mobility and reproduction has focused on identifying the factors which affect people's life chances and assessing their relative importance. Thus Prais (1955) was the first to explore how children's social class depended on the social class of their parents. More recent work has tried to measure the extent to which people's earnings are influenced by the earnings of their parents- as distinct from other factors which may be related to their childhood circumstances such as the education they received (Dearden, Machin and Reed, 1997). Bennett, Glennester and Nevison (1992) suggested that the returns to university education may be higher for people from low social classes than for those from higher social

classes, with the possible explanation that university education is a means of allowing them to overcome the effects of their childhood circumstances which would otherwise persist.

Furlong and Cartmel's emphasis on structural determinants, external processes and social reproduction places the 'epistemological fallacy' argument high on structure/agency and towards the back right hand intersection. Bourdieu's (1993) emphasis on social reproduction is also high but emphasises subjectivities of the acting individual and explores agency in relation to 'habitus' and 'field'.

Bounded agency: focusing on the ways in which individual agency can be supported without losing sight of the structuring effects of contexts

The exploration of 'individualisation' and risk requires a better understanding of social regularities and individual differences in the agency of individuals, their decisions and actions and the consequences of these. Taking into account the dimensions of Figure 1, it is possible to develop hypotheses about the structuring effects of contexts while focusing on personal and collective experiences of risk, that is, the social regularities within and between setting and area, and the underlying factors which account for these. As Elder (1994) has observed, all social transitions entail risk of losing personal control, with effects dependent on biography and on material (economic) and social situation. The empirically grounded concept of bounded agency developed here sees the actors as having a past and imagined future possibilities, which guide and shape actions in the present, together with subjective perceptions of the structures they have to negotiate, the social landscapes which affect how they act. Agency is socially situated and essentially 'bounded' (Evans, 2002), influenced but not determined by environments and emphasizing internalised frames of reference as well as external actions. By examining risk and the manifestations and consequences of 'riskiness' in the life course, the focus moves from 'structured individualisation' onto individuals as actors, without losing the perspective of structuration. Explorations of risk in and through these three dimensions can potentially be conceptually modelled (see Kontiainen, 2002) for a clearer understanding of its attributes and its interrelationships with incentives to learn. Such clarification is necessary as an intermediate step towards elaboration of social ecological models for understanding the processes involved, for

particular groups such as adults (Evans et al, 2009), young people (Schoon) and across the life course (see model of Schoon and Silbereisen, 2009).

As actors move in social landscapes, spaces open up for action which are not wholly reducible to the effects of social reproduction or underlying structural features. There are some constraints in a 'social landscape' that will be very difficult to move or remove, but others might be reduced through social and educational policies. Societies need to ensure that the greatest demands to 'take control of their lives' do not fall on those who are the least powerfully placed in the 'social landscape' they inhabit. By focusing our attention on how people with agentic beliefs about work and their social environment encounter frustrations in acting upon them, the concepts of riskiness and bounded agency can potentially be modelled in ways that inform research, practice and policy.

Risk and resilience

An important perspective on risk comes from 'resilience' research within the field of developmental and social psychology. Individuals respond differently to the exposure of adverse circumstances, depending on type and duration of risk exposure, as well as the resources, such as capabilities and support, available at the time of need (Rutter, 1990). Not all individuals succumb to the negative effects of risk exposure, and some people seem to be able to 'beat the odds'.

The notion of risk used in resilience research stems from epidemiological research, identifying expected probabilities of maladjustment (Cicchetti and Garmezy, 1993; Masten et al, 1990; Rutter, 1988). Fundamental to the idea of risk is the predictability of life chances from earlier circumstances. Resilience has been attributed to individuals who beat the odds, who avoid the negative trajectories associated with risks even though they a. were members of high-risk groups, such as children from deprived family backgrounds characterised by material hardship and poverty; b. they have endured stressful experiences, such as individuals from dysfunctional families or children with mentally ill parents; or c. they have suffered trauma, such as sexual or physical abuse, or exposure to war time experiences. Risk or adversity can comprise genetic, biological, psychological, environmental or socio-economic factors that are associated with an

increased probability of maladjustment (Luthar and Cicchetti, 2000; Masten, Best and Garmezy, 1990). A major risk factor, however, influencing individual adjustment across domains, affecting children's cognitive competences as well as social-emotional functioning, is socio-economic adversity (Duncan and Brooks-Gunn, 1997; Robins and Rutter, 1990; Rutter and Madge, 1976) which can comprise social status of the family of origin, as well as living conditions of the family, characterised by lack of income, poor housing, overcrowding, and general lack of material resources.

Variability in risk exposure

While early studies on resilience focused on a single risk factor, such as maternal psychopathology or experience of a stressful life event such as divorce, it soon became apparent that individual risk factors do not exert their effect in isolation, but in interaction with other influences. The relationship between any single risk factor and subsequent outcomes tends to be weak, and usually many variables are involved in determining an outcome (Garmezy and Masten, 1994; Rutter, 1979, 1990; (Sameroff, 1999; Sameroff and Seifer, 1990). What distinguishes a high-risk individual from others is not so much exposure to a specific risk factor, but rather a life history characterised by multiple disadvantages. Serious risk emanates from the accumulation of risk effects (Robins and Rutter, 1990), and it has been suggested that it is the number of these factors and their combined effect that exert a deleterious impact on developmental outcomes (Sameroff, Seifer, Baldwin and Baldwin, 1993; Rutter, 1979).

Statistical versus actual risk

Concerns have been raised regarding the difficulties in determining whether all individuals identified as resilient have actually experienced comparable levels of adversity. The issue of defining risk is not a trivial matter, as the risk factor must be a potential cause or precursor of the specified outcome in question and represent a high risk within the sample under consideration. Treating a particular event or experience as reflecting adversity if it shows a significant statistical association with maladjustment or disorder does, however, not account for the many other probabilities of a given event. Risks describe probabilities and not certainties, and it has been

argued that we have to clearly differentiate between statistical versus actual risk (Richters and Weintraub, 1990). Even in circumstances where significant associations have been established between risk exposure and adjustment problems, questions may remain about the specific living conditions of different individuals in a particular sample (Cicchette and Garmezy, 1993; Kaplan, 1999; Master, 1994).

Individuals exposed to particular adverse life circumstances are treated as homogenous groups, despite possible variations in the degree to which their lives are actually shaped by the influence of the particular risk factors in question. Social class, for example, has been widely used as a risk indicator, although social class conveys little information about specific proximal experiences to which children within a given level of social class are exposed (Richters and Weintraub, 1990, p. 83). A child raised by working class parents will not necessarily experience poor quality caregiving. Moreover, the experience of adversity might only be temporary and not long-lasting. Without more comprehensive information about the risk situation, it cannot be assumed that there actually is a significant risk exposure. The identification of resilience might sometimes be more appropriate for resilient families than for the child within them, or a well-functioning child may not be resilient at all but may actually have experienced a low-risk situation.

The variability in risk exposure does not necessarily invalidate resilience research based on global risk indices such as social class (Luthar, Cicchette and Becker, 2000). Knowledge about potential risk factors has been helpful in stimulating research into the processes and mechanisms by which these global risks influence individual adjustment, trying to clarify conditions in which they show their effect and where they do not.

Pluralities of meaning

Another related concern addresses the plurality of meaning in evaluations of risk (Bartelt, 1994; Gorden and Song, 1994; Ungar, 2004b). It has been argued that the meaning of the constructs used for the identification of risk as well as the conceptualisation of resilience and adjustment are relative, situational, and attributional, whereby the constructs may have a greater significance to the researchers who define or investigate resilience, than for the person who experiences it

(Gorden and Song, 1994). It could be possible, for example, that a person identified by a researcher as 'being at-risk' might not consider this label appropriate to describe him or herself. There are indeed serious concerns regarding stigmatisation and exclusion, predetermining the failure of individuals exposed to severe hardship. Yet, adverse living conditions do exist, and it is vital to know what can be done to create environments within which individuals, families and communities can thrive. Gorden and Song (1994), for example focused their research on acts of defiance of negative predictions, and Ungar (2004) demonstrated the multiplicity of pathways leading to adjustment, emphasising the need to appreciate the heterogeneity of outcomes in response to adversity.

Thus, despite concerns regarding the variability of risk exposure, or the dissonance between interpretations of the situation by the individual experiencing it and the researcher, the investigation of the factors and processes associated with variations in response to adversity appears still worthwhile. For example, if most individuals perceived a specific experience as difficult and harmful while others interpret it as relatively neutral, their interpretations could be useful for identifying protective factors (O'Connor and Rutter, 1996).

Risk as economists see it has an important influence on incentives to learn. The basic tenet is that uncertain outcomes are regarded as less valuable than their average or expected values. It follows that, since to any individual the return to education, whether conventional or life-long learning, is uncertain while the costs, in terms of fees and earnings forgone, are reasonably certain, people will, at least to some extent be discouraged by that uncertainty from participation.

Of course willingness to undertake education will also depend on the extent to which people discount future benefits relative to current costs. Even without uncertainty, if this discount rate is greater than the rate of return, then people will not want to make the commitment. A more complicated situation can arise if people are myopic as indicated on page 17. As we note there, a high discount rate applied to the near future might seem an additional reason for not investing in education. But if people know that they are myopic they might become keener to undergo education because, once gained, the benefits of educational capital are 'locked in' and endure over time.

In this connection, we note that economists' rational choice approaches, although having some overlap, differ from those of sociologists (eg Goldthorpe) in that they tend to treat rational choice as something axiomatic and based on an individualistic notion of welfare. Very occasionally they may explore how rational choices are influenced by other people's behaviour. For example a 'phone is more use if other people you know have one than if they do not. Sociologists might argue, for example, that people might acquire qualifications not because they calculate that they will be helpful to them but because 'it is the thing to do' - a question of cultural expectations. The two perspectives may merge. If having qualifications is the thing to do, then employers may regard not having them as a bad signal, so that having them involves self-interest as well as being 'the thing to do'. But economists assume that people value their qualifications because of the impact on their earnings, irrespective of whether that is because that makes them more productive or simply because of the signal that they offer. The evidence so far that education produces returns to individuals is very strong, and we are finding, in current LLAKES research, similar effects from life-long learning. However, if we find under-use of life-long learning, economists may well attribute this to behavioural myopia or excess discounting, while other disciplines might see other possible explanations, including the exercise of contextualised preferences.

These different perspectives on risk pose significant questions about riskiness and learning through the life course that can be newly considered through the interdisciplinary research programme of the LLAKES Centre.

Unanswered questions and research approaches: (LLAKES)

Individual characteristics clearly play a role in determining a life path, and the notion that individuals are active agents who strive for control over their environment is central to theories of life-course development (Bronfenbrenner, 1979; Elder, 1985; 1998). The person brings to the situation his or her own characteristics, comprising personality characteristics, abilities, motivation, and self concepts. By recognising and exercising their own competencies, interests and values, individuals formulate expectations and life plans, projecting themselves into the future. It has been argued that the formulation of aspirations, or a life plan, helps to direct and

guide the transition from present to the future (Nurmi, 1993; Schoon, 2006; Schoon, Martin and Ross, 2007). Human agency, however, has to be understood as being constrained by available options and opportunities. Social origin, gender, and ethnicity influence the range of options available to the individual, as do historical events beyond individual control, such as changes in the labour market, economic downturn, or the outbreak of war (Elder, 1998). Young people and adults alike co-regulate their motivation and behaviour in response to the social context (Salmela-Aro et al, 2009). Recent socio-economic changes, especially changes in education and labour market opportunities, place increasing demands on people's initiative and ability to navigate possible options and multiple demands. Although the polarization of life chances and transition patterns has now increasingly entered current debates, variations between as well as within social groups have received less attention. Work within LLAKES Strand 3 research points to the fact that rational choice models do not fully account for the effects of uncertainty that people are likely to face during their working lives, and variations of the traditional 'mover-stayer' model are being worked on by Martin Weale and his team to better conceptualise the dynamics of life time earnings.

Increasing numbers of young people are expected to participate in further education beyond compulsory schooling age, once the preserve of a relative privileged minority. In a recent study within the LLAKES programme (Schoon et al, 2010), it emerged that increased expectations may mask underlying issues of low academic performance and motivation. It has been claimed that rising education expectations results from beliefs that more education improves chances for attaining better jobs, higher wages, and social status – although not all young people will be able to realise their ambitions, especially those from less privileged backgrounds, i.e. those who lack the financial and/or academic resources.

We have shown how LLAKES Strand 3 research is building on the work of Karen Evans in acknowledging that human development is based on the dynamic interactions between a changing individual in a changing context, whereby individuals affect the context that affects them. Life course transitions require decisions between pathways, which correspond to one's past experiences and aspirations for the future. Yet, life chances are not equally distributed and vary by social origin, gender, and ethnicity. For example, young people from relative

disadvantaged backgrounds have generally lower expectations regarding their educational and occupational careers than their more privileged peers, even after controlling for ability and motivation (Schoon, 2010). Those young people from less privileged background who express high aspirations during adolescence and who are doing well at school do, on average, not achieve to the same extent as those young people growing up in more privileged families, whose parents are generally better educated, have access to financial resources, to formal and informal networks, as well as knowledge about different career pathways. There is no completely individualised choice as social relationships, role expectations, and opportunity structures create openings and constraints that the individual has to negotiate. The notion of bounded agency (see Evans, 2002; 2007) is further elaborated through LLAKES research. Social structures as well as the wider social context circumscribe the range of options that shape biographical agency processes, which can be understood as reinterpretations of cumulative experiences. Any point in the life span has to be understood as the consequence of past experience and as the launch pad for subsequent experiences and conditions. Furthermore, the increasing evidence has to be acknowledged, of the wider benefits of learning, including positive outcomes not only regarding employment and income, but also regarding individual health and wellbeing (Feinstein, Budge, Vorhaus and Duckworth, 2008). Cognitive ability and educational attainment are also related to civic engagement and liberal social attitudes (Deary, Batty and Gale, 2008; Schoon 2007; Schoon, Gale, Batty and Deary, 2010).

The LLAKES research agenda (strand 3) focuses on two key questions that remain unanswered or only partially addressed by the research reviewed thus far:

Question 1: What are the processes and consequences of participation in different forms of learning and experience beyond initial schooling, including on-the-job/workplace experience and life-long learning?

Question 2: How do the processes and consequences of participation impact on 'riskiness' in the life course (or the probability of bad things happening to you, economically and, as a consequence, socially)?

One conclusion from the foregoing review is that research should aim to obtain a clearer and more detailed understanding of the multiple interacting factors shaping the life transitions such as those that occur between periods of education and within a work career, and the embeddedness of these transitions in other domains of experience. Adults in the future might increasingly have to combine the roles of student, worker, partner, and parent and maintain a keenness to learn new skills throughout their working life and into ‘the third age’. Promoting extended participation in education is seen as a key leverage point for social policy makers to facilitate the school-to-work transition. There are, however, national differences in how related measures are implemented and individual differences in how such policies are perceived and responded to. Moreover, there appear to be continued differences in educational participation based on social background, race, and gender, with people from disadvantaged backgrounds being less likely to pursue further education, regardless of their actual abilities. Motivating young people to engage in extended education, providing opportunities for re-engagement in adult life and providing the necessary resources and scaffolding that enable life-long learning mitigates risk and makes uncertainty more manageable in the life course changes and transitions (see also Evans and Heinz, 1993, 1994; Heinz, 2009). Considering the role of early and cumulative socialisation experiences in shaping transition experiences, interventions need to start early – ideally at the preschool level – and provide continued support for children and learners throughout their school career as well as during transition periods. In order to create sustainable support structures and to improve the effectiveness of intervention programs, can schools form coalitions with parents, employers, and the wider community to build a support network and facilitate exposure to multiple positive influences from different sources. An economist’s contribution here is likely to focus more on how to assess such programmes from the standpoint of ‘returns’ since economics does not have much to say on what will affect participation.

Regarding **adult development** and risk factors in employment, the findings of Wolf and Evans, Evans and Waite, Schoon on literacy learning of adults are being built on to develop a social ecological understanding of the influences and factors involved. We are working to link this to an analysis of variations in literacy and numeracy skills by gender and social class, with a focus on, life chances, quality of life and social inclusion. In every cohort study since the NCDS and BCS70 cohort members reached adulthood, starting with the 1981 NCDS survey at age 23, the

prevalence of self-reported numeracy and writing problems has been assessed. For the 2004 cohort sweep, a different approach was adopted to the BCS70 cohort, and both self report and test data has been collected. 9,664 BCS70 cohort members completed self report questions covering a range of specific difficulties from reading to a child to filling in a complex form. They also answered multiple choice questions on their literacy and numeracy skills with a selection of items at different difficulty levels, and attempted open response literacy and numeracy assessment items.

How do adults with different cognitive skills and levels of academic capital fare in their life course transitions? Outcomes to be considered here include economic, social, psychological and health outcomes, as well as civic participation and their stability and change over time. What are the characteristics of cohort members who return to education and who participate in life long learning? What are the characteristics of individuals who experience social upward or downward mobility, long term unemployment, frequent career change, or relationship break-up? Are cognitive skills sufficient to get on in adult transitions, or do they have to be seen in combination with other capabilities?

Structures that can be used to analyse **dynamic progression through the life course** from an economic perspective include mover-stayer models. A variant of the mover-stayer model (Goodman, 1961) looks at men and women separately. This assumes that people's experience in any one year is normally similar to that of the previous year, but that there is a chance that they will experience a shock. Models of this type can be estimated using the switching regression method (Quandt and Ramsey, 1978) and finding increasing use in recent years (e.g. Franses and Paap, 2002). Further research is exploring the dynamics of this process in more detail and, in particular, to examine how it is affected by life-long learning, seen as the acquisition of qualifications from study begun with a significant gap after people's first period of education.

As an exploration of the role of institutional differences between countries as determinants of the employment/income, this analysis provides the background for a study of the incentives to undertake training beyond the historically normal period for education. The process aims to set up a model of individual behaviour based on utility maximisation in uncertain environments.

This structure will allow us to assess the welfare gains from participation in life-long learning in terms of their effects on future earnings and income uncertainty; we will compare what emerges from this with the actual take-up of life-long learning so as to indicate the nature of gaps in provision.

However, there is evidence that social benefits of learning investment can be larger than private benefits (Acemoglu and Angrist, 2000; Moretti, 2004). Learning investments may impact on the lives of others than those who undertake such investment, for example, through the influence of average wages in the wage bargain for low skilled workers (Riley and Young, 2007) and through learning spillovers or other complementarities in production between high and low skilled workers, which in themselves are likely to be influenced by technical change (Goos and Manning, 2007). We are investigating the spillover effects from informal learning such as work experience, highlighting in particular the intergenerational transmission of knowledge, how the social return to work experience is influenced by information and communication technologies and how in turn this may affect the fortunes of older and younger workers (Aubert et al, 2006). Comparisons between different European countries also allow the exploration of the extent to which variation across countries in these returns can be related to different institutional set ups in the labour market and in the skill formation process and to differences in technology adoption.

The rational choice theories (Breen and Goldthorpe, 2001) that are dominant in current conceptualizations of how and why people take up opportunities such as those afforded by life-long learning do not, of course, fully account for the cultural context in which decisions are made, or differences in belief systems. We have to turn to other disciplinary frameworks to take into consideration that there might be different cultural values and interpretations of social reality, and different definitions of success.

Making disciplinary connections and developing middle range theory: a social ecological approach

The challenges of making interdisciplinary connections in exploring the dynamics of risk and learning in the life course have been set out at the start of this paper and illustrated throughout.

Are there sufficient connections and areas of overlap between disciplinary perspectives; are there common aspects or are they completely disconnected? If there are common aspects, what are they and how are they connected? The common ground between the disciplinary perspectives in this domain is that they attempt to understand both the processes and consequences of participation in different forms of learning and experience. Economists focus mainly on consequences, but try to control for factors that other social scientists understand in terms of social influences (e.g., parental aspirations). Economists make the assumption that differences in human behaviour stem from ‘circumstances’; sociologists see differences as stemming from social structures and processes; psychologists see differences as stemming from internal processes. Do they all see individuals as productive processors of reality’ in different ways? All focus on ‘social regularities’ in populations in different ways, and make different assumptions about the origins of these social regularities – ‘circumstances’, preferences, structures. The aim is to get a better understanding of both processes and consequences, building on our complementary understandings of what all these variations mean on the individual level and the population level – matching variables and social regularities. The interdisciplinary development of middle range theory starts with an elaboration of Evans’ conceptual schema to re-position research on processes and consequences along three dimensions already discussed.

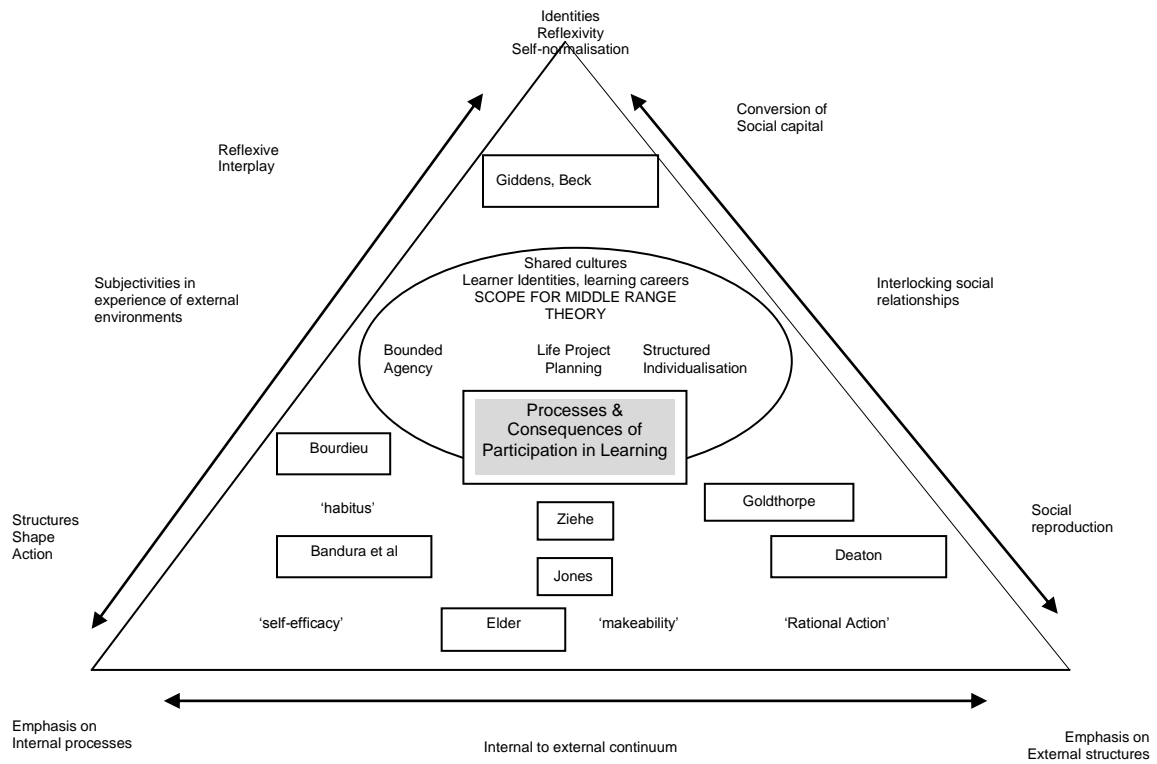


Figure 2: The Scope for Middle Range Theory in the Middle Ground of Interdisciplinary Overlap (adapted from Evans, 2007)

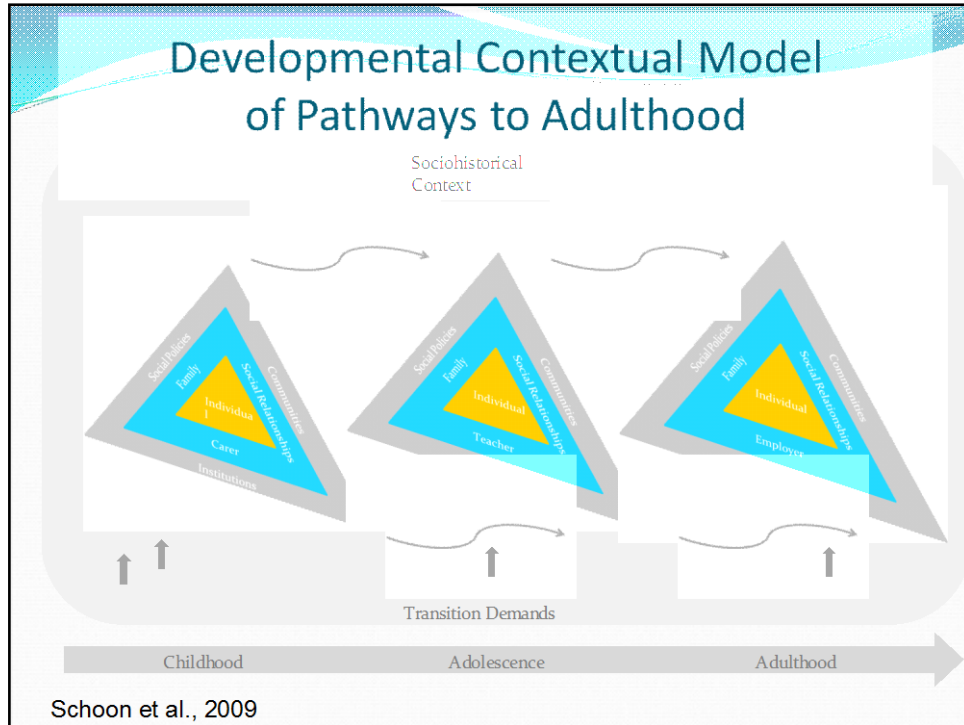


Figure 3: A Social Ecological Approach (adapted from Schoon et al, Pathways to Adulthood, 2009)

A social ecological approach appears best fitted to the interdisciplinary exploration of the processes and consequences of participation in learning and the effects of different configurations of learning and experiences on risk in the life course. An exploration of sources and patterns of uncertainty in people’s lives reveals the scope for moving beyond conventional rational choice approaches towards the concepts and models of biographical negotiation in decision-making. The elaboration of Evans’ model combined with extensions to Schoon’s life-course model offer a unifying framework for interpretation and elaboration of the Strand 3 findings, and for further hypothesis generation into the second phase of the LLAKES programme.

Learning and Life Chances

Learning and life chances are rooted in educational trajectories and their complex intertwining with social institutions (of labour market, workplace, family and community) and social roles (of employee, citizen, family member) at different stages of the life-course. The usefulness of the social ecology metaphor is that it provides a way into understanding the complexity of factors that impact directly or indirectly on education and life-long learning without losing sight of the whole. Every contextual factor and every person contributing or influenced is part of a complex ecology, a system of interdependent social relationships that is self-sustaining. Applications of ecological conceptualisations are found in studies ranging from macro-level analyses of organizations to ecologies of the inner workings of social groups. Recent applications to educational policy-making attempt to make visible the complexities of policy processes as interdependent and political, to incorporate ‘the messy workings of widely varying power relations, along with the forces of history, culture, economics and social change’ (Weaver-Hightower, 2008). According to Weaver-Hightower’s overview, the four categories of *actors, relationships, environments and structures, processes* lie at the heart of social ecological analyses. These differ in the degree of significance that is accorded to personal agency, through which actors ‘depending on their resources and power, are able to change ecological systems for their own benefit’ (p.156). Because ecologies are self-sustaining through interdependencies that operate without centralised controls, individuals and groups have spaces in which to exercise agency in ways that can influence the whole dynamic, through the interdependencies involved. Another family of approaches that has adopted a social-ecological metaphor starts with the ‘learning individual’ as the unit of analysis, in social psychological research (Bronfenbrenner, 1979) or, more recently, in the context of life-course research (eg Biesta et al, 2007). Biesta et al argue that people do not act *in* structures and environments – they act *through* them. This resonates with conceptualisations of agency as bounded rather than structured (Evans, 2002). People’s beliefs in their ability to change their situation by their own efforts, individually or collectively, are significant for the development of skills at work and beyond (Evans, 2002). These beliefs change and develop over time and according to experiences in the labour market and beyond. The ability to translate these beliefs into action is achieved rather than possessed

(Biesta and Tedder, 2007) and capabilities are limited by bounds that can be loosened (Evans, 2002, 2007).

In adult working life Hodkinson et al (2004) have argued that individual agency is best understood when individual worker perspectives are built into the dominant social–organizational view of learning at work. This perspective is integral the central thesis of *Improving Workplace Learning* (Evans, Hodkinson, Rainbird and Unwin, 2006) which has revealed through an integrated programme of research that three scales of activity have to be kept in view.

At the ‘macro’ level, wider social structures and social institutions can be fundamental in enabling or preventing effective learning from taking place. This includes, as well as educational and labour market structures, the legal frameworks that govern employees’ entitlements, industrial relations and the role of trades unions as well as the social structuring of business systems (Whitley, 2000). At the intermediate scale of activity, the nature of the learning environment in the institution, community or organization can expand or restrict learning (see for example Fuller and Unwin, 2004) concerning the work environment, in which establishing cultures that support expansive learning environments is identified as a key factor in improving the processes and consequences of learning at work. The interdependencies of interests play out as senior managers exert influence over the culture of an organization and its approach to supporting workplace learning. For the individual worker, their past experiences, dispositions and present situation will affect the extent to which they take advantage of the opportunities afforded by their immediate work environment. These factors change over time. Professionals and other highly qualified workers are more likely to participate in work-related education and are more likely to experience work environments that are rich in opportunities for learning, than workers in lower-level jobs (Aldridge and Tuckett, 2005; Dustmann et al, 2009). As well as creating incentives, a central challenge is to create the *conditions* in which adults can take advantage of all of these kinds of opportunities.

The ways in which adults can themselves, individually or collectively, influence their employment and life chances in and through the educational and workplace environments have been documented through previous and current research. These in turn have to be understood as

part of a wider dynamic, keeping in view how neighbourhood, labour market and community interdependencies play out in the life chances and livelihoods of workers and the trajectories of organizations that social ecological approaches will next have to turn.

Policy significance of moving from ‘rational choice’ assumptions to ‘biographical negotiation’ models

We have argued that the exploration of sources and patterns of uncertainty in people’s lives reveals the scope for moving beyond conventional rational choice approaches towards the recognition that a longer term process of biographical negotiation takes place in decision-making about education, work and family. Policies that can respond adequately to socio-economic changes could adopt a broader and longer term view in ways that are informed by empirical evidence on the multiple influences on life-course patterns and their dynamic interaction over time, while keeping in view the social returns to different forms of learning at different life stages. This includes keeping in view the ways in which particular educational experiences provide platforms for later development and can contribute to stability or instability in the life course. While for some people staying on in higher education is associated with personal development, for others the attainment of early financial independence is a primary goal and driver. There is also evidence to suggest that increasingly young people with good academic competences, including those from privileged and less privileged backgrounds, are becoming disengaged from school, and are not motivated to pursue an academic career (Schoon, 2008; Steedman and Stoney, 2004). Not all young people are able or willing to prolong their childhood dependence until their mid or late twenties, and there is need for flexible measures acknowledging differences in pacing and timing of education participation. Some young people with high ability and high expectations are leaving school early in order to make a living, although they might return to education at a later stage in their lives (Schoon, 2006; Schoon, Ross and Martin, 2009). It is thus vital to create opportunities for changes of direction, enabling re-entry into education following early school leaving. Moreover there is a need to develop a learning habitus, a motivation for learning that will endure and be renewed through a person’s life time, and not just the schooling period. As adults, early school leavers will be faced with upgrade their skills as new technologies are likely to be incorporated into lower-skilled jobs,

making it necessary to provide opportunities to learn new skills throughout one's working life (Moynagh and Worsley, 2005; Evans and Waite, 2009). Thus, education and training systems have to provide opportunities for life-long learning, whether through formal or informal training programs offered by employers or through education and training institutions in the public or private sector.

So what is needed for effective policies to support individuals' attempts to control their lives and the impact of risk factors on themselves and their families? What incentives and entitlements can be provided to enable people to participate in opportunities? What support should be available to help adults to manage the consequences of their choices?

There is a need to rethink the basic institutional structures currently in place to provide and support education and training, and creating bridges from school to work. Recent research evidence suggests that in most EU countries schools are organised in such a way that eagerness for learning is stifled in the course of their schooling career (Evans and Niemeyer, 2004; Silberman, 2007), and that most students find school boring and uninspiring (Diepstraten, du Bois-Reymond and Vinken, 2006). In the British cohorts there is also evidence to suggest increasing levels of school disengagement and lack of school motivation among young men and women of high cognitive ability (Schoon, 2008). Engaging young people in the school context and making the school context relevant to their life planning might be one of the mechanisms to increase the realization of individual potential and to decrease social inequalities. Measures should not only be in place shortly before school leaving, but as early as in primary school, building up young people's competences and their love for learning and discovery.

Furthermore, one has to rethink existing templates regarding the timing and sequencing of education participation (Schoon, Ross and Martin, 2009). It is now widely recognised that a single training period before entry into the labour market will be no longer sufficient, and future workers have to be prepared for continuous learning as well as reskilling throughout their working life. Current policies in England of withdrawing funding for those pursuing lower or equivalent qualifications are not encouraging this process of reskilling and life-long learning, and should be reconsidered. Policies should be able to respond adequately to changes in labour

market opportunities and should adopt a broader and longer-term view. A more flexible and permeable structure of education participation can enable people to return to education after a problematic or delayed start, and to provide the necessary resources and scaffolding to enable life-long learning. To provide a stronger and more sustainable framework for action and to improve the effectiveness of intervention programmes it is recommended that schools, colleges and educational organizations form coalitions with parents, employers and the wider community in building up support networks and facilitating exposure for people of all ages to multiple positive influences from different sources (Schoon and Silbereisen, 2009).

LLAKES Research Strand 3 is aiming to show how identifying effective policies will include (1) an integrated policy approach, instead of a concentration of efforts on selected problems; (2) consideration for the interaction between labour-market changes and other aspects of the transitions of adult life, such as living arrangements and family formation; (3) consideration of ‘outsiders’ and minority groups and approaches that facilitate participation, integration, and empowerment; (4) support for second and third chances, enabling recovery and repair after a problematic start or unforeseen setbacks later in life; and (5) opportunities for life-long learning that expand human capacities and facilitate the upgrading of knowledge as well as re-skilling.

References

Abraham, F., Konings, J., and Vanormeling, S. (2009) ‘The Effect of Globalization on Union Bargaining and Price-Cost Margins of Firms’, *Weltwirtschaftliches Archiv*, 145, pp. 13-36.

Abowd, J., Haltiwanger, J., Lane, J., McKinney, K. and Sandusky, K. (2007) ‘Technology and the Demand for Skill: An Analysis of Within and Between Firm Differences,’ NBER Working Paper No. 13043.

Acemoglu, D. and Angrist, J. (2000) ‘How Large are Human-Capital Externalities? Evidence from Compulsory Schooling Laws,’ In B. Bernanke and K. Rogoff (eds) *NBER Macroeconomics Annual*, 15, MIT Press, Cambridge, MA, pp. 9-59.

Aghion, P. (2002) ‘Schumpeterian Growth Theory and the Dynamics of Income Inequality’, *Econometrica*, 70, pp. 855-882.

Aldridge, F. and Tuckett, A. (2005) ‘Better News This Time? The NIACE Survey on Adult Participation in Learning 2005.’ NIACE, Leicester.

- Alderson, A.S., Beckfield, J. and Nielsen, F. (2005) 'Exactly How Has Income Inequality Changed? Patterns of Distributional Change in Core Societies', *International Journal of Comparative Sociology*, 46, pp. 405-423.
- Appleby, Y. and Barton, D. (2008) *Responding to People's Lives*. National Research and Development Centre, London.
- Arnett, J. J. (2000) 'Emerging Adulthood: A Theory of Development from the Late Teens to the Late Twenties,' *American Psychologist*, 55, 5, pp. 469–480.
- Aubert, P., E. Caroli and M. Roger. (2006) 'New Technologies, Organisation and Age: Firm-Level Evidence', *Economic Journal*, 116, pp F73-F93.
- Autor, D., Levy, F. and Murnane, R. (2003) 'The Skill Content of Recent Technological Change: An Empirical Exploration', *Quarterly Journal of Economics*, 118, pp. 1279-333.
- Baethge, M. (1989) 'Individualisation as Hope and as Disaster'. In: K. Hurrelmann, and U. Engels (eds) *The Social World of Adolescents: International Perspectives*. de Gruyter, New York.
- Baltes, P. B. (1997) 'On the Incomplete Architecture of Human Ontogeny: Selection, Optimization, and Compensation as Foundation of Development Theory,' *American Psychologist*, 52, 366–380.
- Bandura, A. (1995) *Self-Efficacy in Changing Societies*. Cambridge University Press, Cambridge
- Bandura, A. (1998) 'Self-Efficacy.' In H. Freidman (ed) *Encyclopaedia of Mental Health*. Academic Press, San Diego.
- Bartelt, D. W. (1994) 'On Resilience: Questions of Validity.' In M. C. Wang and E. W. Gorden (eds), *Educational Resilience in Inner-City America. Challenges and Prospects*. Erlbaum, Hillsdale, NJ, pp. 97-108.
- Beck, U. (1992) *Risk Society. Towards a New Modernity*. Sage, London.
- Beck, U. (1998) *Democracy Without Enemies*. Sage, London.
- Beck, U. and Beck-Gernsheim, E. (2002) *Individualization*. Sage Publications, London.
- Beder, H. (1999) 'The Outcomes and Impacts of Adult Literacy Education in the United States', *Centre for the Study of Adult Learning and Literacy*, Harvard, Cambridge.
- Bennett, R., Glennester H. and Nevison, D. (1992) 'Investing in Skill - to Stay on or not to Stay on', *Oxford Review of Economic Policy*, 8, pp. 130.145.
- Biesta, G. and Tedder, M. (2007) 'Agency and Learning in the Life Course: Towards an Ecological Perspective', *Studies in the Education of Adults*, 39, 2, pp. 132-149.

- Blanchard, O.J. and Wolfers, J. (2000) 'The Role of Shocks and Institutions in the Rise of European Unemployment: the Aggregate Evidence', *Economic Journal*, 110, pp. C1-C33.
- Blanden, J. F., Buscha, P., Sturgis and P. Unwin. (2008) 'Earnings and Occupational Status Returns to Life-long Learning.' University of Surrey.
- Blossfeld, H.-P. and Timm, A. (2003) *Who Marries Whom? Educational Systems as Marriage Markets in Modern Societies*. Kluwer Academic, Dordrecht and London.
- Bourdieu, P. (1993) *Sociology in Question*. Sage, London.
- Bradburn, E. M., Moen, P., and Dempster-McClain, D. (1995) 'Women's Return to School Following the Transition to Motherhood', *Social Forces*, 73, 4, pp.1517-1551.
- Breen, R., and Goldthorpe, J. H. (2001) 'Class, Mobility, and Merit: The Experience of Two British Birth Cohorts', *European Sociological Review*, 17, pp. 81–101.
- Bresnahan, T., Brynjolfsson, E. and Hitt, L. (2002) 'Information Technology, Workplace Organization and the Demand for Skilled Labor: Firm Level Evidence', *Quarterly Journal of Economics*, 117, pp. 339-376.
- Bronfenbrenner, U. (1979) *The Ecology of Human Development: Experiments by Nature and Design*. Harvard University Press, Cambridge, MA.
- Brückner, H., and Mayer, K. U. (2005) 'Destandardization of the Life Course: What Does It Mean? And if it Means Anything, Whether it Actually Took Place?' In R. Macmillan (ed) *The Structure of the Life Course: Standardized? Individualized? Differentiated?* Elsevier 40, Amsterdam, pp. 27–54,
- Buchmann, M. (1989) *The Script of Life in Modern Society: Entry into Adulthood in a Changing World*. Chicago University Press, Chicago.
- Bynner, J. (2001) 'British Youth Transitions in Comparative Perspective', *Journal of Youth Studies*, 4, 1, pp. 5-23.
- Bynner, J. and Parsons, S. (2009) 'Insights into Basic Skills from a UK Longitudinal Study (2009).' In S. Reder and J. Bynner (eds) *Tracking Adult Literacy and Numeracy Skills*, Routledge, New York.
- Caselli, F. (1999) 'Technological Revolutions', *American Economic Review*, 89, pp. 78-103.
- Cicchetti, D. and Garmezy, N. (1993) 'Prospects and Promises in the Study of Resilience.' *Development and Psychopathology*, 5, pp. 497-502.

- Ciccone, A. and Peri, G. (2006) 'Identifying Human-Capital Externalities: Theory with Applications', *Review of Economic Studies*, 73, pp. 381–412.
- Clark, A., Georgellis, Y. and Sanfey, P. (2001) 'Scarring: The Psychological Impact of Past Unemployment', *Economica*, 68, pp. 221–241.
- Comings, J. P. (2009) 'Student Persistence in Adult Literacy and Numeracy Programmes.' In S. Reder and J. Bynner (eds) *Tracking Adult Literacy and Numeracy Skills*. Routledge, New York.
- Dearden, L., McIntosh, S., Myck, M. and Vignoles, A. (2000) 'The Returns to Academic and Vocational Qualifications in Britain', Discussion Paper 4, Centre for the Economics of Education.
- Dearden, L., Machin, S. and Reed, H. (1997) 'Intergenerational Mobility in Britain', *Economic Journal*, 107, pp. 47-66.
- Deary, I. J., Batty, G. D. and Gale, C. R. (2008) 'Bright Children Become Enlightened Adults', *Psychological Science*, 19, 1, pp. 1-6.
- Deary, I. J., Batty, G. D., and Gale, C. R. (2008). 'Childhood Intelligence Predicts Voter Turnout, Voting Preferences, and Political Involvement in Adulthood: The 1970 British Cohort Study', *Intelligence*, 36, 6, pp. 548-555.
- Deaton, A. (1991) 'Saving and Liquidity Constraints', *Econometrica*, 59, pp. 1221-1248.
- Dex, S. and Joshi, H. (2005) *Children of the 21st Century*. Policy Press: Bristol.
- Diamond, P. and B. Koszegi. (2003) 'Quasi-hyperbolic Discounting and Retirement', *Journal of Public Economics*, 87, pp. 1839-1872.
- Dickerson, A. and Green, F. (2004) 'The Growth and Valuation of Computing and Other Generic Skills', *Oxford Economic Papers*, 56, pp. 371-406.
- Diepstraten, I., du Bois-Reymond, M. and Vinken, H. (2006) 'Trendsetting Biographies: Concepts of Navigating Through Late-Modern Life and Learning', *Journal of Youth Studies*, 9, pp. 175-193.
- Diewald, M. and Mayer, K. U. (2008) *The Sociology of the Life Course and Life Span Psychology*. Deutsches Institut fuer Wirtschaftsforschung (DIW), Berlin. Discussion Paper 772.
- Duncan, G. J. and Brooks-Gunn, J. (1997) *Consequences of Growing Up Poor*. Russell Sage Foundation Press, New York.
- Dustmann, C., Machin, S. and Soskice, D. (2009) *Inequality, Education and Comparative Political Economy*. Anglo-German Foundation, London and Bonn.

- Dutta, J., Sefton, J. and Weale, M.R. (2001) 'Income Distribution and Income Dynamics in the United Kingdom', *Journal of Applied Econometrics*, 16, pp. 599-616.
- Ecclestone, K., Biesta, G. and Hughes, M. (2009) (eds) *Transitions and Learning Through the Lifecourse*. Routledge, Abingdon.
- Elder, G. H. (1994) 'Time, Human Agency, and Social-Change - Perspectives on the Life-Course', *Social Psychology Quarterly*, 57, 1, pp. 4-15.
- Elder, G. H. (1998) 'The life course as developmental theory', *Child Development*, 69, 1, pp. 1-12.
- Elder, G. H., and Caspi, A. (1988) 'Human Development and Social Change: An Emerging Perspective on the Life Course.' In N. Bolger, A. Caspi, G. Downey and M. Moorehouse (eds) *Persons in Context: Developmental Processes*. Cambridge University Press, Cambridge, pp. 77-113.
- Elder, G. H., and Caspi, A. (1990) 'Studying Lives in a Changing Society: Sociological and Personological Explorations.' In R. A. Zucker, A. I. Rabin, J. Aronoff and S. J. Frank (eds) *Personality Structure in the Life Course*. Springer, New York, pp. 276-322.
- Elman, C. and O'Rand, A. M. (1998) 'Midlife Work Pathways and Educational Entry', *Research on Aging*, 20, pp. 475-505.
- Elman, C. and O'Rand, A.M. (1998) 'Midlife Entry into Vocational Training: A Mobility Model', *Social Science Research*, 27, pp. 128-158.
- Engel, U. and Strasser, H. (1998) 'Global Risks and Social Inequality: Critical Remarks on the Risk Society Hypothesis', *Canadian Journal of Sociology*, 23, 1, pp. 91-103.
- Evans, K. (2002) 'Taking Control of Their Lives? Agency in Young Adult Transitions in England and the New Germany', *Journal of Youth Studies*, 5, pp. 245-271.
- Evans, K. (2009) *Learning Work and Social Responsibility*. Springer, Dordrecht.
- Evans, K. (2007a) 'Concepts of Bounded Agency in Education, Work and Personal Lives of Young Adults', *International Journal of Psychology* (interdisciplinary issue) 42, 2, pp. 1-9.
- Evans K (2007b) 'Achieving Equity Through "Gender Autonomy"', *Journal of Vocational Education and Training*, 58, 4, pp. 393-408.
- Evans, K., Behrens, M. and Kaluza, J. (2000) *Learning and Work in the Risk Society*. Palgrave, London, p.134.

Evans, K., Behrens, M., Kaluza, J., Rudd, P. and Woolley, C. (2001) *ESRC End of Award Report: Taking Control? Agency in Young Adult Transitions in England and the New Germany*. Economic and Social Research Council, Swindon.

Evans, K. and Heinz, W. (1994) *Becoming Adults in England and Germany*. Anglo-German Foundation, London and Bonn.

Evans, K. and Heinz, W. (1993) “‘Studying Forms of Transition’”: Methodological Innovation in a Cross-National Study of Labour Market Entry in England and Germany’, *Comparative Education*, 49, pp. 145-158.

Evans, K., Hodkinson, P., Rainbird, H. and Unwin, L. (2006) *Improving Workplace Learning*. Routledge, London.

Evans, K and Niemeyer, B. (2004) *Reconnection: Countering Social Exclusion Through Situated Learning*. Springer, Dordrecht.

Evans, K. and Waite, E. (2009) ‘Adults Learning In and Through the Workplace.’ In Ecclestone, K., Biesta, G. and Hughes, M. (eds) *Learning and Transitions Through the Life Course?* Routledge, Abingdon.

Evans, K. and Waite, E (2010) ‘Supporting the Innovation Potential of Routine Workers through Workplace Learning’, *TRANSFER*, 16, in press.

Evans, K. Waite, E. and Kersh, N. (2009) ‘Towards a Social Ecology of Adult Learning In and Through the Workplace.’ *The Sage Handbook of Workplace Learning*. Sage, London.

Featherman, D. L. and Hauser, R. M. (1978) *Opportunity and Change*. Academic Press, New York.

Featherman, D. L. and Lerner, R. M. (1985) ‘Ontogenesis and Sociogenesis - Problematics for Theory and Research About Development and Socialization Across the Lifespan’, *American Sociological Review*, 50, 5, pp. 659-676.

Feinstein, L. F., Galindo-Rueda, F. and Vignoles, A. (2004) ‘The Labour Market Impact of Adult Education and Training: a Cohort Analysis’, *Scottish Journal of Political Economy*, pp. 266-280.

Feinstein, L., Budge, D., Vorhaus, J. and Duckworth, K. (2008) ‘The Social and Personal Benefits of Learning: A Summary of Key Research Findings.’ Centre for Research on the Wider Benefits of Learning, Institute of Education, London.

Felmlee, D. H. (1988) ‘Returning to School and Women's Occupational Attainment,’ *Sociology of Education*, 61, 1, pp. 29-41.

- Felstead, A., Fuller, A., Jewson, N. and Unwin, L. (2009) *Improving Working as Learning*. Routledge, London.
- Field J. (2005) *Social Capital and Life-long Learning*. Policy Press, Bristol.
- Flammer, A. (1997) 'Developmental Analysis of Control Beliefs.' In A. Bandura (ed) *Self Efficacy in Changing Societies*. Kogan Page, London, pp. 40-54.
- Franses, P. H. and Paap, R. (2002) 'Censored Latent Effects Autoregression with an Application to US Unemployment', *Journal of Applied Econometrics*, 17, pp. 347-366.
- de la Fuente, A. and Doménech, R. (2006) 'Human Capital in Growth Regressions: How Much Difference Does Data Quality Make?', *Journal of the European Economic Association*, 4, pp. 1-36.
- Fuller, A. and Unwin, L. (2004) 'Expansive Learning Environments: Integrating Personal and Organisational Development.' In H. Rainbird, A. Fuller and A. Munro (eds) *Workplace Learning in Context*. Routledge, London.
- Furlong, A. and Cartmel, F. (1997) *Young People and Social Change*. Open University Press, Buckingham.
- Fussel, E. (2005) 'Measuring the Early Adult Life Course in Mexico: An Application of the Entropy Index.' In R. Macmillan (ed) *The Structure of the Life Course: Standardized? Individualized? Differentiated?* Elsevier, Amsterdam, pp. 91-122.
- Garrett, J. L. and Eccles, J. S. (2009) 'Transition to Adulthood: Linking Late-Adolescent Lifestyles to Family and Work Status in the Mid Twenties.' In I. Schoon and K. R. Silbereisen (eds) *Transitions from School to Work: Globalisation, Individualisation and Patterns of Diversity*. Cambridge University Press, New York, pp.243-264.
- Garnezy, N. and Masten, A. (1994) 'Chronic Adversities.' In R.M., L. Hersov and E. Taylor (eds) *Child and Adolescent Psychiatry*, 3rd Edition. Black Scientific Publications, Oxford.
- Giddens, A. (1991) *Modernity and Self-Identity: Self and Society in the Late Modern Age*. Polity Press, Cambridge.
- Giddens, A. (1998) *The Third Way: The Renewal of Social Democracy*. Polity Press, Cambridge.
- Goldfeld, S.M., and Quandt, R.E. (1973) 'A Markov Model for Switching Regressions', *Journal of Econometrics*, 1, pp. 3-16.
- Goos, M. and Manning, A. (2007) 'Lousy and Lovely Jobs: The Rising Polarization of Work in Britain', *Review of Economics and Statistics*, 89, pp. 118-133.

- Goldthorpe, J. H. (1998) 'Rational Action Theory for Sociology', *British Journal of Sociology*, 49, 2, pp. 167-192.
- Goodman, L. (1961) 'Statistical Methods for the Mover-stayer Model', *Journal of the American Statistical Association*, 56, pp. 841-868.
- Gorard, S., Rees, G., Fevre, R. and Furlong, J. (1998) 'Learning Trajectories: Travelling Towards a Learning Society?' *International Journal of Life-long Education*, 17, 6. (November-December 1998).
- Gorard, S., Rees G., Fevre, R. and Welland, T. (2001) 'Life-long Learning Trajectories: Some Voices of Those "In Transit"' *International Journal of Life-long Education*, 20, 3 (May-June 2001), pp.169-187.
- Gorard, S. and Rees, G. (2002) *Creating a Learning Society? Learning Careers and Policies for life-long learning*. The Policy Press, Bristol.
- Gorard S., Rees, G. and Fevre, R. (1999) 'Learning Trajectories: Analysing the Determinants of Workplace Learning.' Paper presented at the ESRC Seminar Series: Working to Learn, University of Surrey, 24th June.
- Gorden, E. W. and Song, L. D. (1994) 'Variations in the Experience of Resilience.' In M. C. Wang and E. W. Gordon (eds) *Educational Resilience in Inner-City America: Challenges and Prospects*. NJ: Erlbaum, Hillsdale, pp. 27-43.
- Gourinchas, P. and Parker, J.A. (2002) 'Consumption Over the Life Cycle.' *Econometrica*, 70, pp. 47-89.
- Greenwood, J. and Yorukoglu, M. (1997) '1974', *Carnegie-Rochester Conference Series on Public Policy*, 46, pp. 49-95.
- Hager, P and Hodkinson, P. (2009) 'Moving Beyond the Metaphor of Transfer of Learning', *British Educational Research Journal*, 35, pp. 619-638
- Hanushek, E. and Kimko, D. (2000) 'Schooling, Labor-Force Quality, and the Growth of nations', *American Economic Review*, 90, pp. 1184-1208.
- Harmon, C., Oosterbeek, H. and Walker, I. (2003) 'The Returns to Education: Microeconomics', *Journal of Economic Surveys*, 17, pp. 115-155.
- Haskel, J. and Heden, Y. (1999) 'Computers and the Demand for Skilled Labour: Industry- and Establishment-level Panel Evidence for the UK', *Economic Journal*, 109, pp. C68-C79.
- Haskel, J. and Slaughter, M. (2001) 'Trade, Technology and UK Wage Inequality', *Economic Journal*, 111, pp. 163-187.

Heckhausen, J. and Schulz, R. (1995) 'A Life-Span Theory of Control', *Psychological Review*, 102, pp. 284–304.

Helpman, E. and Rangel, A. (1999) 'Adjusting to a New Technology: Experience and Training', *Journal of Economic Growth*, 4, 4, pp. 359-383.

Heinz, W. R. and Marshall, V. W. (2003) *Social Dynamics of the Life Course: Transitions, Institutions, and Interrelations*. Aldine de Gruyter, New York.

Heinz, W.R (2009) 'Vocational Identity and Flexible Work: A Contradicting or Constructive Relation?' In F. Rauner and E. Smith *Innovative Apprenticeships*. Proceedings of the INAP Conference 2009, Lit. Verlag, Berlin

Hijzen, A., Görg, H., and Hine, R. (2005) 'International Outsourcing and the Skill Structure of Labour Demand in the United Kingdom', *Economic Journal*, 115, pp. 860-878.

Hodkinson, P., Hodkinson H., Evans, K. and Kersh, N. (2004) 'The Significance of Individual Biography in Workplace Learning', *Studies in the Education of Adults*, 36, 1, pp 6-25.

Iranzo, S. and Peri, G. (2009) 'Schooling Externalities, Technology, and Productivity: Theory and Evidence from U.S. States', *Review of Economics and Statistics*, 91, pp. 431-36.

Jenkins, A. (2004) 'Women and Life-long Learning.' Centre for the Economics of Education, London School of Economics.

Jenkins, A., Vignoles, A., Wolf, A. and Galindo-Rueda, F. (2003) 'The Determinants and Labour Market Effects of Life-long Learning,' *Applied Economics*, 35, pp. 1711-1721.

Jones, G. (2002) *The Youth Divide: Diverging Paths to Adulthood*. Joseph Rowntree Foundation, York.

Jones, G. (2009a) 'From Paradigm to Paradox: Parental Support and Transitions to Independence.' In I. Schoon and K. R. Silbereisen (eds) *Transitions from School to Work; Globalisation, Individualisation, and Patterns of Diversity*. Cambridge: Cambridge University Press, pp. 145-164.

Jones, G. (2009b) *Youth*. Bristol Polity Press.

Kaplan, H. B. (1999) 'Toward an Understanding of Resilience: A Critical Review of Definitions and Models.' In M. D. Glantz and J. L. Johnson (eds) *Resilience and Development: Positive Life Adaptations*. Kluwer Academic, New York, pp. 17-83.

- Karoly, L. A. (2009) 'The Future at Work: Labor-Market Realities and the Transition to Adulthood.' In I. Schoon and K. R. Silbereisen (eds) *Transitions from School to Work. Globalization, Individualization, and Patterns of Diversity*. Cambridge University Press, New York, pp. 352-384.
- Keep, E and Payne, J (2002) 'Policy Interventions for a Vibrant Work-Based Route.' In K. Evans, P. Hodgkinson and L. Unwin *Working to Learn: Transforming Learning in the Workplace*. Routledge, London.
- Keep, E. and Payne, J. (2002) 'Policy Interventions for Work-Based Route, or When Policy Hits Reality's Fan, Again.' In *Working to Learn: Transforming Learning in the Workplace*. Routledge, Abingdon.
- Keep, E. and Mayhew, K. (1999) 'The Assessment?: Knowledge, Skills and Competitiveness', *Oxford Review of Economic Policy*, 15, 1 pp.1-15.
- Kerckhoff A.C. (2001) 'Education and Social Stratification Processes in Comparative Perspective', *Sociology of Education*, 74, Extra Issue: Current of Thought: Sociology of Education at the Dawn of the 21st Century, pp. 3-18
- Kirby, S. and Riley, R. (2007) 'ICT and the Returns to Schooling and Job-Specific Experience', *National Institute Economic Review*, 201, pp. 76-85.
- Kirby, S. and Riley, R. (2008) 'The External Returns to Education: UK Evidence Using Repeated Cross-Sections', *Labour Economics*, 15, pp. 619-630.
- Kontiainen, S. (2002) *Dynamic Concepts Analysis (DCA): Integrating Information in Conceptual Models*. Helsinki University Press, Helsinki.
- Krueger, D. and Kumar, K. (2004) 'Skill-Specific Rather than General Education: A Reason for US-Europe Growth Differences?' *Journal of Economic Growth*, 9, pp. 167-208.
- Krueger, A. and Lindahl, M. (2001) 'Education for Growth: Why and For Whom?' *Journal of Economic Literature*, 39, pp. 1101-1136.
- Luthar, S. and Cicchetti, D. (2000) 'The Construct of Resilience: Implications for Interventions and Social Policies,' *Development and Psychopathology*, 12, 4, pp. 857-885.
- Luthar, S., Cicchetti, D. and Becker, B. (2000) 'The Construct of Resilience: A Critical Evaluation and Guidelines for Future Work', *Child Development*, 71, 3, pp. 543-562.
- Magnusson, D. (1995) 'Individual Development: A Holistic Integrated Model.' In P. Moen, G. H. Elder and K. Luescher (eds) *Linking Lives and Contexts: Perspectives on the Ecology of Human Development*. APA Books, Washington, pp. 19-60.

- Magnusson, D., Bergmann, L. R. and El-Khoury, B. M. (2003) *Studying Individual Development in an Interindividual Context. A Person-Oriented Approach*. Lawrence Erlbaum, Mahwah, N. J. and London.
- McIntosh, S. (2006) 'Further Analysis of the Returns to Academic and Vocational Qualifications', *Oxford Bulletin of Economics and Statistics*, 68, 2, pp. 225-51.
- Martin, B. (2007) *Skill Acquisition and Use Across the Life Course: Current Trends, Future Prospects*. Australian Government, National Institute of Labour Studies, Adelaide.
- Masten, A. (1994) 'Resilience in Individual Development: Successful Adaptation Despite Risk and Adversity.' In M. Wang and E. Gordon (eds) *Educational Resilience in Inner-City America: Challenges and Prospects*. L. Erlbaum Associates, Hillsdale, N.J., pp. 3-25.
- Masten, A., Best, K. and Garmezy, N. (1990) 'Resilience and Development: Contributions from the Study of Children Who Overcome Adversity', *Development and Psychopathology*, 2, pp. 425-444.
- Moretti, E. (2004) 'Estimating the Social Return to Higher Education: Evidence from Longitudinal and Repeated Cross-Sectional Data', *Journal of Econometrics*, 121, pp. 175-212.
- Moynagh, M. and Worsley, R. (2005) 'Working in the 21st century,' Economic and Social Research Council Report, Swindon
- Murnane, R., Willett, J. and Levy, F. (1995) 'The Growing Importance of Cognitive Skills in Wage Determination', *Review of Economics and Statistics*, 77, pp. 251-266.
- Murphy, K., Shleifer, A. and Vishny, R. (1991) 'The Allocation of Talent: Implications for Growth', *Quarterly Journal of Economics*, 106, pp. 503-530.
- Nurmi, J-E. (1993) 'Adolescent Development in an Age-graded Context: The Role of Personal Beliefs, Goals and Strategies in the Tackling of Developmental Tasks and Standards', *International Journal of Behavioral Development*, 16, 2, pp. 169-189.
- O'Connor, T. and Rutter, M. (1996) 'Risk Mechanisms in Development: Some Conceptual and Methodological Considerations', *Development and Psychopathology*, 5, pp. 567-579.
- OECD (1997) *Overcoming Exclusion through Adult Learning*. OECD: Organisation for Economic Co-operation and Development, Paris.
- Pallas, A. (2002) 'Educational Participation Across the Life Course: Do the Rich Get Richer?' In T. Owens and R. Settersten, Jr. (eds) *New Frontiers in Socialization: Advances in Life Course Research*, 7. Elsevier Science, Oxford, UK, pp. 327-354.
- Parsons, S. and Bynner, J. (1998) *Influences on Adult Basic Skills*. The Basic Skills Agency, London.

- Prais, S. (1955) 'Measuring Social Mobility', *Journal of the Royal Statistical Society. Series A*, 118, pp. 56-66.
- Quandt, R.E. and Ramsey, J.B. (1978) 'Estimating Mixtures of Normal Distributions and Switching Regressions,' *Journal of the American Statistical Association*, 73, pp. 730-738.
- Rauch, J. (1993) 'Productivity Gains from Geographic Concentration of Human Capital: Evidence from Cities', *Journal of Urban Economics*, 34, pp. 380-400.
- Reder, S. (2009) 'The Development of Literacy and Numeracy in Adult Life.' In S. Reder and J. Bynner (eds) *Tracking Adult Literacy and Numeracy Skills: Findings from Longitudinal Research*. Routledge, New York.
- Reder, S. and Bynner, J. (2009) (eds) *Tracking Adult Literacy and Numeracy Skills: Findings from Longitudinal Research*. London, New York.
- Richters, J. and Weintraub, S. (1990) 'Beyond Diathesis: Toward an Understanding of High-Risk Environments.' In J. Rolf, A. Masten, D. Cicchetti, K. H. Nuechterlin and S. Weintraub (eds) *Risk and Protective Factors in the Development of Psychopathology*. Cambridge University Press, Cambridge, pp. 67-96.
- Riley, R. and Young, G. (2007) 'Skill Heterogeneity and Equilibrium Unemployment', *Oxford Economic Papers*, 59, pp. 702-725.
- Roberts, B. W. (2007) 'Contextualising Personality Psychology', *Journal of Personality*, 75, pp. 1071-1082.
- Robins, L. N. and Rutter, M. (1990) *Straight and Devious Pathways from Childhood to Adulthood*. Cambridge University Press, Cambridge.
- Rothbaum, F.M., Weisz, J.R. and Snyder, S.S. (1982) 'Changing the World and Changing the Self: A Two Process Model of Perceived Control', *Journal of Personality and Social Psychology*, 42, pp. 5-37.
- Rutter, M. (1979) 'Protective Factors in Children's Responses to Stress and Disadvantage.' In M. Ken and J. Rolf (eds) *Primary Prevention of Psychopathology: Social Competence in Children*. University Press of New England, Hanover, NH, pp. 49-62.
- Rutter, M. (1988) *Studies of Psychosocial Risk: the Power of Longitudinal Data*. Cambridge University Press, Cambridge.
- Rutter, M. (1990) 'Psychosocial Resilience and Protective Mechanisms.' In J. Rolf, A. S. Masten, D. Chichetti, K. H. Nuechterlin and S. Weintraub (eds) *Risk and Protective Factors in the Development of Psychopathology*. Cambridge University Press, New York, pp. 181-214.

- Rutter, M. and Madge, N. (1976) *Cycles of Disadvantage: A Review of Research*. Heinemann Educational Books, London.
- Sakellariou, C. (2001) 'Identifying the External Effects of Human Capital: A Two-Stage Approach', *Applied Economics Letters*, 8, pp. 191-194.
- Sakellariou, C. and Maysami, R. (2004) 'Lucas Type External Effects of Human Capital: Strong Evidence Using Microdata', *Applied Economics Letters*, 11, pp. 343-346.
- Salmela-Aro, K., Savolainen, H. and Holopainen, L. (2009) 'Depressive Symptoms and School Burnout During Adolescence: Evidence from Two Cross-Lagged Longitudinal Studies', *Journal of Youth and Adolescence*, 38, 10, pp. 1316-1327.
- Sameroff, A. J. (1999) 'Ecological Perspectives on Developmental Risk.' In J. D. Osofsky and H. E. Fitzgerald (eds) *WAIMH Handbook of Infant Mental Health*, 4. Wiley, New York, pp. 223-248.
- Sameroff, A. J. and Seifer, R. (1990) 'Early Contributors to Developmental Risk.' In J. Rolf, A. Masten, D. Cicchetti, K. H. Nuechterlin and S. Weintraub (eds) *Risk and Protective Factors in the Development of Psychopathology*. Cambridge University Press, Cambridge, pp. 52-66.
- Sameroff, A. J., Seifer, R., Baldwin, A. and Baldwin, C. (1993) 'Stability of Intelligence from Preschool to Adolescence – The Influence of Social and Family Risk-Factors', *Child Development*, 64, 1, pp. 80-97.
- Schoon, I. (2006) *Risk and Resilience. Adaptations in Changing Times*. Cambridge University Press, Cambridge.
- Schoon, I. (2007) 'Adaptations to Changing Times: Agency in Context', *International Journal of Psychology*, 42, 2, pp. 94-101.
- Schoon, I. (2007) 'Social Capital and Social Integration of Young Adults in Changing Times.' In H. Helve and J. Bynner (eds) *Youth and Social Capital*. The Tufnell Press, London, pp. 155-174.
- Schoon, I. (2008) 'A Transgenerational Model of Status Attainment: The Potential Mediating Role of School Motivation and Education', *National Institute Economic Review*, 205, pp. 72–82.
- Schoon, I., Cheng, H., Gale, C. R., Batty, G. D., and Deary, I. J. (2010) 'Social Status, Cognitive Ability and Educational Attainment as Predictors of Liberal Social Attitudes and Political Trust' *Intelligence*, 38, pp. 144-150.
- Schoon, I., Martin, P. and Ross, A. (2007) 'Career Transitions in Times of Social Change. His and Her Story', *Journal of Vocational Behaviour*, 70, pp. 78-96.
- Schoon, I., Parsons, S., Rush, R. and Law, J. (2010) 'Childhood Language Skills and Adult Literacy: A Twenty-Nine Year Follow-Up Study', *Pediatrics*, 125, pp. 459-466.

Schoon, I., Ross, A. and Martin, P. (2009) 'Sequences, Patterns and Variations in the Assumption of Work and Family Related Roles. Evidence from Two British Birth Cohorts.' In I. Schoon and K.R. Silbereisen (eds) *Transitions from School to Work: Globalisation, Individualisation, and Patterns of Diversity*. Cambridge University Press, New York, pp. 219-242.

Schoon, I., Salmela-Aro, K., Silbereisen, R.K., Eccles, J., Schneider, B., Trautwein, U., et al. (2009). *Pathways to Adulthood. Towards an Integrative Framework of the Study of Productive Youth Development*. Annual Report to the Jacobs Foundation www.pathwaystoadulthood.org

Schoon, I. and Silbereisen, K.R. (2009) (eds) *Transitions from School to Work: Globalisation, Individualisation and Patterns of Diversity*. Cambridge University Press, New York.

Schuller, T., Bynner, J., Green, A., Blackwell, L., Hammond, C., Preston, J. and Gough, M. (2001) *Modelling and Measuring the Wider Benefits of Learning*. Institute of Education, London, p. 61.

Sen, A. (1985) *Commodities and Capabilities*. North Holland, Amsterdam.

Sennett, R (1998) *The Corrosion of Character: The Personal Consequences of Work in the New Capitalism*. W. W. Norton, New York and London.

Shanahan, M. J. (2000) 'Pathways to Adulthood in Changing Societies: Variability and Mechanisms in Life Course Perspective', *Annual Review of Sociology*, 26, pp. 667-692.

Sianesi, B. and Van Reenen, J. (2003) 'The Returns to Education: Macroeconomics', *Journal of Economic Surveys*, 17, pp. 157-200.

Silberman, M. (2007) *The Handbook of Experiential Learning*. CA: John Wiley & Sons, San Francisco.

Social Exclusion Unit (2009) *Understanding the Risks of Social Exclusion Across the Life Course*. Cabinet Office, London.

Steedman, H. and Stoney, S. (2004) *Disengagement 14-16: Context and Evidence*. Centre for Economic Performance, London.

Tett, L. and Maclachlan, K. (2007) 'Adult Literacy and Numeracy: Social Capital', *Learner Identities and Self-Confidence*, 39, 2, Autumn 2007.

Ungar, M. (2004b) 'A Constructionist Discourse on Resilience. Multiple Contexts, Multiple Realities Among At-Risk Children and Youth,' *Youth and Society*, 35, pp. 341-365.

Walther, A. (2009) 'It Was Not My Choice, You Know?' Young People's Subjective Views and Decision-Making Processes in Biographical Transitions.' In I. Schoon and R. Silbereisen (eds) *Transitions from School to Work: Globalisation, Individualisation and Patterns of Diversity*. Cambridge University Press, New York, pp. 121-144.

Weaver-Hightower, M.B. (2008) 'An Ecology Metaphor for Educational Policy Analysis: A Call to Complexity', *Educational Researcher*, 37, 3, pp.153-167.

Westergaard, J. (1995) *Who Get What?* Polity Press, Cambridge.

Whitley, R. (2000) *Divergent Capitalisms: The Social Structuring and Change of Business Systems*, Oxford University Press, Oxford.

Winter-Ebmer, R. (1994) 'Endogenous Growth, Human Capital and Industry Wages', *Bulletin of Economic Research*, 46, pp. 289-314.

Wolf, A. and Evans, K. (2010, in press) *Improving Literacy at Work*. Routledge, Abingdon.

Ziehe, T. (1996) *Zeitvergleiche Jugend in kulturellen Modernisierungen*. Juventa Vlg, Weinheim.

For more information, please contact
Jeremy Tayler: J.Tayler@ioe.ac.uk

LLAKES Centre
Institute of Education
20 Bedford Way
WC1H 0AL
London
UK

