

Will insects inherit the Earth? Climate change, sociology and education

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Abstract

Climate change threatens the survival of human society, animal species and ecosystems but for the most part sociology and education have been notably silent on such matters. This paper discusses the relevance of sociology and education to the identification and clarification of issues concerned with sustaining human social life under changing and variable climates. It argues that sociology in general brings a corpus of knowledge, investigative approaches and theories concerning human social behaviour to bear on climate change matters, and the sociology of education in particular raises important questions and concerns about the social aspects of education and learning in institutions and elsewhere. Such understandings are essential if we are to achieve the degree of change social change necessary to secure human survival.

Keywords: Climate Change, Sustainability Education, Sociology of Education

Introduction

As the acid seas rise, glaciers melt, rivers dry, corals crumble, deserts spread, forests burn, tundra buckles, storms surge, animals die and people starve, it may be that humanity has only two or three centuries of habitable environment before nature corrects the imbalances we have caused and the insects inherit the earth (Ainley 2008:214).

Climate change poses one of the greatest threats to the survival of human society, animal species and ecosystems, but while scientists debate the degrees, levels and timescale of change as well as adaptation and mitigation responses, social scientists appear to have little to say on the matter. This silence is troubling since it is apparent that to avoid future disorder and chaos fundamental and wide-scale social

reorganisation will be necessary. The disciplinary expertise of social scientists is required to generate sophisticated understandings of the social world, its relationship with natural, economic and political systems and the achievement of change required to sustain human survival.

This paper discusses the role sociology and education can play in clarifying and addressing matters concerned with sustaining life under changing and variable climates. It argues that sociology brings a corpus of knowledge, investigative approaches and theories concerning human social behaviour to bear on climate change issues; and that the sociology of education raises important questions and concerns about the social aspects of education and learning in institutions and elsewhere.

The failure of sociology to address global warming is in part due to the marginalisation of the natural sciences: ‘...sociologists are unwilling to be disturbed by the voices of natural scientists, reporting from inaccessible upper atmospheres, ancient ice cores or deep oceans, where no social facts exist’ (Lever-Tracey 2008: 454). While environmental sociology has grappled with more effective ways of conceptualising the relationship between the social and the ‘natural’, the epistemological claims of sociology are based on the argument that it should focus on social phenomenon and study social facts through other social facts (Carolan 2005). Efforts to reconceptualise the mutually constitutive dynamics of nature-society relations have been undertaken by Latour who theorises the relationship as hybrid and comprising ‘equally “impure” heterogeneous “chains of associations” ’ (Latour, cited in Carolan 2005:394). Although Latour’s work moves us towards a more relational understanding, it is not clear how it might assist us to pursue ethical solutions where we need to differentiate human actors and their hybrid social-natural relations, from other forms of being to underline human responsibility (Soper 1995, cited in Carolan

2005:395). The problem as Carolan (2005:394) puts it relates to a fundamental ontological asymmetry where it is possible for the biophysical to exist without the social, but the reverse is categorically impossible.

Another explanation for sociology's absence from climate change debates is its longstanding suspicion of teleology and indifference to theorising the future (Lever-Tracey 2008). Although sociology was borne of the desire to understand and influence the massive social upheavals of capitalism, industrialisation and urbanisation, and although it adopts a similar position in relation to transformations wrought by globalisation, urbanisation, and consumerism, it is wary of engaging past and present, to inform the future. The 20th century is for many sociologists a 'permanent present' where 'the discounting of the past parallels inattention to the future' (Hobsbawn, cited in Lever-Tracey 2008:452).

This paper was prompted by my involvement in multi-sectoral climate change project where I encountered scientists who recognised the importance of the social, and the need to make climate change science socially relevant, and yet had limited understanding of how the social operates. I realised that the disciplinary terminology, theories and frameworks of the social sciences were not embedded in the conceptual frameworks of natural scientists. As an educational sociologist, I am accustomed to bringing the tools of my trade to a wide range of situations and scenarios but in the case of climate change I found it necessary to first familiarise myself with the issues, terms and conceptual apparatus of climate change science.

To pursue its aim of identifying ways in which sociology and education might contribute to addressing climate change, this paper proceeds with a brief clarification of climate change issues and terminology concerning such things as 'adaptation', 'vulnerability', 'mitigation' and 'adaptive capacity'. It then turns to

address the particular focus and concerns that sociology brings to the debate. The paper closes with the argument that sociology of education expands, politicises and diversifies pedagogical and curricular work undertaken in environmental and sustainable education. In addition, the sociology of education stimulates interrogation of the construction of climate change science, knowledge and solutions.

Climate change issues and terminology

‘*Climate change* in IPCC usage refers to any change in climate over time, whether due to natural variability or as a result of human activity’ (IPCC 2007a, p. 6). Terms like adaptation, vulnerability, mitigation and adaptive capacity have little traction in sociology and yet in climate change science they refer to complex and critical sets of social changes. The IPCC defines *adaptation* as the ‘adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities’; *vulnerability* is ‘the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. It is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, the sensitivity and adaptive capacity of that system’ (IPCC 2007a, p. 6). ‘*Adaptive capacity* is the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.’ (IPCC 2007a, p.21); and *mitigation* refers to ‘an anthropogenic intervention to reduce the source or enhance the sinks of greenhouse gases’ (IPCC 2007a, p. 750). However, much as these concepts seek to capture the actuality of the environmental changes confronting the world, and the form of changes required by human societies, they are barely able to connect, let

alone converge or align with the kinds of implicit understandings common in the social sciences such about the significance of socio-economic disadvantage, and its intersection with poverty, race, gender and health.

Climate change and environmental scientists have achieved a new level of relevance. *The Syntheses Report - Climate Change: Global Risks, Challenges and Decisions* (IPCC 2007b) draws together the latest research presented to the International Scientific Congress on climate change held in Copenhagen (Richardson et al. 2009). It argues that the previous assessments underestimate the extent of warming trends. In 2007 an increase of between 1.8 and 4 degrees was proposed. It was anticipated that the increase in average global temperatures would stay below 2 degrees and there was a possibility of averting long-term irreversible damage such as the melting of the polar icecaps. Current findings suggest that we are already on our way to a worst case scenario increase of 4 degrees. The *Syntheses Report* states that the science unequivocally shows that we are: ‘influencing the climate in ways that threaten the well-being and continued development of human society’ and the time has come to control activities ‘that are changing the conditions for life on Earth’ as well as inform national leaders and the public (Richardson et al. 2009: 6).

The *Syntheses Report* delivers six messages:

Unabated emissions will accelerate abrupt irreversible climate change;

Societies and ecosystems are vulnerable and rises of above 2 degrees will cause major social and environmental disruption, particularly to poor nations, ecosystem services and biodiversity;

Global and regional mitigation policies and actions are required to promote energy efficiency and low-carbon technologies;

Adaptation safety nets are needed for equity groups least able to cope;

Economic, technological, behavioural, and managerial tools exist to effect the social transformation required to decarbonise society: ‘job growth in the sustainable energy sector; reductions in the health, social, economic

and environmental costs of climate change; and the repair of ecosystems and revitalisation of ecosystem services' should be deployed; and

Innovative leadership in government, the private sector and civil society is required to reduce social and economic inertia and to link 'climate change with broader sustainable consumption and production concerns, human rights issues and democratic values' (Richardson et al. 2009:6).

While anticipated changes and actions appear clear enough we still need to know more about its differential impacts on various social groups, communities, industry sectors, animal species and ecosystems and the ways that adaptation and mitigation responses in one sphere might affect the adaptive capacity of others. Importantly it is necessary to understand the critical role of education in steering society and forming culture (Connell 2008) in the directions necessary to sustain human life on earth.

Sociology

Sociology has a key role to play in climate change research and debate, and to understandings of necessary action and change. Sociology focuses on social relationships, organisations and institutions and brings to understandings of climate change a broad basis of concern about social justice, the socio-economic ordering of resource distribution, and the role of power differentials (race, ethnicity, gender, socio-economic background and sexuality) in shaping access to social goods and the reproduction and amplification of social inequality. In addition sociology brings an extensive body of knowledge in the field of disaster research, health, security and conflict, demography, governance, risk assessment, consumer culture, advocacy and action research, organisation and networks (Nagel et al. 2009).

A recent and provocative position on climate change is taken by Giddens (2009) who argues that the intangible nature of the problem in terms of time-scale and location makes it difficult for people to grapple with. However, since the solution to climate

change is not to be found in individuals or activist groups, but in nation-states and politics, the issue of individual understanding and action are somewhat superfluous to Giddens account. Rather, he sets store by the ‘political transcendence’ that will be achieved in the establishment of radical supra-national political policy agreements.

A recent American National Science Foundation workshop identified the contribution of sociology to theoretical and methodological strategies concerning the relationship between humans and their natural world (Nagel et al. 2009). A brief summary of findings are listed below:

Political economy: the relationship between national economy, political organisations, resource extraction regimes, population demographics and carbon dioxide emissions; discrepancies between less developed and highly developed societies and implications of urbanisation, industrialisation and consumerism; drivers of economic growth, modernisation, multi-national corporations, green washing; understanding assumptions about progress, individual rights, consumption and quality of life.

Human ecology and environmental impact models: the socio-spatial dynamics of climate change and impact on physical environments; place-based approaches to migration, resource competition, disaster relief and local experiences of global effects.

Stratification and status-attainment effects on production and consumption: social factors driving excessive production, consumption and high waste; the dynamics consumption, status and advertising and how they affect behaviour in disregard of environmental consequences or personal financial cost.

Cultural and meaning systems: how social and cultural processes shape attitudes, discourses, and ideologies in public debates and policy processes; how the public defines climate change as a problem and determines as acceptable or unacceptable; how scientific claims and national agendas are shaped to promote or challenge public

knowledge and opinions about global climate by organisations such as the media, public relations firms, political think tanks, activists; socio -psychological factors causing action or denial.

Policy process research: factors shaping climate policy formation, implementation, and effectiveness within and across states and countries; local, national, and international policies governing greenhouse gas production, political processes associated with climate change attitudes and policies; effects of institutions and interest groups on the policies. Interactions between states and non-governmental/ intergovernmental organisations, evaluating the effectiveness of policies; social and cultural factors influencing attitudes about climate change.

Social organisation of science and science policy: The impact of partisan politics on science and science policy; the translation of climate change science into public understanding and policy; the role of experts; policy and individual and collective behaviour, attitudes, and beliefs; social processes enabling emergence and evolution of climate change issues in public discourse; the effect of public discussions; comparison of public opinion and science policy across communities and nations.; industry responses.

The solutions and interventions detailed by Giddens (2009) and Nagel (2009) require a sociological understanding of the relationship between the society and culture, the economy, politics and the environment as well as that of scientific knowledge making. This broad grasp of these conditions serves as the basis of sociology of education approaches. As detailed below, the sociology of education also brings its own set of concerns, debates and theoretical perspectives. To date the most influential work in this area has been undertaken under the auspices of environmental and sustainability

education and research. In the following section I detail the main direction of this work, their limits and the challenges still to be addressed.

The sociology of education

The sociology of education is broadly interested in the role of education and the social organisation of knowledge, teaching and learning in formal and informal institutions. It thus investigates: learning and education in schools, family's communities, workplaces, and in everyday life; and the differential impact of socio-economic background, gender, race, ethnicity, sexualities. Research has highlighted the way learning and knowledge is transmitted, reproduced and legitimised. It has challenged the educational assumptions embedded in theories of globalisation, neo-liberal instrumentalism, meritocracy and competitive reward systems. In its concern with formal and informal educational processes and organisations, the sociology of education is also attentive to social groups and organisations as well as theoretical perspectives and ideologies. In this section I argue that the sociology of education offers environmental and sustainability education useful ways of understanding human contributions to climate change.

The sociology of education thus contributes to climate change debate an understanding of the nature of education as a social institution and how learning and knowledge acquisition are affected by a range of differentials and perspectives. It moves beyond the assumption that changes to attitudes and behaviours will occur if only we can find the right sets of learning processes and considers the ways education and learning involve social engagements and practical activities. The sociology of education regards education, learning and teaching as a pedagogical relationship beyond that of the simple transfer of information and skills from a teacher to a learner.

Studies of teaching theorise a process that is not simply concerned with the ‘training of young people in defined practices’ but which considers ‘the creation of *capacities* for practice’ (Connell 1995, cited in Connell 2008:14). Studies of pedagogy theorise a leading relationship which involves guidance and support (van Manen and Li 2002) and pursues the idea of education as a transformative process where teachers are facilitators and modellers of change rather than transmitters or testers of knowledge (Freire 1972).

Environmental education underlines connections between life and social systems to generate engaged action, cooperation and inclusivity (Ryan 2009). It seeks to go beyond traditional knowledge based approaches interested in learning about the environment to pursue forms of engaged learning in the environment. Such approaches are informed by Dewey’s notion of ‘active learning’ and Leopold’s argument for ‘place-based education’. For Dewey learning was a process of active inquiry, engagement and reflection centered around meaningful activities, and intended to devise solutions to real world problems (Quay 2003). Place-based education is a term that includes environmental, outdoor and experiential learning and underlines the significance of learning about places to stimulate sensitivity, aesthetics and ethics (Knapp 2005). Although these pedagogical approaches are important and insightful, environmental education has not been overly concerned with a critical examination of theories of the environment or radical social and environmental alternatives (Fien 1993; Huckle and Sterling 1996). Neither do they interrogate the meaning of nature or culture and the dominance of anthropocentrism (Bonnett 2007). The education for sustainability movement is informed by the sustainable development debates of the 1980s where sustainable development was understood to facilitate actions and assist decision making to meet current human needs without

compromising the needs of future generations (Bruntland 1987). In Australia research and development has been undertaken in relation to the sustainable schools initiative, local government and embedded sustainability approaches in universities. Education for sustainability is socially relevant, holistic, values oriented, issue based, critical and futures oriented (Tilbury 1995). As a broad movement for social change education for sustainability should not be regarded as only relevant to educational institutions and curricula. The movement is informed by concerns about the limits to growth and development; with future survival and the unsustainability of current post-industrial social, economic and political cultures and aspirations.

Unfortunately however, environmental education, and latterly sustainability education have failed to make inroads into mainstream education research and discourse (Scott 2009). As David Orr has argued, current forms of education and learning are irrelevant if not detrimental to planetary survival; ‘we still educate the young for the most part as if there were no planetary emergency’, and we still look to technology for easy solutions (Orr 1995). It seems then that problems of unsustainability and climate change require more fundamental considerations. Environmental education alone cannot fix the problem and ‘business as usual threatens the end of life as we know it’ (Moran 2006, cited in Baer 2008: 61):

The disordering of ecological systems and of the great biogeochemical cycles of the Earth reflects a prior disorder in the thought, perception, imagination, intellectual priorities, and loyalties inherent in the industrial mind. Ultimately, then, the ecological crisis has to do with how we think, and with the institutions that purport to shape and refine the capacity to think. The ecological crisis, in other words, is a crisis of education, not one in education; tinkering won't do (Orr 1995).

Interest in sustainability literacy, ecoliteracy, environmental literacy, sustainability education, eco-schooling, greens schooling movements all seek to ‘combine relevant knowledge of environmental issues with an ethic of care and stewardship’ (Orr 1992: 92). They have thus challenged the idea that knowledge and skills are enough, and raised questions about motives and values. Problematically however, the focus on subjective levels of individual perception and response (Murray et al. 2007) makes it difficult for them to address the importance of macro factors of economy and politics, as well as social groups, institutions, organizations. The question of education is as Connell argues a matter of understanding its productive capacity though multiple levels:

Education is a process of *forming* a culture’ . . . Education is a process that creates social reality, necessarily producing something new in historical time. Education is part of the process that steers a society. Questions about the goals of education are questions about the direction in which we want a society to move, given that societies cannot avoid changing. This is where questions of privilege and social justice in education arise; they are fundamental to the project, not add-ons (Connell 2008:14).

Apart from expanding, politicising and diversifying pedagogical and curricular work undertaken in environmental and sustainable education, there is also an urgent need for research informed by the sociology of knowledge concerned with interrogating the construction of climate change knowledge itself. First with regard to studies of the scientific community studying climate change and processes of peer review and scientific judgment; and second by asking how economic costs are calculated (Yearly 2009). Finally there is work it be done interrogating and investigating the understanding and activities stimulated by climate change science concerned with questions of vulnerability, mitigation and adaptive capacity.

Conclusion

During the course of his research in 2005 for a chapter on Health and the Environment, anthropologist Hans A Baer came to realise that global warming not only posed a threat to health but to ‘human settlement patterns, subsistence, and the life ways of people around the world’ (Baer 2009: 79). Since that time Baer has published and organised numerous conferences and grass roots rallies. He notes that the climate change movement is in its infancy and comprises a disparate body of participants, aims, and strategies but that anthropologists should also study and become involved in the movement ‘for even in the highly corporatized environment of Australian universities, there is space for critical scholarship and social action’ (Baer 2009:84). The same can be said of sociologists and educationalists.

This paper has sought to provide a brief sketch of key areas of climate change research that would benefit from the input of sociology and education. The hybrid ecology of our current condition requires that we supersede the ‘utopia’ of material abundance proffered by free-market capitalism and relentless productivism (Ainley 2008). Sociology and education can assist in the task of identifying alternative global social arrangements based on justice and equality. Without concerted interdisciplinary effort and collaboration between climate change scientists and social scientists, insects will surely inherit the earth.

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