Future Identities: Changing identities in the UK – the next 10 years

DR 17: What is the relationship between identity and technological, economic, demographic, environmental and political change viewed through a risk lens?

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A risk lens brings a focus on an uncertain and changing world, and the ways in which people's future orientation towards a range of risks and uncertainties is a cornerstone of identity. For policy purposes, and to anticipate significant social change, it is important to recognise how people might act differently today in light of how they envisage their own and others' futures. This review investigates 8 areas in which risk and identity relate: welfare and citizenship; family transformations; future ethics; emerging technologies; energy transitions; communities at risk; gender and technoscience; environment and consumption.

Key conclusions include the following.

- From a formal perspective, while attempts to address and manage 'risks' often involve readily calculable probabilities and consequences, we now need to recognise degrees of uncertainty, ambiguity and ignorance and respond to these accordingly.

- In contemporary society people are increasingly expected by the State to take personal responsibility for providing against a range of risks. But for many it may be very difficult or impossible to adopt such a future oriented identity and associated behaviours, storing up significant unintended material and social consequences for some groups into the future. As one consequence, a number of the existing post-1945 social contracts, between State and citizens regarding responsibility for risks, are likely to come under increasing strain.

- Families are in the vanguard of significant socio-cultural transformation and rapid social change, which may reflect deep rooted changes in socially embedded identities and the organisation of society. More work is needed to understand how these changes bear upon ongoing transformations in everyday notions of risk, morality and blame.

- It is far from clear how issues of social and environmental justice will unfold in the near future, or how people can be enabled to create the spatial and temporal connections needed for behaviour and practices which will support (rather than undermine) future equity and sustainability.

- Emerging technologies challenge existing notions of identity in both human and natural systems, bringing to the fore issues of trust in science/regulation and fundamental uncertainties. Further public contestation over specific emerging technology issues could be viewed as an opportunity rather than a threat - a way of allowing citizens to explore alternative visions of the relationship between technology, culture and future identities.

- Over the next 10 years challenges will intensify around valued energy consumption practices, as well as local places, communities and landscapes. For policy we expect fundamental distrust issues to arise during this time between local communities on the one hand and energy developers, regulators and government(s) on the other.

- Nationally driven policy in risk crises needs to be mindful of the impacts of decisions on local sense of place and self. Recent experience also suggests that strategic capacity in risk communication is lacking in the UK.

- In relying on the idea of an eternally anxious risk subject described by risk society theory, there is a failure to accommodate the complexity of risk experiences, including the unsayable threats to identity in the everyday.

- Risk researchers have studied the relationship between various social categories (e.g. gender, race, class) and risk perceptions of technological, environmental and health risks. The danger for policy in this area is that simple deficit thinking (as a response) retains its allure, when what is needed is a sensitivity to the multiple identity-based drivers of risk perception.

- Overreliance on individually or choice-based behaviour change initiatives (the current policy fashion in the UK and USA for 'nudge', etc.) may be counterproductive if they fail to address people's more deep seated, valued identity concerns. Challenging identities that are currently anchored in unsustainable consumption practices, and an economic growth ideology, sets one of the most intractable challenges in the energy and sustainability area for government over the coming decade.

3. Risk and Identity: An Introduction

"Risk: what's your perspective?" is the question posed in the title of the recently published guide for health care professionals (BMA 2012). This is an important question particularly when it is aligned with the realisation that the view of "professional risk analysts is only one among many possible understandings of jeopardy" (Carter, 1995). In viewing risk as a driver of identity change - a key question in foresight policy terms – we draw in this review on insightful elaborations of what we might call the risk-identity-futures problematic in (and around) the fields of contemporary risk and identity studies. To address what a risk lens brings to the study of identity in a changing world, one of our central concerns is with the ways in which people envisage future outcomes and, most especially, how they deal with potentially undesirable outcomes (risks). We take this to be a cornerstone of identity[1]. We can see how this way of linking risk and identity may be of considerable policy interest. In the interests of forging significant change a key issue to grapple with is how to conceive of people (both collectively and in our personal lives) in ways that recognise how they might act differently today in light of how they envisage their own and others' futures. Equally, though, if such a view captures too much of our attention it might obscure more dystopic views of the risk-identity-futures relation. The unpredictability of future risks (for example, because envisaged and desired outcomes of change may themselves be subject to risk) makes risk relevant in a rather different way to our identity futures.

A good deal of progress has been made in theorising identity. It is more possible now than it was in the recent past to pursue the study of identity change and futures. While the concept of risk does not feature centrally in this work (although see Breakwell 2007; Maio *et al*, 2007) implicitly it is better accommodated now because the study of identity has become less committed to the idea that knowing about unchanging, stable categories of identity is the way to predict individual and group behaviour. The ESRCs' interdisciplinary identities and social action programme (Wetherell, 2009a&b), in particular, has produced an influential body of empirical research by drawing upon alternative theoretical orientations. Researchers within and beyond that programme are interested in understanding the interplay between identity creating processes and the mobilisation of forms of social action. From this perspective identities are socially located and personally meaningful in a context that involves the widespread relationality[2] and destabilisation of taken for granted identity categories and self-other dichotomies. Identities are also temporally organised, storied constructions, and profoundly shaped by forms of everyday sense making that entail disconnections and settlements with the past together with the imagining of future identities and relationships (Finn and Henwood, 2009; Wetherell, 1996). In North American anthropology and psychology there is work which similarly views identities "as the imaginings of self in worlds of action" (Holland *et al*, 1998). Its focus is on the cultural identity work for the person involved. Identities "never arrive where they are fully formed"; "endings are projected and experiences converted into finished products". As a result research involves a "continual and solid move" into the processes of identity formation and encompasses the study of discourses, embodiment and imagined worlds.

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[1] A forthcoming conference at UCSIA sets out its stall for studying risk and uncertainty in a changing society in this way: www.ucsia.org

[2] An awareness of relationality has become important in identity studies to draw attention to a number of constitutive identity processes, e.g. how identity assumes difference (and vice versa).

In this review, then, we are seeking to embrace processual identity and futures thinking. Similarly our approach to risk is one that requires recognition that the topic is frequently intractable, alongside its openness to intervention and change. This is an entrée into examining contemporary social issues, global and local governance dilemmas and arenas of public contestation. Other work might take a different view but, in taking a social sciences oriented risk lens, we do not seek to technically or philosophically privilege issues such as calculating probabilities, eliminating ambivalence or controlling contingency (see e.g. Pidgeon *et al*, 1992; Henwood, 2008). The pros and cons of calculating risk in order to make it manageable is itself one of the many issues that can be subject to inquiry, and diverse strategies are available for doing this as part and parcel of adopting a risk lens. We have been influenced in this respect by discussions in the domain of science and technology studies (see e.g. O'Neil, 2007) about how the study of risk can be fundamentally engaged with studying the effects of profound and rapid social change. This means "there is a contentiousness to it, with intellectual and political significance". As an arena for studying transformations in social and cultural knowledge, it "entertains epochal shifts in the character of life and thought, the origins of which we only dimly perceive".

Concerns about safety and danger are necessarily at the core of the study of risk, its treatment in formal assessment models, and judgements about its acceptability (e.g. Fischhoff *et al*, 1981, Pidgeon *et al*, 1992). However, it should be stressed that the meaning of 'risk' is no longer solely reducible to simple ideas of danger, probability or consequence, and this is the perspective adopted in this review. From a formal perspective we now know that our attempts to address future perils can indeed involve (calculable) probabilities, but also need to recognise degrees of uncertainty, ambiguity and even ignorance (discussed in Pidgeon *et al*, 1992; Smithson, 1989).

Formal estimation and calculation of risk tends to involve some combination (typically the multiplication) of two components, the chance or probability of an outcome and the magnitude of the consequences were that outcome to occur. However, as many risk researchers have pointed out over the years, both parameters can be subject to different degrees of indeterminacy (e.g. Turner, 1978; Blockley, 1980; Funtowicz and Ravetz, 1992; Rosa, 1998; Stirling, 2010). This thinking is developed neatly by Stirling into a fourfold classification shown in Table 1. When good information about probabilities and consequences is available we have a situation of risk which can be evaluated and managed using conventional methods of quantitative risk assessment. An example might be a lottery ticket where both the total number of tickets to be drawn from and the exact value of the prize is known in advance. Greater indeterminacy in consequences leads to a situation of ambiguity, for example the impacts on the environment of the release of an untested genetically modified organism. Indeterminacy in probabilities leads to a case of uncertainty. Here we may know that a catastrophic event such as a large tsunami off the coast of Britain is theoretically possible, but have no long-run outcome data from past tsunamis in UK waters, or scant other expert evidence, to allow estimation of its likelihood in the near future. When *both* parameters are indeterminate we have a situation of decision-making under ignorance (Collingridge, 1980) – or, in the words made famous by Donald Rumsfeld, a situation involving 'unknown unknowns'. As Figure 1 also illustrates, ignorance, ambiguity and uncertainty require different control strategies to a situation of pure 'risk' - such things as precaution and monitoring, horizon scanning, expert elicitation etc. A danger here is that where policy makers seek the comfort of calculable uncertainties they might then inappropriately force indeterminate 'post-normal' situations into a calculable risk framework when conducting analysis and devising risk management strategies (Pidgeon and Butler, 2009; Stirling, 2010). Groves (2009) argues further (see also the section in this document on 'identity risk and time') that setting up uncertainties as calculable in this

way implies an unwarranted degree of management control, and sets up a particular framing of technological progress as inevitably positive for society.

The concept of risk itself also sets an epistemological and ontological dilemma for some at least, being at one an expression of possible material damage (deaths, injuries, losses) and at the same time a socially constructed concept (in that our knowledge of risk is *always* mediated through social lenses and processes: see e.g. Wynne, 1992; Pidgeon, Kasperson and Slovic, 2003; Rosa and Clarke, 2012). A social sciences approach to risk brings to bear, as a result, a whole range of social and contextual considerations through which people come to comprehend and respond to what they believe is hazardous, or alternatively not hazardous, in the world. This also helps us to begin to understand why some risks deemed highly significant through expert analysis and risk assessment are seen as unimportant by ordinary people, or vice versa (Pidgeon *et al*, 1992). Writing from the social sciences perspective, Carter argues that "(w)hereas danger is an unambiguous state of peril, risk alerts us to uncertainties about whether the future is safe or dangerous" (1995, p135). In social sciences research, then, risk arises within (and, critically, has to be understood in terms of) a series of socially derived discourses, upon which other issues invariably become layered – questions of morality, responsibility, blame and trust (Douglas, 1992; Taylor-Gooby and Zinn, 2006), themes which are touched upon in many of the projects which took part in the ESRC's social contexts and responses to risk priority network (www.kent.ac.uk/scarr). It is these latter considerations which connect risk firmly to questions of identities, and also establish the case for seeking to understand the cultural dynamics of risk awareness and subjectivity (Tulloch and Lupton, 2003; Henwood, Pidgeon, Sarre *et al*, 2008).
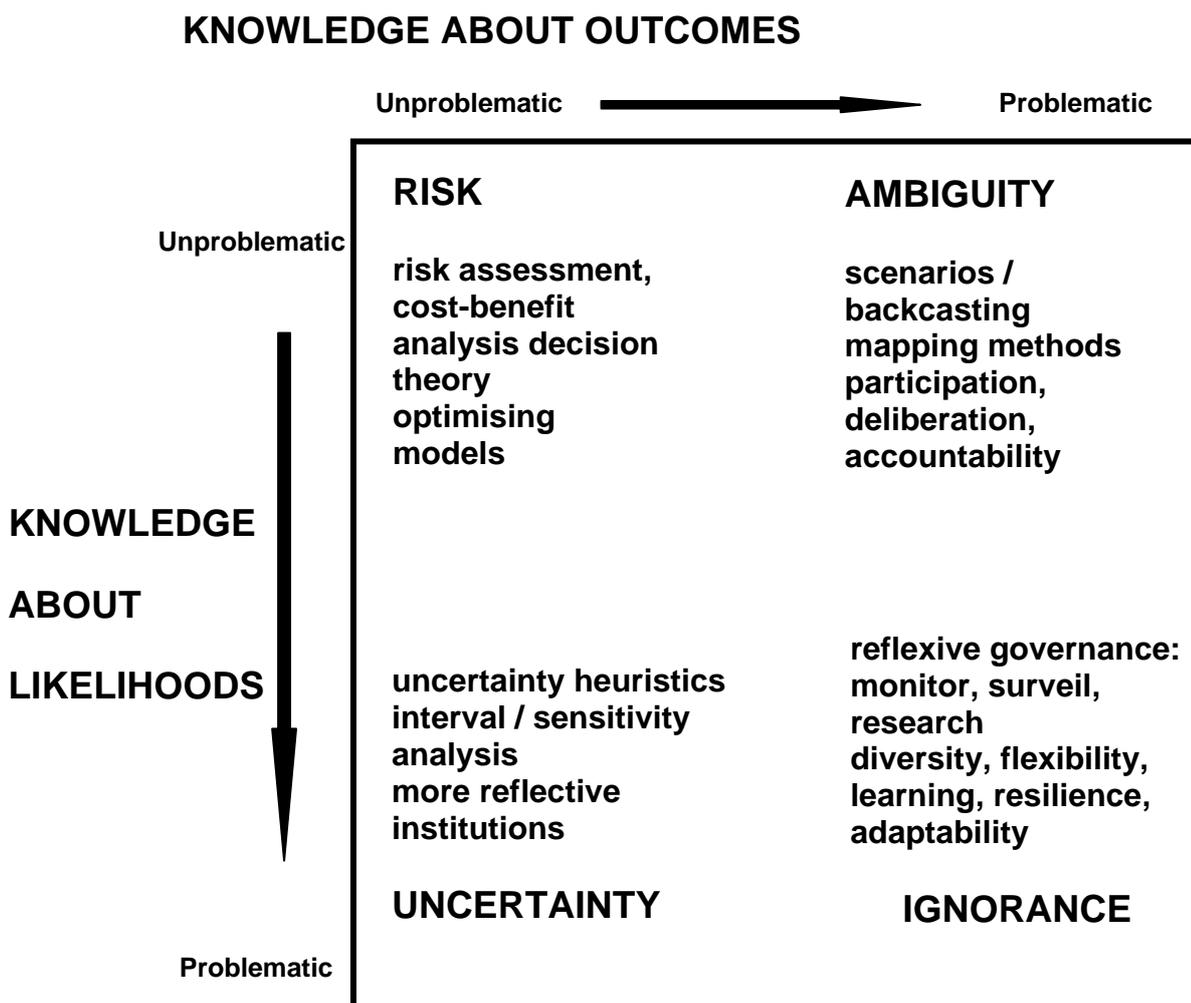
KNOWLEDGE ABOUT OUTCOMES

Unproblematic ➜ Problematic

Unproblematic

RISK

risk assessment, cost-benefit analysis decision theory optimising models

AMBIGUITY

scenarios / backcasting mapping methods participation, deliberation, accountability

KNOWLEDGE

ABOUT

LIKELIHOODS

uncertainty heuristics interval / sensitivity analysis more reflective institutions

reflexive governance: monitor, surveil, research diversity, flexibility, learning, resilience, adaptability

UNCERTAINTY

IGNORANCE

Problematic

Figure 1 - Forms of Uncertainty and Governance Responses

Acknowledgement: Figure based upon Stirling (2010)

Just as understanding the envisaged and desired outcomes of changing the global, social, cultural-political and economic circumstances in which we live today is a core task of risk research and policy, so is considering what this sets in train in terms of atrophying, setting aside or stymying – and not just realising different possible futures. Personal and social identities may not find obvious expression within the flow of social action as they may not be cultivated, may be neglected or superceded, or become stifled. There is merit in considering this issue and trying to bring to the surface the ways in which we can unwittingly (either through lack of vision, alternative priorities or disengagement) be storing up problems for the future. This question is addressed within risk research when it investigates problems of modernity (e.g. assumptions about scientific and technological progress, environmental degradation and ecological destabilisation, proliferation and anxiety about risk) and how they are being responded to. Exemplary types of studies are ones examining the risk perceptions of local communities living in close proximity to major environmental hazard sites, or the fortunes of global and locally situated environmental movements.

It follows from the above points that the approach we follow in this review recognises the importance of reflexively studying the various social, economic and political consequences of our practices for making risk knowable. In this we are influenced in important ways by inquiries into situated and local risk knowledge (Henwood *et al*, 2010; Wyatt and Henwood, 2006).

These inquiries point out that the risk field entails both the study of risky technologies (such as GM foods, nuclear power etc) and risky knowledge (e.g. the effects of scientific research when its outputs enter the public domain). A multiplicity of interpretations circulate between science and the world and it is possible to trace the way that people work reflexively with ideas about themselves, others and the environment, in different contexts to explore how they might be related to changing social relations and changing practices. Since knowledge spirals into and out of different social sites, and there are large spaces about which little is known, there is also much is to be learned from seeking to represent what may be called "silenced" social spaces (McKechnie and Welsh, 2002).

3.1 Key Points Arising

- A risk lens brings a focus on an uncertain and changing world, and the ways in which people's future orientation (towards a range of risks and uncertainties) has implications for how they understand themselves and their actions in the present. We take this to be a cornerstone of a risk approach to identity, and as a research tool for understanding social controversy and transformation.

- From a formal perspective, while attempts to address 'risks' often involve readily calculable probabilities and consequences we now need to recognise degrees of uncertainty, ambiguity and ignorance.

- A risk lens is compatible with a processual approach to identities: how they become created through temporally organised forms of everyday sense making and narrative, spanning connections made with the past and imaginings of future identities and relationships. As part of this risk arises within a series of socially derived discourses, upon which other issues then become layered – questions of morality, responsibility, blame and trust, or the dystopian visions of impacts upon society and environment when technologies go wrong. As a result some prominent risk controversies may not be driven any aspect of formal calculable risk at all!

- For policy purposes, and for forging or anticipating significant social change, a key issue to grapple with is how to conceive of people (both collectively and in our personal lives) in ways that recognise how they might act differently today in light of how they envisage their own and others' futures.

4. Welfare, Citizenship and Risk Society: A Window on a Political Controversy

Welfare policy is one important arena that has undergone a great deal of critical scrutiny for the ways in which its frameworks of understanding are now underpinned by ideas of risk – especially the risk society (Taylor-Gooby, 2004). The characterisation of late modern societies as 'risk societies' marks them out as being pervaded by a sense of concern about what is arising from the past and current actions and uncertainties about what is to be encountered in the future. Analyses of the effects of globally driven social changes, that have led to increased unpredictability and lack of knowledge of risk, point to a wide ranging list of unknowns (what the risks are, how to respond to them, and how to finance such responses) and a weakening of formal state political structures at nation-state and institutional levels (Edwards and Glover, 2001). These ideas originate from sociological thinking broadly labelled as risk society theory (see Beck, Giddens and Lash, 1994). These theorists argue that we have passed through the age of modernity (where enlightenment values around greater use of knowledge, science and technology offered the promise of further human progress and wellbeing) into the era of late modernity. Here, uncertainties about the future abound, and as a result personal anxiety about risks is heightened for the so-called 'reflexive risk subject'. Risk society theorists also point to an interaction between new global-local environmental risks and social changes: in particular, a shift in the locus of responsibility for dealing with risks (from state to individualised citizen), coupled, paradoxically, with a need to place greater trust in experts in our technologically sophisticated and connected world. Erosion of traditional social identities (the certainties formerly offered by class, profession, gender or family units) are also held to herald the reflexive risk subject, who must as a result chart his or her own risk biography/identity in an ever more uncertain world. As we discuss here and in other sections below, this situation is not confined to environmental issues, as it now creates particular difficulties for governments (such as in the UK) in promoting comprehensive, collective pooling of welfare risks (e.g. across the life course) or issues such as gender equality.

Discussions of the specific gaps and tensions that are opening up for public citizens across the life course (as workers, family members) raise questions about the neoliberal model of identity of active, consumer citizenship and its cultivation in preference to a form of passive dependence on state-provided financial benefits and welfare services. While welfare policy is directed more towards the future (e.g. fostering increasing maternal employment as a means to greater economic competiveness; providing child benefit for educational achievement and successful integration into the workforce) individuals are now expected to be more self-provisioning by behaving as responsible risk takers in an expanding present (see also this document pp17-19). This has come about through, for example, changes to pensions accruing with employment, the value of savings, and a later retirement age. Yet, as commentators in the welfare policy field have pointed out (Lewis, 2009), in a situation where there are significant obstacles to people gaining access to labour market participation it becomes more difficult for them to find ways to achieve reconciliation in old age, and this then becomes an important issue of social justice. This magnifies the challenges to both government and work age citizens in acting responsibly in providing for their futures.

Given this scenario, it may be increasingly difficult for government to provide the conditions that facilitate an orderly life course progression or lifelong relations of social justice. In a modern risk society, our ways of relating to one another continuously involves, and (in certain ways) reflects, a political, social and cultural milieu that is made up of powerful media discourses,

expanding modes of communications, and a flux of variously mediated everyday social meanings. As a result, how matters of risk, social justice and envisaged futures are reacted to by public citizens is the product of socially embedded expectations (e.g. about the idea of a social contract linking together the interests of citizens and the activities of the State) that are neither simply pre-given nor unchanging. A perceived shrinking of welfare generated by a risk economy (i.e. one that is based on a flexible labour market; Abbott and Quilgars, 2001) is accompanied by mistrust of alternatives to collective welfare provision (Taylor-Gooby, 2000). Consequently *new social risks* are arising from the current construction of the welfare state as promoting over-dependency and lack of social resilience.

In his review of the literature on risk, trust and welfare Taylor-Gooby (2000) identifies the following as new social risks: erosion of the institutional and personal mechanisms that generate social solidarity by promoting benevolent values; displacement of unselfish by selfish motivations; perverse incentives encouraging the very patterns of dependency policy is designed to curb (e.g. by reducing citizen duty to cash contracts); disruption of long term planning by sharp policy changes. It follows from this account that, where approaches to governance and economic vulnerability result in a proliferation of new social risks, they are far from achieving their goal of dislodging cultures of dependency and promoting people's capability to navigate risks and move through the life course in personally adaptive and socially transformative ways.

The term 'welfare citizenship' or 'welfare state citizenship' has entered academic discourse to refer to the shifting contours of relationships between individuals and the State. As access to systems of benefits and budgets for the economically vulnerable has become decoupled from universal rights geared to ameliorating deep-seated inequalities of health, wealth and happiness , national citizens are faced with the challenges and opportunities of taking up different identities in response to the shifting ways of addressing the distribution of risk. Growth in active welfare citizenships groups has been noted posing further questions about the ways in which members of the public are perceiving and responding to new forms of risks and welfare citizenship. Thus far three overlapping and coexisting types of welfare citizenship groups have been identified: citizen recipient, citizen consumer and citizen participant (Edwards and Glover, 2001). These forms of welfare citizenship offer culturally distinctive ways of identifying and responding to risk, although they have not, as yet, been discussed as ways of representing different 'identity futures'. Over the next 10 years Governments may need to take account of a proliferation of these (and other) possible welfare citizenships (Edwards and Glover, 2001) while, at the same time, remaining attentive to the rise of other matters of risk management, identity formation/proliferation of identities, and future orientation that reflect continuing debates about the changing fabric of today's risk society.

4.1 Key points arising

In contemporary society people are increasingly expected by the State to live in future oriented ways, by taking personal responsibility for providing for themselves and guarding against the consequences of becoming more vulnerable, e.g. in old age, when becoming a single parent, in periods of unemployment. But for many it may be currently very difficult or impossible to adopt such a future oriented identity: e.g. because of obstacles to market participation, barriers to an orderly life course progression, or uncertainties over the realisation of future benefits. For policy over the next 10 years, this raises profound issues of social justice, in that actions in the period may be storing up significant social risks for some groups into the further future, and with it the danger that certain sections of society will withdraw from such forms of individualised

welfare provision altogether. We note also that the traditional 'middle classes' may not be immune from such threats to their future identities, and that as a result the social contract of assumed upward mobility for all, existing since the WWII, may now be under considerable strain. In summary, the perceived destabilisation of the welfare state in the risk society now becomes a risk issue for all sectors of society.

5. Family Transformations: Rish, Culture and the Case of Modern Parenting

The importance of documenting and understanding the intensity and rapidity of recent social transformations, as part of broad processes of globalisation and modernisation, is well recognised among social and risk researchers including those in the field of family, relationships and identity studies (see e.g. www.crfr.ac.uk; Heinz and Krüger 2001; Jamieson, 1998). Family studies research asks questions about the formation, destabilisation and transmission of personal and social identities. In reviewing such work, it is possible to see how adopting a risk lens has significant implications for theory, practice and the creation of identity futures.

Families have long been studied in terms of their functioning as both social and cultural institutions and as sites of experience, identity and relationship formation. Political commentators have drawn attention to the importance of this when writing about how much "experience, wisdom and value is transmitted within the family … where the contract between generations is played out most personally for each one of us" and how "families (..) shape the deepest features of our society" (Willetts, 2010, pxxii). At the same time, families today find themselves in the vanguard of significant socio-cultural transformation and have to deal with the rapid pace of social change. There is no need to see the two priorities as in opposition as both can coexist within research that looks to innovate and sharpen ways of studying processes of intergenerational transmission and the integral part they play in family, relationship and identity dynamics (Brannen and Nilsen, 2006; McLeod and Thomson, 2009). Considerable efforts have been channelled into studying both continuities and changes in how family life is experienced and understood (Neale and Flowerdew, 2003: also www.timescapes.leeds.ac.uk), focussing on processes of identifications in and through time – not simply definitive change (Hockey, 2008). Conceptually and empirically a risk lens can be taken up to progress a range of related (but also distinctive) inquiries in this field, and it is possible to foster understanding of foresight related issues by looking to research that critically discusses i) the emergence of important late modern themes in contemporary life (such as the role of technology and expert knowledge, consumer culture, processes of reflexive biography, commodification of identity) ii) the operation of processes of governance in everyday life and iii) the implications of the recent economic downturn (a highly salient and still current risk issue) for family futures.

One area where a risk lens has been brought to bear to understand family transformation is in research centring on the study of intensive parenting culture (or discourse) (IPC). It is characteristically informed by a governmentality orientation within cultural risk theory (as described by Lupton, 1999a&b) which takes a strong constructionist perspective on risk by arguing that truths about risk are brought into being through cultural institutions and practices, and by studying how categories and meanings are mobilised in ways which enable social control through the regulation of subjectivity [3]. In common with risk society theory, this work has its backdrop in the changes associated with late modernity: an intensified awareness and anxiety about risk; increasing dependence on expertise; and a neoliberal model of autonomy

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[3] In contrast weak constructionism does not treat risk as a discrete phenomenon in itself, but as inextricably related to hazards (or objective threats). Both perspectives feature in this review.

and choice as drivers of identity and actions, particularly in relation to markets and consumption. As part of the widening and intensification of risk discourse parenting is positioned as one of numerous features of modern life that are considered risky (see e.g. Lee, Macavarish and Bristow, 2010). This brings into view the cultural dynamics that lead parents themselves to become depicted as a 'risk factor' in children's lives, and problematised for not being able to manage very well. They are also deemed to be in need of scientific advice from experts and, in this sense, there is an "emergent construction of parents as inadequate risk takers" (p295). Such research usefully exemplifies how risks can acquire new meanings as a result of social change while, at the same time, asking questions about the significance of understanding parenting in this way. It is easy to find formal and informal evidence suggesting that there is a public appetite for parenting advice (sometimes called "infotainment) in the popular media, and marketed based on the latest knowledge (Kehilly, 2010). Evidence also exists about parents preparing their own children for an increasingly risky world – for example by enhancing learning readiness (*see the website www.babyeinstein.com*).

Reflecting the critical social stance of the governmentality perspective on risk, a potent academic critique has developed of intensive parenting culture as a highly pervasive and powerful cultural phenomenon for its role in generating excess anxiety and an exaggerated concern about risk. Insights have been generated by this work by focusing on the way maternal, and to a lesser extent paternal identity, is formed in relation to the culturally validating powers of the discourses that cultivate the intensive parenting ethos (such as ideas about the 'proven' superiority of hospital births, breast feeding, father involvement etc.). As a result there has been a reconfiguration of the obligations of mothers and fathers, with some interpreting this from a critical perspective as destabilising the basis of established conventions, norms and lived relations (Furedi, 2008). The interpretive perspective more widely articulated in this research takes issue with the tendency for parents' everyday actions to be decried as putting others' health at risk when they do not accord with latest expert advice. The elevation of risk management to the status of a moral obligation is also problematised for making lack of risk awareness the contemporary equivalent of sinful behaviour (Lee *et al*, 2010; also Butler 2010). A further threat to contemporary parenting identities within risk culture arises when parents are led into double binds by appearing to be too risk averse, subsequently undermining their child's resilience (Hoffman, 2010). Out of this critique comes advice to policy makers and professional practitioners to be far more wary of making assumptions that discredit parenting identities and that disempower parents in their interactions with (health) professionals.

The above arguments point firmly in the direction of suggesting that parenting has been weakened in modern times, but has it? It is possible that, in dealing with parenting risk more in the manner of a moral panic, the negotiated and contested aspects of the situated meanings of risk that become highly visible in other domains of risk study (especially in hazard siting and locality studies; see e.g. Pidgeon, Simmons, Henwood, 2006; Parkhill *et al*, 2010, 2011; Pidgeon and Demski, 2012) have been obscured. When taking a historical view, as well as analysing contemporary accounts of the reconfiguring of notions of childhood and child-parent relations as a cultural text, a mixture of different kinds of identifications (romantic, late modern, scientific) have been found to be important in the popular imagination (Kehilly, 2010). This opens a window on the very different kinds of cultural distinctions that matter as mothers (and fathers) negotiate the meanings of the cultural identities they see as being on offer along with their expectations and aspirations for their future lives. Identities and aspirations on offer may privilege involvement in democratic relationships based on emotions and partnership over simply seeking to altruistically care, nourish or protect their children. In the Kehilly study, when risk awareness arose, it resulted from changing knowledge relating to medical services and technologies (such as ultra sound scanning and stem cell storage) - now being bought and sold

as insurance against anxieties over incurable diseases. Issues of risk and embodiment thus became incorporated into consumer culture and the commodification and commercialisation of identity, blurring boundaries around care and buying goods. Over the next 10 years it may be useful to follow this care-commodification relationship as a way of exploring risk as a driver of future identities. It may be useful to also draw on research concerning the relationship between personal and social change at "fateful moments" i.e. moments that prompt reflections and choices that are consequential for identity as it is experienced throughout the life course (Holland and Thomson, 2009). This could provide a new vision for policy research, which is often otherwise focused exclusively on problems deriving from social exclusion and poverty associated with working class parenting. As important as these are, analysis of pressures bearing on other groups of parents is suggestive, of rather different identity threats e.g. a growing fear of downward mobility among middle class parents (Thomson *et al*, 2011). A fateful moments research orientation may be better able to pick up on threats such as these along with its implications for family well being and social cohesion.

Noteworthy critiques have been directed at the body of research that has built up on IPC itself for undermining parenting rather than creating an understanding of its condition under modernity. IPC researchers acknowledge this dissatisfaction when they set out to refute the accusation that has been lodged at their work for "suggesting that parents are damaging the next generation by raising cosseted, cotton wool kids" (Lee *et al*, 2010, p. 298-9). This reflection could be indicative of the limitations flowing from adopting a governmentality lens, and make the case for stepping outside this lens and directing attention at other issues. For example, parents may see more possibilities opening up to them by participating as engaged citizens in a more democratised world where science and knowledge is debateable. This might entail more appreciation of the kinds of social and temporal contexts that could support the building of these, more future oriented identities. Another future-oriented strategy would be to look more closely at research findings from identity and relationships studies that have explored the ways in which modern parenting subjectivities are adapted through the multiple conditions and flows of time. This work studies the assemblage of ideas cohering around the contemporary demand for all parents to invest intensively in their children emotionally and economically, considers what counts (in response) as acceptable biographical, life and futures planning, and investigates forms of masculine and fatherhood identity (Coltart and Henwood, 2012; Henwood, Shirani and Coltart; 2011; Shirani and Henwood, 2011; Shirani, Henwood and Coltart, 2012). In a study of such issues examining how men responded to the latest economic downturn (Henwood, Shirani and Coltart, 2010) findings were that some fathers saw the financial crisis as hitting family life – not only in terms of introducing financial constraints but by promoting changes in their lives and making their lives and futures more uncertain. For some, financial decisions taken to secure their future plans became more risky while others revised their expectations and lessened their hopes for the future. All of these responses held consequences for the men's experiences, concerns and anxieties in the present – and were consequential for their own and other family members' (children, partners', grandparents') futures.

It is interesting to reflect on what these findings suggest about some of the sustained discussions within family and welfare policy, and issues that are capable of creating interest in the news media. In welfare and family policy circles government interventions have been promoted in inter-generationally transmitted cycles of deprivation, so that poor children do not become poor parents as adults. In the news media, a recent story about the apparent crisis among high earners who speak of how they rue their sacrifice of family life for the pursuit of opulence struck a chord with readers, priming a good deal of contestation about where such a statement's moral compass lies. Neither of these vehicles for public discussion of social issues

and family life capture the specific issues arising out of research findings that point to wide ranging implications of the mundane, practical accommodations made by fathers in lower and middle income families to their changing socio-economic circumstances: accommodations that were about managing change in the short term, but also about change in the making with consequences for their own futures and lives and for their linked lives with other family members.

5.1 KEY POINTS ARISING

Families are significant sites of experience, identity and relationship formation, and in the risk society find themselves in the vanguard of significant socio-cultural transformation and rapid social change. One topical example concerns intensive parenting culture (IPC), argued to be one way in which society is now responding to growing uncertainties and risk about the future. One unintended consequence is that parents and parenting are now themselves positioned as 'risk factors' in children's lives, with some families seen as in need of scientific parenting advice from welfare and medical experts. Critics in turn argue that the pervasiveness of IPC is itself generating a moral panic, full of excess anxiety and concern, where parenting identities themselves become unduly pathologised. But the academic and policy debate over the appropriateness of IPC may in fact be obscuring more deep rooted changes in families as they struggle to reconcile the multiple meanings of the cultural and risk identities they now find on offer (as consumers, as engaged citizens, as individualised risk takers, as parenting experts), along with their aspirations for the future. These debates are complex, and do not have easily discernable implications for identity or policy over the next 10 years, but do need to be understood further, as they may bear significantly upon ongoing transformations in everyday notions of risk, morality and blame.

6. Identity, Risk and Time; Future Ethics and Inter-generational justice

Thinking about questions of risk in different spheres (science, civil society, everyday life) generates awareness of the need to contemplate the kinds of journeys we are taking towards (as yet unknown) futures, along with the possible need, desire or drive for social change. Contemplating such issues necessarily implicates the diversity and complexity of people's senses of personal and social identity: that is, who they are, the places they inhabit in the world, and how their own lives and fortunes are linked with the lives and fortunes of others in ways that are temporally (as well as socially and culturally) embedded. We do not exist outside of time – and this issue becomes more apparent when identity is approached as processual, a life-long project that is made, worked on and, hence, to a large extent socially and culturally produced. Although strong in theoretical and methodological accounts (Adam, 1998; Henwood, Neale and Holland, 2012), especially within the field of health studies (Charmaz, 1991), and there is some dedicated writing on the biographical approach to risk (Zinn, 2005, 2010), the importance of considering identity processes and meaning making within the multiple trajectories and flows of time (biographical, generation, and historical) could feature more widely and prominently in studies of identity and risk (although see coverage of recent studies in the section on "risk, modernity and parenting"). Conversely, the study of futures is well developed in theoretical studies of risk, technology and the environment, where it is approached as a matter that requires understanding the fundamental relationship that exists between risk and *uncertainty* and where concerted efforts have been made to open up the study of *future oriented responsibility.* This work is provocative when considered in relation to currently topical and (for some) vexing social issues, such as intergenerational justice.

Science and technology is underpinned by the future oriented vision of scientific and technological progress, based on narratives of technological precision, control of risk, discovery and breakthrough. The picture that is built up is of an impending future, where developments in the here and now are represented as necessarily leading to new forms of knowledge and engineering. There is an ingrained belief that there are no limits to the powers of ingenuity and the human capacity for controlling uncertainty and scarcity of resources, so results produced will be enduring (Groves, 2009). In this view science and technological progress is seen as providing a future oriented solution to present problems. However, as an account of socio-historical change, it has been criticised as being too exclusively shaped by advances in engineering techniques. It is also too tightly tied into a technical risk discourse that sees technological problems as merely technical – and hence controllable and manageable - and where technology and its role in the changing world is understood as falling outside the arenas of legitimate social and political concern (Wynne, 1992). According to Groves (2009) work in the social studies of science and technology (also considered in the next section) usefully embraces both *narratives of expectation* (which are designed to showcase a technology's promise of a range of possible alternatives) and *narratives of risk* (which provide normative definitions of what are worthy and important uncertainties regarding the possible impacts of technologies). Such narratives have the potential to develop a less techno-centric concern for the social changes that are necessarily interwoven with, and encouraged by, technological developments and their commercial application. But it is also necessary to avoid generating accounts of how futures are produced out of current actions from narratives about inevitable progress and control. A new space needs to be cultivated where the limits of knowledge (of

risk) are placed at the forefront and where uncertainty is what remains after the production of knowledge has been carried out[4].

One such space is being opened up by the study of future oriented responsibility. According to Adam and Groves (2011; see also contributions to Okrent and Pidgeon, 2000) "(t)he phenomenon of technological hazards, whose existence is only revealed many years after they were initially produced, shows that the questions of our responsibilities toward future generations is of great importance " (p17). They go on to make a compelling case for linking identity and uncertainty, and by discussing how people are able to understand uncertainty and "make it liveable and meaningful" (p17). The identities, relationships and emotional attachments we form in our early years and throughout life, and that shape our modes of social relationship and biography, provide the key resources we need to deal with its normative and ethical significance. The process they call the "domestication of uncertainty" involves people being able to create narratives of care for others that create living links with the future, and that link agency and future thinking. These narratives have the capability to extend not only to family relatives and people otherwise known, but inter-generationally and also globally. In this way, the resources already exist within society for dealing with the characteristic of late modernity: of a spatially discrete but ever extending present – where our actions seemingly only gain meaning and significance with reference to our immediate transactions in the present.

The argument Adam and Groves make is about the moral and political significance of our uncertain relationship to future generations as constitutive of our identity and agency in the here and now. It is also a critique of modernity and consumer identities as viewed through the lenses of *ecological modernisation* (the view that scientific progress is consistent with environmental protection) and technical risk based thinking - where scientific and technological progress are seen as providing future solutions to immediate environmental and social problems. However, it is logically and theoretically derived and it is unclear how well the ideas will play out when s*et al*ongside empirical studies of how people deal with the difficulties they face in their daily lives, or how they create moral positions and identities for themselves in the process (Butler, 2010; Henwood, 2008). As with arguments for ecological stewardship, the assumption is made that ethical priority should be given to long term thinking (Chapin *et al*, 2011). However, it is far from clear how the undoubtedly wide-ranging issues of social and environmental justice will unfold in the future, or how people today can be enabled to create the kinds of spatial connections and temporal connections that are being demanded of them in their daily lives (Shirani, Henwood, Butler, Parkhill and Pidgeon, forthcoming). This is a question that is already located within academic and policy research on topics such as low carbon transitions and climate change mitigation, but it is early days and will run for the next 10 years. We envisage an open-minded and creative approach will be needed that will involve seeking new cultural practices for keeping the future in mind and fostering sustainable transitions.

6.1 Key points arising

Thinking about questions of risk generates awareness of the kinds of journeys we are taking towards (as yet unknown) futures, along with the diversity and complexity of personal and social identity. What global and local places do people occupy in the world, how are their lives and fortunes linked with those of others in the future, and what is the relationship that exists

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[4] A substantial part of the argument in Groves' (2009) paper is summarised in this paragraph.

between risk, uncertainty and future oriented responsibility? In studies of risk, technology and the environment, the concept of futures points to particularly problematic social and environmental issues, such as the depletion of the earth's resources as set against notions of inter-generational justice. However, it is far from clear how issues of social and environmental justice will unfold in the near future. Nor how people can be enabled to create within their daily lives the spatial and temporal connections needed for behaviour and practices which will support (rather than undermine) future equity and sustainability. For policy over the coming 10 years, we suggest that an open minded and creative approach will be needed for seeking new cultural and identity practices that keep the future in mind and foster sustainable transitions.

7. Sociotechnical Imaginaries and Emerging Risks – Future Oriented Visions of Promise and Abundance

A considerable body of academic work in science and technology studies considers the wide ranging personal and societal impacts of so-called 'emerging' or upstream technological risks on people. Relevant examples would include biotechnology (e.g. Grove-White *et al*, 1997; Novas and Rose, 2000), nanotechnologies (Royal Society and Royal Academy of Engineering, 2004; Pidgeon *et al*, 2009; Macnaghten, 2010), neuroscience (O'Connor, Rees and Joffe, 2012), synthetic biology (Wiek *et al*, 2012), and climate engineering (Corner and Pidgeon, 2010). Emerging technologies raise particularly problematic risk questions - both risks and benefits are highly uncertain and possibly unknowable, material manifestations of the technology (in terms of products or processes) have yet to be realised outside of the laboratory, and risk governance and regulatory structures are either fragmentary or absent. Because public awareness is likely to be very low, public risk perceptions and wider social representations are fragmentary or entirely absent (Pidgeon, Harthorn and Satterfield, 2011), while emerging technologies tend to be framed in policy and media discourse through a series of competing visions and narratives – at times highly utopian (of promoters) and dystopian (of detractors). Most fundamentally, some emerging technologies present the prospect of merging the material with the biological, visions which challenge or modify existing concepts of what it is to be human or a member of a social group, or which violate our existing shared representations of the 'natural' order of things. For example, varieties of human cognitive enhancement proposed by some nanotechnology promoters blur boundaries between personal identity and technology, developments in stem cell or synthetic biology research raises fundamental questions about the ways in which 'life' comes into being, while means for altering the earth's climate through geoengineering proposals challenge our views of what is the 'natural' environment.

All of the above raise identity issues, albeit at very different spatial scales. In this way, emerging technologies already challenge our existing notions of identity in both humans and natural systems, a development only likely to be exacerbated by future developments involving convergence between technological fields – between bio- nano- and information technologies (e.g. Roco and Sims-Bainbridge, 2003). The Nuffield Council on Bioethics is currently, in 2012, conducting an overarching inquiry into issues of ethics, governance and public engagement with emerging biotechnologies, and identity-related controversies may feature within this. Of course many emerging technologies involve very long-range developments, unlikely to be realised on the 10 year timescale envisaged for this review. At the premarket stage of development new technologies exist largely in terms of their future oriented versions of promise and abundance. However, such visions, as with other socially shared representations of risk (for example as discussed extensively around emerging health risks: see Joffe, 1999, 2011; Breakwell, 2007; Barnett and Vasileiou, in press), hold the capacity to impact upon people's current sense of identity. This leads to an interest in how the moral imagination of scientists is shaped, and the complications involved in negotiating the ethical dimensions of technology (Stephens, 2010). Macnaghten *et al* (2005) comment that "emerging technologies, surrounded by ambivalence and conflicting narratives of utopia and dystopia, provide fertile ground in which the moral dilemmas of modernity are rehearsed". Seen from a risk perspective emerging technologies raise issues around the (a) the nature of deep uncertainties (which go beyond the

capabilities of conventional risk assessments), (b) the impacts of science and engineering on humans and human culture, and (c) risk communication, public engagement and dialogue.

Emerging technologies bring to the fore concerns about fundamental uncertainties (so-called unknown-unknowns, including unforeseen disruptive future developments), and require very different management responses compared to conventional risk issues; such things as horizon scanning, uncertainty elicitation, scenario analysis and precautionary governance (van Asselt *et al*, 2010; Stirling, 2010). Current thinking within science policy is to move away from strictly risk-based approaches where such uncertainties exist, to ones which stress an extended process of continual reflection and 'responsible innovation' (Guston and Sarewitz, 2002; Barben *et al*, 2008; Owen and Goldberg, 2010). Emerging technology uncertainties are often characterised as posing 'trans-scientific questions' (Rosa, 1998; Royal Commission for Environmental Pollution, 2008; Royal Society, 2009), referring to those problems where questions arise that can be posed in the language of science as questions of fact, but in practice are currently unanswerable in those terms. For example, the question 'are such technologies safe?' will always be a matter of potentially unverifiable judgements and assumptions about the future. For trans-scientific concerns, then, considerations extend beyond the (important) issues of calculable risk, and risk management, to questions about the direction, application and control of innovation. These developments reinforce the proposition from risk society theory (Beck, 1992; Beck, Giddens and Lash, 1994) that technologies are one of the forces which threaten to destabilise and render uncertain our future, and to some extent our present identities.

Regarding impacts of emerging technologies on human culture, evidence from work on public engagement with a range of such issues shows clearly that they serve as a touch-stone for people's wider concerns about the direction of scientific and social progress, rather than of risks of the technology per se. Given sufficient resources people are perfectly able to reason about and debate emerging risk and technology issues with which they may have little day-to-day familiarity (e.g. Pidgeon and Rogers-Hayden, 2007; Barben *et al*, 2008), often engaging enthusiastically with the subject by drawing upon a range of shared cultural narratives and discourses regarding the ways science is located in (and shapes) society and people, and about both the promise and perils of scientific 'progress'. Empirical research now shows that public(s) responses to uncertain and emerging technologies exhibit an essential ambivalence towards the possibility of risks (e.g. Grove-White *et al*, 1997; Kearns *et al*, 2006; Pidgeon *et al*, 2009; Harthorn, Shearer and Rogers, 2011) – where hope for benefits is bound up with more dystopian narratives. Such narratives touch upon the morality of interfering with 'natural' systems (Bloomfield and Vurdubakis, 1995; Corner, Pidgeon and Parkhill, 2012), but also have strong social dimensions, as when developments in science are seen as running beyond the control of individuals or existing institutions (Macnaghten, 2010; Chilvers and Macnaghten, 2011), with a corresponding lack of trust in those promoting and regulating scientific developments (Poortinga and Pidgeon, 2003; Bickerstaff, Simmons and Pidgeon, 2008; Pidgeon *et al*, 2009). Indeed 'social trust' and risk is one of the most extensively studied topics in recent years (Cvetkovich and Löfstedt, 1999).

People also voice the view, in focus groups or deliberative workshops, that utopian visions can be undermined by human and institutional failings (Macnaghten, 2010); in effect that risk is socio-technical in nature (Turner, 1978; Perrow, 1984). Hence, the acrimonious debates about GM agriculture risks in the UK were shaped, for many people, through the lens of distrust engendered by the earlier BSE affair, and the view that 'if it can go wrong it will' (Marris, 2001; Horlick-Jones *et al*, 2007). Put simply, new technologies pose threats to people's existing identities and social relations in a variety of unanticipated ways, and as such hold the potential

to bring about extensive dispute, and resistance, from sectors of society where their own values and ways of life are threatened. Indeed, narrowing the conversation with people about new and disruptive technologies to issues of pure technology and 'risk' may overlook genuine concerns, and runs the very real danger of alienation from technology and further escalation of disputes (Wynne, 1992; Pidgeon *et al*, 1992). As Macnaghten (2010) puts it in relation to nanotechnologies, for policy we need to take forward several questions, including: "limits to intervention on nature and associated assumptions of control; the ability for advanced technology to transgress moral orderings; the inadvertent social effects arising from an artificialist account of nature and what an alternative might look like in practice; and whether it is prudent to experiment with technologies likely to produce irreversible effects". (p 34)

One response to disputes and controversies about technological and environmental risks has been to develop processes for risk communication (Pidgeon, Kasperson and Slovic, 2003; Pidgeon and Fischhoff, 2011), but thought of now in terms of two- or multi-way dialogues (Fischhoff, 1995; Renn, Webler and Wiedemann, 1995; Stern and Fineberg, 1996) rather than a simple provision of technical information from experts to public (the now discredited 'deficit model' of science communication). Proposals to develop such two-way risk communication processes are paralleled by approaches to public participation and engagement in science and technology policy advocated within the field of science and technology studies (see e.g. Irwin and Wynne 1996, Leach *et al*. 2005, Hagendijk and Irwin 2006).

However, the two approaches are often in tension, primarily because of the different theoretical and ontological commitments that the approaches imply. Risk communication researchers typically assume a weak constructionist epistemology: that, to some extent at least, objective hazards which might harm people do exist in the world (e.g. radon, automobile accidents, climate change), even when our knowledge of such phenomena can only ever be mediated through the lenses that society constructs (Pidgeon, Kasperson and Slovic, 2003; Rosa and Clarke, 2012). By contrast, the theories of dialogue and public engagement developed from within science and technology studies are typically founded upon arguments stressing strong constructionism and the fundamental operation of interests and politics in framing and legitimating what counts as knowledge about 'risk'.

As such, dialogue is seen as a means of fostering more democratic governance of science, as well as more 'reflexive' learning processes within the institutions of science and science policy themselves, and the development of 'scientific citizenship' through fostering processes by which the public form opinions through informed debate about an issue (Irwin 2001). Questions that arise in this regard include: who to trust to regulate, control and manage any risks? Who will be advantaged and disadvantaged by the institutional arrangements surrounding the technologies? Will decisions surrounding them be viewed as legitimate? Who gets to participate in technology decision making? Emerging technologies research and practice (e.g. the BIS/Sciencewise programme) now emphasises the importance of such 'upstream' public engagement (Wilsdon and Willis, 2004; Royal Society and Royal Academy of Engineering, 2004; Rogers Hayden and Pidgeon, 2007), as a way of allowing citizens to explore (often jointly with scientists) their own visions of future developments in technology and society. By extension, such methods provide means whereby alternative visions of the relationship between technology, culture and identity can be explored by citizens, although even here there is an emerging critique stressing the ways in which the current institutionalisation (since about the year 2000) of public engagement in the UK might also be serving to stymie openness in problem framing (see Wynne, 2007; Chilvers and Macnaghten, 2011).

7.1 Key points arising

- Emerging technologies (ETs) tend to be framed in policy and media discourse through competing visions and narratives – often either utopian or dystopian. They currently challenge some existing notions of identity in both human and natural systems, and this is likely to increase with future technology convergence.

- ETs also bring to the fore fundamental uncertainties, and as a result require very different risk management responses: e.g. responsible innovation processes, horizon scanning, and precautionary governance (see also Table 1). Although upstream in nature, emerging technologies serve as a touch-stone for people's wider concerns about the risks of scientific and social progress, the ways in which science shapes society, and the Janus-faced promise and peril of innovation. As a result public(s) responses exhibit an essential ambivalence towards the possibility of risks, and also reflect concerns that some areas of controversial science are running beyond society's control, fostering distrust of existing regulatory, industrial and scientific institutions.

- Over the next 10 years we expect further public contestation over specific emerging technology issues (e.g. synthetic biology, climate engineering), raising further potential for decline in institutional trust. But we also view this as an opportunity rather than a threat - a way of allowing citizens to explore alternative visions of the relationship between technology, culture and future identities.

8. Energy Transitions, Siting Controversies, and the Everyday Experience of Risk

A significant driver of change in our relationship with risks in the everyday over the coming decade is likely to be the various energy transitions needed to move UK society towards a low carbon economy, whilst also maintaining energy security (see e.g. DECC 2011; Butler, Parkhill and Pidgeon, 2012). Major changes are planned on the energy supply side as the country moves away from reliance on fossil fuels – developments in large-scale renewable technologies, more nuclear power, adoption of newer technologies such as bio-fuels and carbon capture and storage, upgrade and remodelling of the supply grids, are all envisioned as part of this transition. On the demand side also, the likelihood is that we will see greater use of electric vehicles, 'smart metering' of energy in the home, low technology interventions to improve efficiency, and multiple lifestyle changes. To be successful many of these interventions will have to involve people changing their behaviours and practices (viz their 'consumption identities') in a way which still ensures public and community 'buy in' (Spence and Pidgeon 2009). Energy production and use is therefore likely to become a site of contestation, and at times a perceived threat to fundamental identity positions as well as a site of future identity change. Contestation around identity is likely to occur, in particular, around valued consumption practices (which will need to alter, sometimes radically) and valued local places, communities and landscapes (Nash, 2008; Nash, Lewis and Griffin, 2009), which will need to accommodate new or upgraded supply infrastructure. If the routines of the everyday are to be interrupted in this way where do the burdens fall, and what changes to identity, culture and risk citizenship are likely or indeed possible? A related issue over the coming decade will be the fundamental changes occurring to the social contracts already in place around energy provision and use (Butler, Parkhill and Pidgeon, 2012). Here, the UK is currently moving from an earlier era, where the State and energy utilities were seen as having a primary responsibility to provide for the energy service and infrastructure needs of all citizens, towards a more market-driven system stressing profit maximisation and supply to individuals as 'consumers'. As a result people will have to take up very different identities in relation to the emerging energy 'markets'.

These issues are intimately connected with contemporary theorizing on 'risk cultures' and the structure of modern society. The cultural theory of risk (Douglas and Wildavsky, 1982) posits that external threats and risks will serve to define boundaries, creating in-group solidarities and constructing significant 'outsiders' and scapegoats to blame if things do eventually go wrong. Environmental and technological conflicts can then become as much about threats to local autonomy and social organisation (cultural theory posits 4 ideal types of such social arrangement – individualism, hierarchy, egalitarian, fatalism) embedded in existing ways of life and identity, as they are about the material risk issue at hand. Such cultural types also act as ideological filters though which people interpret new information about risks (Kahan, 2012). Risk society theorists, on the other hand, point to major environmental and technological risk issues as paradigm cases driving 'reflexive modernisation' (Beck, Giddens and Lash, 1994), with such uncertainties driving risk perception and personal anxiety for the reflexive risk subject. They point to the emergence of major global risks with local manifestations (e.g. climate change, nuclear power, chemical pollution), and which as a result the individual can do little personally to control. As discussed earlier, in this theory there is an interaction between these new global-local (glocal) risks and various social changes – in particular shifting responsibility for risks from state to citizen and the erosion of traditional social identities - with

the result that the citizen must chart his or her own risk identity in an ever more uncertain world.

Identities forged through existing local meanings around 'community' and 'place' come squarely to the fore in public acceptance and risk perception issues raised by siting controversies around hazardous or unwanted technologies, where we have a long tradition of research in both Europe and the USA (see e.g. Boholm and Löfstedt, 2004). Failure to site radioactive waste storage facilities, in many countries, is the paradigm case-study for this work (e.g. Short and Rosa, 2004; Mays, 2004). As a result, we know that facility risks, often real enough in their potential to do damage, become socially constructed and amplified (and at times attenuated) in perceptions through a set of dynamic social and communication processes involving the media, other institutions such as interest groups, regulators and local organisations, and the existing cultural filters and identities that people adopt (Pidgeon, Kasperson and Slovic, 2003). They also bring out debates about other issues of value to people - valued landscapes, freedom from outside interference in local affairs, threats to existing community cohesion and identities, local jobs and improved infrastructure. Indeed, in a very early paper Kates and Kasperson (1983) define risk itself in these very terms, as a "threat to people and things that they value". Such emotional attachments to, and meanings of, a place, as well as physical and symbolic attributes of a place all contribute to a collective sense of identity and value (e.g. Satterfield, 2003; Wester-Huber, 2004; Devine-Wright, 2009; McLachlan, 2010).

As the very recent disputes about renewable developments in the UK have shown, such contestation and threat to identity is already a feature of our energy politics and community engagement. To take just one example, in 2004 Peninsular Power Ltd proposed to construct a 21.5 megawatt biomass gasifier in Devon. Not only did the community doubt the credibility of the developer, but they argued that the industrial-scale technology would damage their quality of life, citing concerns of unhealthy plant emissions, as well as increased truck traffic, pollution and noise (Upham and Shackley, 2006). Public consultation also occurred late in the decision-making process, and, thus, community members struggled to make their concerns heard. This experience reinforced the community's distrust and negative perceived impacts of the proposal, and planning permission was ultimately refused. At a local level, such objections are often denigrated by developers, government and the media as an example of a NIMBY ("not in my backyard") response, which is the idea that people support a development in principle, as a common good, but then object to it near their home because they see local risks and little benefit. As Boholm and Löfstedt comment, however, such a 'rational actor' perspective is rarely adequate to understand facility siting disputes – where peoples' "collective everyday experiences, their notions of righteousness, morality and obligation, and not least their conception of themselves" (2004, p xv) all play a role. As a result, contemporary thinking is that NIMBY is a highly misleading label, that over-simplifies the issues prompting local concerns, and risks alienating further members of local communities that are being asked to host such developments (see Bell, Gray and Haggett, 2005; Ramana, 2011; Devine-Wright, 2011).

While some guidance can now be provided, based upon past cases, on the ways that siting processes might proceed, we would argue that energy siting disputes are set to become ever more acrimonious over the coming decade in the UK, and as a result a major focus for political and policy intervention. The key policy lesson (see Pidgeon and Demski, 2012; also Short and Rosa, 2004) is how best to design consultation processes such that the values inherent in renewable and other forms of energy are realized while also meeting 'acceptable' local conditions, which must be defined through open public participation. Three key insights arise from much of this work: local acceptance of perceived risks and other detriments go beyond

issues of strict technical safety; community concerns can rapidly escalate if planning or consultation processes do not pay attention to local views; and, above all, communities are inherently distrustful of the motives of large outsider institutions, both governments and corporations, which means that their actions and statements will be closely scrutinised, whether their motives are good or otherwise. Precisely how rural identities will be changed by large-scale developments in onshore wind, or new nuclear power, and whether conflict erupts between more 'rural' (who will mostly bear the new energy infrastructure) and 'urban' communities (who generally do not) will be a key risk and identity issue for future policy-making. Identity process theory, which we do not have time to review in detail here (see e.g. Breakwell, 2007; Devine-Wright, 2011; Barnett and Vasileiou, in press), suggests that some identities may be strengthened by the presence or prospect of major energy facilities, while others will be severely undermined.

8.1 Key points arising

- Energy production and use has become a site of fundamental threat to existing identity positions, as well as one of future identity change. Over the next 10 years challenges will intensify around valued consumption practices and valued local places, communities and landscapes. Such challenge will serve to define boundaries between in-groups and outsiders, with scapegoating processes also likely to set in to allocate blame where things go wrong.

- Hazardous facility siting risks are a good example of the epistemological contradictions which bedevil the field of risk research: often real enough in their potential to do damage, such risks become amplified and attenuated in perceptions through dynamic processes involving media, institutions, interest groups, regulators, local organisations, and the existing cultural filters and identities that people adopt. Siting disputes often hinge around issues of freedom from outside interference in local affairs, threats to existing community identities, local jobs and improved infrastructure. Research clearly indicates that NIMBY is an inadequate explanation for such disputes.

- For policy, and over the next 10 years, we expect further fundamental distrust issues to arise, between local communities on the one hand and energy developers, regulators and government(s) on the other. The key lesson from existing research is how best to design consultation processes such that the values inherent in renewable and other forms of low-carbon energy are realized while also meeting 'acceptable' local conditions, which must be defined through open public participation.

9. Community Identity, Risk and Stigma

If context, culture, and place all matter for understanding the complex relationship between risky facility siting and local identities, geographers have also pointed out, following the work of sociologist Goffman on spoiled identity, that contamination or other aspects of *existing* hazardous facilities can have stigmatising effects on communities too (e.g. Fitchen, *et al* 1987; Irwin, Simmons and Walker, 1999; Satterfield, 2000; Bush *et al*, 2001; Slovic, Flynn and Kunreuther, 2001). We now know that members of such communities adopt varied coping mechanisms to retain a positive sense of identity. Research has also shown that in risk crisis situations a sense of local identity and autonomy can be undermined where external expert knowledge and policy solutions are imposed inappropriately on, or do not take full account of, local knowledge(s) and expertise circulating within affected communities. Examples here include the response to the contamination from Chernobyl in Cumbria, where the local farmers held intimate knowledge of weather and other conditions on the fells, as well as the behaviour of their sheep, and as a result became exceedingly distrustful of the national government radiation experts' analyses (Wynne, 1996). Severe local criticism also followed the national 'one cap fits all' culling policy adopted during the 2001 foot and mouth outbreak, for failing to reflect local geographical conditions and community concerns (Poortinga *et al*, 2004; Bickerstaff, Simmons and Pidgeon, 2006). Crises are of course difficult to predict, by their very nature, but these cases show how nationally driven policy responses to risk sometimes needs to take account of factors other than the immediate received wisdom about the science of the risk issue at hand, and to be mindful of the impacts of policy decision on local communities and their sense of place and self.

The last decade saw various major risk crises emerge for UK government departments (including foot-and-mouth disease, but also the Icelandic ash cloud, the East Anglia climate e-mail controversy in 2009/10, and latterly the Fukushima disaster). Analysing the case of climate change, Pidgeon and Fischhoff (2011) make the generic argument that, despite the existence of much world-leading academic expertise in risk perception and communication research (of which the UK is at the forefront), the necessary strategic capacity in risk communication to meet such challenges is sorely lacking. The end result is that policy responses are often ad hoc. A more systematic, evidence-rich approach would involve (a) extended dialogue with various publics ('strategic listening') and (b) significant institutional capacity spanning both academia and policy ('strategic organisation'). Likewise the House of Commons Select Committee on Energy and Climate Change (2012) in its recent report *Devil's Bargain: Energy Risks and the Public* recommends that a risk communication strategy team be established at Cabinet Office or Civil Contingencies Secretariat level. The lesson from the current review is that such risk communication efforts should not ignore the critical identity issues that are likely to emerge during major crises.

It is not always the case that local communities are universally 'stigmatised' by risky developments located in their midst. Our own work at Cardiff on local communities and nuclear power illustrates this only too well, with views around existing UK nuclear power stations both complex and nuanced. A common assumption is that people in these locations will be overwhelmingly positive about nuclear power, because of local economic benefits. Risk society theory, and also the various 'stigma' accounts, would predict the opposite, with heightened local anxiety a result of hosting such developments. Surveys conducted at such locations show that local communities do tend to be somewhat more positive about nuclear power in the aggregate compared with samples living elsewhere in the country. However, detailed research

again suggests a more complex picture and the need to look beyond the headline statistics. In our in-depth interviews conducted over 2004-2007 around the Oldbury and Bradwell stations, we found that many nearby local residents did express confidence in site activities. For most of the time people saw their existing local station as both a familiar and unremarkable feature of the locality, and confidence and trust in plant activities and those who managed the plants locally (through a sense of common fate) had also built up over time (Venables *et al*, 2009; Parkhill *et al*, 2010). However, almost everybody we interviewed could also recount instances (news of the Chernobyl disaster, the London terrorist bombings, a friend being diagnosed with cancer) where the 'extraordinary' risks of nuclear power (Masco, 2006), and with this very real personal anxieties, had been brought home to them in a powerful way (Parkhill *et al*, 2010; see also Zonabend, 1993). People at such locations also deploy various forms of humour and irony in their talk about nuclear power and its potential risks, in order to express uncertainties and anxieties which might otherwise be 'unsayable' or difficult to voice in public (Parkhill, Henwood *et al*, 2011), while their sense of local identity was related in complex ways to support for the existing and possible future power stations (Venables *et al*, 2012).

This work on 'nuclear communities' is an example of a small but growing group of studies within risk research which seek to describe people's responses to risk issues through an interpretive lens (mostly using qualitative methods), and in all their richness and complexity. Such methods allow close understanding of how both social location and local identities impact upon risk perceptions and aspects of everyday life (Pidgeon, Simmons and Henwood, 2006). Seen in this light the responses of our participants were definitely not the eternally anxious risk subject described by risk society theory which, as others have also commented, fails to provide an adequate psychology or sociology of the complexity of risk experience and identity as these play out in the everyday (Tulloch and Lupton, 2003; Mythen and Walklate, 2006; Henwood, Pidgeon, *et al* 2010).

9.1 Key points arising

- In risk crisis situations (which, by definition, are not easy to predict individually) a sense of local identity and autonomy can be undermined where external expert knowledge and policy solutions are imposed inappropriately on, or do not take full account of, local knowledge(s) and expertise circulating within affected communities. Nationally driven policy also needs to be mindful of the impacts of decisions on local sense of place and self.

- The last decade saw various major risk crises emerge for UK government departments (foot-and-mouth disease, the ash cloud, climate e-mails, Fukushima), and we should not expect the next decade to be any different in this regard. This experience suggests that strategic capacity in risk communication is currently lacking in the UK, with the result that initial responses can be ad hoc. Future risk communication efforts should endeavour not to ignore the critical identity issues that are likely to emerge during the handling of such crises.

- Even in local communities which appear positive and accepting about local risk issues (e.g. some nuclear power sites), events can arise which trigger awareness of the 'extraordinariness' of local risk, and with this personal anxieties harboured within communities. The idea of an eternally anxious risk subject, described by risk society theory, fails to accommodate the complexity of such risk experience, including the unsayable threats to identity in the everyday.

10. Gender, Risk and Technoscience

There is an established literature in the risk field on gender and risk perception where the empirical evidence on public perceptions of technological, environmental and health risks (such things as nuclear power, chemical hazards and biotechnology) has identified complex empirical effects associated with gender. Such studies typically utilise quantitative survey methodologies to elicit judgements reflecting the cognitive and social psychological determinants of beliefs about risk: the so-called 'psychometric' paradigm (see e.g. Slovic, 2000). While general socio-demographic variables do not systematically predict either risk perceptions or people's judgements of risk acceptability, the clear exception to this rule is gender, with a longstanding and consistent finding being that male respondents in quantitative risk perception surveys tend to express lower levels of concern when asked about environmental and technological hazards compared to women. This effect is empirically very robust, appearing across a range of studies asking about different risk issues and using a variety of question sets (see Davidson and Freudenburg, 1996; Gustafson, 1998). Yet, the actual size of the 'gender effect' is typically small in statistical terms, (statistical effect sizes of the order of 0.2-0.4 are reported in many studies).

A frustration often expressed with this literature is the way it fails to offer properly theorised explanations of why the observed relationship between gender and risk perceptions might occur. There are a number of hypotheses in the risk literature which attempt to explain patterns of risk perception in individual (gender) difference terms. For example, it has argued that women might be less familiar with science and technology than men; that men are more concerned about their external role as economic providers whereas women with children are more concerned about health risks; or that women tend to be more distrustful of government, science and technology, something which is related to increased environmental concern. Many of these gain only mixed or weak support according to Davidson and Freudenburg (1996) in their classic review of this literature. One explanation that does gain some support according to Davidson and Freudenburg is the 'safety concern hypothesis': this is attributed to women's role as nurturers and carers of their family unit which is extended to their local community and hence invokes a greater concern for both. In addition to the Davidson and Freudenburg findings, some recent studies have also begun to question the presumed universality of the gender effect. Flynn, Slovic & Mertz (1994) suggest that observed gender 'differences' may be due to a small group of men within their sample who hold much *lower* risk perceptions than other demographic groups: the so-called 'white male effect'.

Within the field of gender research there is rich vein of theory to aid in the task of making sense of both women and men's experiences, identities and lives. There is also a small amount of innovative theorising about the multiple axes of identity and difference (ethnicity, race, culture), which foregrounds the role of subjective perceptions of vulnerability in mediating risk perceptions (Satterfield, Mertz, and Slovic, 2004). A longstanding problematic has been why gender apparently exerts such a powerful influence within society, s*et al*ongside recognition of the complex and diverse ways in which gender, and interpretations of gender, can operate. Contemporary thinking in this field tends to eschew essentialist or fixed accounts of gender 'differences'. Rather, researchers ask what empirical findings about sex and gender difference might mean, how they relate to controversy about men and women's positions in society, and how they are related to people's life-projects. Reflecting these concerns, Gustafson (1998) has pointed out that the traditional 'gender differences' explanations of the risk and gender effect might be limited by the exclusive use of evidence drawn from quantitative surveys, and

recommended a more interpretive qualitative approach to analysing how men and women construct understandings of risk issues.

An Economic and Social Research Council supported project (Henwood and Pidgeon, 2007) aimed to overcome the above criticisms both by interrogating wider theorizing about gender and taking a qualitative empirical approach. One of the main conclusions reached from that project was that the cultural reasons for explaining the gender and risk effect lie within the placing and gendering of technology within the social, cultural and historical context of modernism, and the obdurate relationship that this sets up between masculinity and technocentric forms of epistemic subjectivity. Mastery and control over technology and its associated risks are also central to this relationship with masculinity; and provide one reason for many men showing a relative lack of concern for possible dangers. The risk of gender inauthenticity (Faulkner 2000a&b), for both men and women, when they speak and think about technologies, the environment and risk, means that they do not necessarily differ in levels of concern: rather, their gender positioning reflects a social patterning of beliefs about who is socially sanctioned to express that concern.

Accordingly there is an extensive field of research focussing on this most familiar form of identity, gender identity, that can be mined in connection with technological developments and futuring (see e.g. Cockburn, 1985; Faulkner, 2000a&b, 2007; Kvande, 1999) and to consider the relevance of gender and risk to other possible drivers of social change. Confidence in technological progress can be underpinned by a gendered form of 'epistemic subjectivity' (Henwood, Parkill and Pidgeon, 2008) where masculine ways of knowing and identity, such as the value of exerting mastery over the natural world, are placed in a hierarchical relationship over other forms that rely on different values (e.g. of social connectivity or care, over dominance). As a form of gendered epistemic subjectivity, being able to act on the desire for mastery can be experienced as identity enhancing and pleasurable, but this is bound up with a repudiation of more disturbing thoughts and feelings (about, risk, uncertainty and the feminine 'other'). Consequently the question can be raised (as an hypothesis) that there may be unseen identity benefits to some people from efforts to find ways of engineering ourselves out of our environmental difficulties, such as through geoengineering the planet (Bronson, 2012; Pidgeon *et al*, 2012).

One immediate issue arising from this is the need to understand and critically reflect on the value of traditionally embedded identities in terms of the transmission of learning and skills and the kinds of investments that continue to be made in long standing identities and traditional life forms, while other aspects are changing. In the contemporary study of masculinities, how identities are reworked, how they remain the same while being practiced in different ways (Lin and Mac an Ghaill, 2012), and how discourses bring back desired change into older established patterns (Coltart and Henwood, 2012; Finn and Henwood, 2009) is a popularly researched theme. It is highly relevant to current efforts to understand that landscape of public perceptions around risky technologies that feature at the crossroads we currently face in relation to energy policy e.g. nuclear power (Pidgeon, Lorenzoni and Poortinga, 2008) and pathways to more sustainable futures (such as by reducing energy consumption in everyday life: see www.energybiographies.org). In some technological arenas ingrained gender dichotomies are working in ways that would not have been expected only a few years ago (e.g. gendered use of mobile phones to organise daily life and manage the time squeeze on families; Rakow and Navarro, 1993; Lemish and Cohen, 2005). The slow motion (Segal, 1990) of change in some areas sits alongside rapid changes in others. The study of identity reworking (as discussed immediately above) and imagined futures (Edley and Wetherell, 1999) have proved to be fruitful ways of highlighting the kinds of ideological dilemmas that modern citizens

(young and old) are facing and how they are being negotiated in ways that will pave the way for identity making over the next 10 years.

10.1 Key points arising

- Risk researchers have studied the relationship between various social categories (e.g. gender, race, class) and risk perceptions of technological, environmental and health risks in surveys, although some are particularly difficult to investigate. Empirical evidence has identified complex empirical effects associated with gender, but explanations are poorly theorised. Identity and culture would seem to be an important driver here.

- Reasons for explaining the gender and risk effect lie within social, cultural and historical context of modernism, and provide an alternative to the now discredited 'deficit model' of public understanding of science: the idea that lack of acceptability of risk, in this instance as expressed by some women, merely reflects a lack of science education. In particular, for both men and women, when they speak and think about technologies, the environment and risk means that they do not necessarily differ in levels of concern: rather, individuals differ in the ways they believe they are socially sanctioned to express that concern. The danger for policy in this area is that simple deficit thinking (as a response) retains its allure, when what is needed is a sensitivity to the multiple identity-based drivers of risk perception.

11. Environmentally Damaging Identities and Consumption

A recent article highlighting the aspects of identity that are environmentally damaging and those that are helpful has sought to question overreliance, within some pro-environmental change movements and interventions, on specific behaviour change initiatives on the grounds that they may be counterproductive for failing to address people's more deep seated, valued identity concerns (Crompton and Kasser, 2010). Similar objections have been made to the current fashion for social marketing and individually-based 'nudge' approaches to environmental and other pro-social behaviour change (based on the principles of decision psychology and behavioural economics). While entirely compatible with a calculable risk framework for policy analysis purposes, such approaches may in reality be promoting social identities and values incompatible with genuine and long-term environmental stewardship (see Pidgeon and Butler, 2009; Jackson, 2009; Corner and Randall, 2011). More generally, they may be adopting too instrumental a means of understanding why identities are or are not valuable in policy terms. Other highly instructive work, located in political social science, highlights the importance of understanding the operation of civil society as it exists at the junction between local and global networks, for contributing to changing perceptions of social justice, legitimacy and the public good and capturing the changing historical and geographical conditions potentially affecting state and society relationships. Torsello (2012) in a study of civil society in the context of European enlargement asks what notions can civil society not do without? National traditions of civil society can play an important role in the ways in which risk issues are promulgated and perceived. Identities are mobilised as a process of active engagement with civic discourses, such as corruption, where people become members of local environmental campaigns. It is important to recognise the wider, but also locally situated, dynamics at play when controversial and unknown risks that people come to see to their communities and ways of life set up dynamics that may or may not authorise them to become environmental/techno/consumer citizens (see also Macnaghten, 2010).

We also know that more attention needs to be paid to the tendentiousness of assumptions made about processes of identity formation, and their implications for mobilising public engagement and action in relation to risk in everyday spheres of living. Consumption is an area where research has frequently misjudged the impact of processes of social change in relation to questions about the anxieties, freedoms and personal responsibilities that are tied up with the power to choose – or reflexively create – one's own biography (Warde, 1994). Processes of group formation and social regulation are important here leading to a modification of the relationship between consumption and self–identity (ibid). In relation to green consumption – a rising issue in the next 10 years – research is starting to look at how to answer intractable questions about the morality of lifestyle choices. Green consumption, when looked at through the lens of reflexive biography theory, involves global patterns feeding into consumer lives and global change is bound up with actions at a local level (Connolly and Prothero, 2008). This sets up different sets of dilemmas that have to be dealt with to live the right way, raising the research question 'why people feel under pressure to make pro-environment decisions?' Results from Connelly and Prothero's study show that although people are feeling powerful over problems and solutions, this is accompanied by other feelings of indecision and confusion over what to do. We see a need to build on such work specifically discussing questions of risk in relation to people's values, identity and consumption. As advanced in many different variants of risk theory, one of the main tenets of modernity is its contribution to the creation of risks, not

just elimination of problems causing hardship. This is not just a point about a perception that modern life is becoming inherently more risky. It is about a problem that involves institutional disembedding mechanisms and reflexivity creating new risks and dangers. This greatly complicates our relationships with our own experiences, values and knowledge.

11.1 Key points arising

Overreliance on individually-based behaviour change initiatives to problems of overconsumption and the environment (e.g. the current fashion for 'nudge' and behavioural economics approaches) may be counterproductive since they typically fail to address people's more deep seated, valued identity concerns. Other work locates understandings of sustainable transitions as occurring at the junction of local, civic and global networks. This foregrounds the process of identity mobilisation, where people become members of local environmental campaigns, and raises opportunities for forging new forms of citizenship. Problematising the ubiquity of people's identities as currently anchored in unsustainable consumption practices, and an economic growth ideology, sets one of the most intractable challenges in the energy and sustainability area for the coming decade.

12. Concluding Comments

A risk lens brings a focus on an uncertain and changing world, and the ways in which people's future orientation towards a range of risks and uncertainties is a cornerstone of identity. This review illuminates how the intersection of risk and identity issues is important for a range of domains of current and near-future policy importance: including welfare, the family, the environment and consumption, new technologies, and energy transitions. An overarching theme of this review has been the ways that people are increasingly being expected to take personal responsibility themselves for providing against a range of risks in contemporary UK society, something which creates new identities (and associated ideas of citizenship) alongside raising challenges to existing ones. We conclude here that, for many, it may be very difficult or impossible to adopt such a future oriented identity and associated behaviours, storing up significant unintended material and social consequences for some groups into the future. A not unrelated issue is that a number of the social contracts established post-1945 between State and citizens regarding responsibility for risks are likely to come under increasing strain over the next 10 years and beyond.

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