

AUSTRALIAN EDUCATION AND RURAL-REGIONAL SUSTAINABILITY

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ABSTRACT

This paper seeks to develop a case for (re)thinking education and sustainability with specific reference to rural Australia. It proposes a critical view of rural-regional sustainability, taking into account notions of bioregionality and ecosocial change. Two key points are made. One is the assertion that rural education as such is better reformulated as education for rural-regional sustainability. The other is the introduction of a reconceptualised view of public education, as explicitly embracing formal, informal and non-formal sectors, and considering schools therefore within a larger, more comprehensive view of educational practice addressed to the task of educating the public. Education thus understood is a crucial resource for developing informed, active citizenship and community regeneration in the Anthropocene age.

Keywords: rural-regional sustainability, ecosocial change, generation, public education, bioregionality

INTRODUCTION

In this paper¹ I present an account of what I call *rural-regional sustainability*, within a larger framework of concern for what is described here, following Lemke (1995), as ecosocial sustainability. The specific reference-point for this account is, in the first instance, the rural problematic in relation to inland Australia, on the one hand, and on the other, the Murray-Darling Basin – a riverine network extending across much of south-east Australia and constituting what has been described as the nation’s ‘agricultural heartland’ (Weir, 2009, p. 26). Beyond its obvious economic and environmental significance, however, the Basin can be described as a distinctive bioregional imaginary, with deep cultural and historical meaning for Australia more generally. Currently, and increasingly, there is widespread anxiety over the fate and fortunes of rural Australia, in a global context of climate change and ecological challenge – something that, of course, has direct implications for rural education. Australia is by no means unique in this regard, and the concept of rural-regional sustainability (Green & Reid, 2004) arguably has resonance and relevance for many other countries, across the world. How might education function as a resource for reparation and regeneration in this time of crisis? I engage with that question, firstly, by exploring the concept of rural-regional sustainability itself, in some depth and detail, and then by reflecting on how best to think about Australian education anew, in a Lifeworld of increasing global instability and change.

In what follows, rather than focussing here on rural education and schooling as such, as I have done elsewhere (e.g. Green & Letts, 2007), I want to widen the frame of reference. This move is influenced

¹ The paper is rewritten from an earlier one originally presented at the annual conference of the American Educational Research Association (AERA) in 2010.

by arguments regarding the links among rural, suburban and urban constituencies, rather than their various differences and distinctions (Donehower, Hogg, & Schell, 2007, p.192; Donehower, 2014, p. 108). Moreover, while my focus more generally is on (rural) education in Australia, I argue here that this needs to be understood specifically and explicitly as *public* education, and hence rethought as ‘educating the public’. In doing so, however, I deliberately work outside the familiar public-private debate vis-à-vis schooling, and indeed outside the conventional frame of schooling itself, in order to bring into focus here a wider spectrum of educational endeavour. This certainly includes schooling and other sites of formal education, but also adult and community (‘popular’) education, in its various forms. Moreover, it is important to take due account in this regard of what might be seen as the informal sector, and perhaps most notably the media – arguably a particularly rich educational resource in the (post)modern era. Understood thus, public education embraces adults as well as children, and is addressed to the shaping of knowledge and awareness in the populace more generally, as an informed citizenry. In that context, how might we understand the complex relationship between educational practice and environmental change in Australia?

THINKING SUSTAINABILITY AND BEYOND

What is rural-regional sustainability? How is it best understood? It is appropriate to begin by looking at the notion of *sustainability*, since that is the term in general usage. This is notwithstanding considerable debate about its value, rhetorical and otherwise. It is appropriately described as ‘a broad and ambiguous construct, which creates significant implication for how it is interpreted, developed and implemented’ (Somerville & Green, 2012, p. 66). It is important to distinguish the term, too, from what is commonly seen as its predecessor, ‘sustainable development’, which has been heavily criticised for its capitalist framing within a Western, developmentalist logic. Described as ‘an ambiguous and contested category’ (Dibdin & Cocklin, 2005, p. 2), sustainability refers more directly to how and why what happens now, in the present, impacts on the future. Hence it is a profoundly historical concept, embracing past, present and future. ‘Sustainability is an intergenerational concept that means adjusting our current behavio[u]r so that it causes the least amount of harm to future generations’ (Owens, cited in Donehower et al., 2007, p. 6). That is: ‘Sustainability, by definition, requires a very long time perspective, spanning generations and stretching into the indefinite future’ (Dibdin & Cocklin, 2005, p. 10). As various commentators stress, at the heart of the concept of sustainability are fundamental issues of justice and equity, explicitly understood in (inter)generational terms. Owens (2001, p. xi) states: ‘Sustainability means recognizing the short- and long-term environmental, social, psychological, and economic impact of our conspicuous consumption. It means seeking to make conservation and preservation inevitable effects of our daily lifestyles’ (cited Donehower et al., 2007, p. 6). For Dibdin and Cocklin (2005, p. 3), concerned to present a balanced view while nonetheless accepting that there are indeed limits, ‘[s]ustainability implies equity, both within contemporary society (intragenerational) and in terms of the legacy for future generations (intergenerational)’.

Main (1995) is less prepared to accept the rhetoric of sustainability, however, arguing instead for the notion of *regeneration*. In the course of a strong critique of industrial and productionist models of agriculture, and referring in that regard to ‘regenerative agriculture’, he writes: ‘Unlike ‘sustainable’, the label ‘regenerative’ acknowledges a painful history of suppression, fragmentation and disorder. Connectivity is acknowledged and nurtured’ (Main, 2005, p. 245). Writing in the specific context of Australian environmental and agricultural history, with its long (mis)engagements with Indigenous experience, his argument has resonance and relevance for other (postcolonial, post-settler) countries as well. It is worth noting, too, that ‘regeneration’ retains and indeed re-articulates the notion of *generation*, as clearly an important reference-point, while perhaps having here a somewhat different connotation and effect. It is likely however that the most useful understanding of sustainability is one that accommodates and indeed explicitly acknowledges the obligations of regeneration, or reparation and renewal.

This is surely what Greenwood (2009) is arguing for when he proposes the linked concepts of *decolonization* and *reinhabitation* in his extensive work on place-conscious education. The former –

'decolonization' – is important, he writes, because 'its usage specifically problematizes colonization as historical practice and as the ideological and political progenitor of today's ecologically catastrophic globalization and development trends' (Greenwood, 2013, p. 96). 'Reinhabitation', as a conceptual and strategic counterpoint ('two dimensions of the same task'), refers to 'the need to imagine and recover an ecologically conscious relationship between people and place' (Greenwood, 2013, p. 96), and is equally important. For Greenwood and others (e.g. Somerville, 2008, 2013), what must be recognised and acknowledged is 'the centrality of Indigenous habitation to place-conscious learning' (Greenwood, 2008), now and in the past. A new awareness of and sensitivity to place, culture, history and difference is thus posited as crucial to what is being proposed here as sustainability. It is necessary but not sufficient to look to the future, then, in thinking about what must be done. Such an orientation to the future must always be complemented by looking back, and learning the lessons of the past, of history. This is further enriched by looking differently at the present, at the way 'we' live now, in order to act productively, positively, response-ably, accordingly. It is for these reasons that sustainability, properly understood, must be seen as an exemplary historical concept, and a matter of politics and ethics, praxis and pedagogy.

A further point is the now programmatic need to understand sustainability with reference to three registers: the *social*, the *economic* and the *environmental* – that is, the so-called 'triple bottom line' thesis. In this formulation, sustainability involves these three distinct though interrelated aspects, and all must be taken into consideration. This might be differently and usefully expressed in terms of 'economic growth, environmental protection, and social equity' (Gonzales-Gaudiano, 2000, p. 19). Although the orthodoxy and perhaps the aspiration is that none is necessarily privileged over the other two, in practice that is often precisely what happens, depending on the disciplinary orientation, interests and investment of those making the distinction, or otherwise working with the sustainability concept. McKenzie (2004, p. 8), for instance, writes that '[d]espite its inclusion in the triple bottom line, the role played by the social is rarely equal to the economic and environmental concerns'. Similarly, Alston (2009, p. 33) argues that 'social sustainability [is] the missing link in discussions of sustainability – discussions which have been largely dominated by economic and environmental factors'. Goodland (1995, pp. 1-2) focuses on environmental sustainability, 'sharply distinguishing it from social sustainability and, to a lesser extent, economic sustainability'; while the contributors in Cockin and Dibdin's (2005) edited book on sustainability and change in Australia range across the three, with varying emphases.

Kemmis and Mutton (2012) take a distinctive practice-theoretical perspective on the matter, proposing a five-fold view on what constitutes the 'unsustainable', ranging from the 'discursively unsustainable', the 'morally and socially unsustainable', the 'ecologically and materially unsustainable', the 'economically unsustainable', and finally the 'personally unsustainable' (Kemmis & Mutton, 2012, p. 204). Hence they propose in effect an extension of the 'triple-bottom line' formulation to include the *ethical* and the *rational*. This entails, on the one hand, a focus on the 'personal' dimension of sustainability – on 'individual' capacities, and the risks and responsibilities attendant on them, and hence the role and significance of human responsibility and *agency*; and secondly, the issue of the 'discursive', presented here as a matter of *rationality*, although it might be at least supplemented by drawing in more explicitly questions of *meaning* (Lemke, 1995)² and *affect*, and indeed more broadly the *symbolic*.

What all this suggests, then, is that while a multi-dimensional view of sustainability is indeed crucial, holding such a view cannot be held as sufficient, in and of itself. Rather, sustainability properly understood needs to be acknowledged as an essentially contested concept, and even as infinitely contestable. This highlights its complex and contradictory nature, and also the fact that its mobilisation sets off a social and discursive process involving the interplay of deliberation and decision, knowledge and action, never constituting any kind of final word on the matter at hand. The dilemma that this presents is dramatically staged in a recent newspaper article, laying out the

² An aspect needing further consideration is the *psychic* dimension of eco-consciousness. See Hamilton (2010) on denial, and also Kelly (2009) on mourning.

strongly, even starkly contrasting views of the Murray-Darling Basin community (Neales, 2015). The main personae are an Aboriginal man and a white farmer, with supporting testimony from a school principal and a federal bureaucrat. '[A] rural social fabric in tatters is set against the rationalism of policy and the assertion of the Murray [as] truly the lifeblood of this land' (p. 4). The issues are seemingly intractable, and perhaps ultimately undecidable. What remains, then, is the necessity of practical politics, or rather the political, as a matter of unceasing struggle over meaning and practice, over what is right and what is just, and on what scale.

ECOSOCIAL SUSTAINABILITY

At this point it is useful to introduce the concept of *ecosocial sustainability*, as a larger category. What is meant by 'ecosocial' sustainability, and what is gained by understanding sustainability in such terms? Why 'ecosocial'? – that is, 'eco' plus 'social' What is added to the 'social' when we prefix it with the 'eco'? My reference-point is an argument that the American semiotician and educator Jay Lemke has developed over the past three decades, drawing from a background in theoretical physics and the biophysical sciences, as well as in functional linguistics and social theory. Lemke has consistently argued the urgent need for research that brings together otherwise disparate fields and frameworks; as such, his work both demonstrates a powerful, critical, reflexive *interdisciplinarity*, and provides a rich resource for those of us wanting to operate in similar ways. The essence of his argument is that social practices, wherever located and at whatever scale, are simultaneously cultural and semiotic in character *and* material and physical, comprising accordingly complex exchanges of matter, energy *and* information. As he writes: 'A 'social practice' is a semiotic cultural abstraction, but every particular, actual instance of that social practice is enacted by some material processes in a complex physical, chemical, biological, ecological system' (Lemke, 1995, p. 106). Similarly, human social systems are understood as 'having both a material, ecological aspect and a cultural, semiotic one' (Lemke, 1995, pp. 93–94).

Yet this interdependence is all too often under-appreciated, when it is not effectively disregarded – to a significant degree (although he doesn't say so directly) because of deeply ingrained disciplinary divides, *including* those between those organised respectively by 'social', 'economic' and 'environmental' agendas. What is needed, he argues, is an integrated view of 'ecosocial systems' and, relatedly, of 'ecosocial change', thereby bringing together, organically, a sociocultural perspective *and* an ecological perspective³. This implies a superordinate, inclusive understanding of human existence, as inextricably bound up with the fate of the earth. As he observes, 'this superordinate unity of ecosocial systems is somewhat hidden from view by our failure to appreciate the pervasiveness of the material-semiotic interdependence' (Lemke, 1995, p. 107) – something he links, ultimately, to entrenched forms of social power.

Lemke summarises the position he is adopting thus, in terms of three arguments or theses:

- **Firstly:** *that human sociocultural systems are essentially systems of social practices linked in the historically and culturally specific semiotic formations from which they get their meaning;*
- **Secondly:** *that these practices are simultaneously material processes in a complex, hierarchically organized, developing and evolving ecosystem; and*
- **Thirdly:** *that the interdependence between the semiotically and materially based couplings of these practices/processes is the basis of ecosocial dynamics* (Lemke, 1995, pp. 118–119).

Moreover, as he writes, the 'picture' he offers is one in which 'activities in human communities are interrelated both in terms of exchanges of matter and energy and in terms of relationships of meaning, or information'. That is to say, it is important to understand human communities and their associated practices *contextually*, or eco-systemically, as well as *relationally*. Lemke is not working

³ There are interesting links here to Weir's work on 'connectivity' (2008, 2009).

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explicitly within a specifically biophysical, ecological frame of reference, as I read him, notwithstanding his emphasis on ‘system-environment’ dynamics. However, his argument, mobilising as it does theories of complexity, ‘metastability’, and dynamic open systems, can be readily and appropriately re-articulated to make this aspect more explicit, and thereby it can be drawn into the contemporary focus on climate change and environmental stress, as ecosocial sustainability, and hence a superordinate context for rural-regional sustainability.

WHY RURAL-REGIONAL SUSTAINABILITY?

I turn now to (re)consider the notion of rural-regional sustainability itself – an ecosocial issue *par excellence*. This is a formulation I have come to prefer to rural education as such. For quite some time now I have been concerned with rural teaching and teacher education (e.g. Green, 2008). That work has overlapped in significant ways with research addressed to literacy education and environmental studies (Green, Cormack, & Nixon, 2007; Cormack, Green, & Reid, 2008), to ‘rural literacies’ (Green & Corbett, 2013) and also increasingly to professional practice, learning and education more generally, especially in the context of rurality (Reid, Green, Hastings, Cooper, & White, 2010). To speak of rural-regional sustainability is, I argue, to point to the value of looking beyond the current-traditional parameters of schooling, as a distinctive and indeed characteristic project of modernity. Moreover, rural education as a field, as I have found, tends to be framed within and by an often constraining and even conservative discursive field, one that can often close down possibilities rather than opening them up. It also means restricting one’s purview to just the one institution: the school, and a single, often strongly classified professional practice field; whereas increasingly I see value in working across fields which connect in one way or another with the challenges and opportunity afforded by rurality. At the same time, I have been increasingly interested in, and intrigued by the potential of what is called ‘place-conscious education’ (Gruenewald, 2003; Greenwood, 2013), to offer new resources for rethinking and revitalising rural teaching, schooling and teacher education. Furthermore, the account offered here of ‘rural-regional sustainability’ is to be distinguished from the more common practice of using ‘rural’ interchangeably with ‘regional’, as more or less synonyms; and similarly, from using ‘rural-regional’ education in counter-point to ‘rural-remote’. Rather, my concern is to more fully implicate a ‘(bio) regional’, ‘ecosocial’ orientation to rethinking rurality and rural education alike.

As already noted, the specific context here is, firstly, inland Australia, and secondly, and more specifically, the Murray-Darling Basin. The Basin is a riverine network covering approximately one-seventh of Australia’s overall landmass and well over half of its irrigated space, and producing 40 per cent of its agricultural output. With regard to inland Australia, it is relevant to note that Australia itself, as the world’s only nation-continent, is also one of the world’s most highly urbanised countries, with the bulk of the population living in and around the capital cities, located in each of six States and two Territories. Nonetheless it has been calculated that in 2001, taking into account that rurality features in coastal areas as well as inland, up to approximately 30 per cent of Australia’s population was rurally-located, or non-metropolitan (Hugo, 2005). This figure is always differentially realised across the country. For New South Wales early in the 21st century, for instance, the inland population was formulated as approximately 13 per cent of the State’s total (Green, 2008).

Moreover, sustainability as such ‘has particular resonance for rural-regional Australia. This is especially so because of the distinctive mix of geography and demography in Australia, [its] huge and sparsely populated land mass, and the extraordinary concentration of settlement and population, industry and services on the coastal fringe’ (Green & Reid, 2004, p. 257). A study of rural sustainability and change funded by the Australian Research Council (ARC) in 2002-2003, and conducted under the auspices of the Academy of the Social Sciences in Australia (ASSA), concluded that evidence exists of ‘a developing incompatibility between deregulated, competitive, intensive agriculture and a widening environmental crisis that threatens the productivity of agriculture as well as the health of rural towns and natural ecosystems’ (Cocklin & Dibdin, 2005, p. 248). Broadly speaking, inland Australia is characterised by overall population decline, a changing industrial profile, and widespread and increasing environmental stress, including desertification and growing concerns

about water and food security, and more generally a decline in what has been described, somewhat ironically, as ‘natural capital’ (Cocklin & Dibdin, 2005a). Better understanding what is involved in working towards sustainable rural communities is imperative, therefore, and not only in Australia. This requires, in turn, greater, more informed appreciation of the challenges associated with asking and knowing ‘what must be done in the interests of aiming towards more sustainable rural futures’ (Cocklin & Dibdin, 2005b, p. 252), across various fronts and relevant spheres of activity and organisation.

Rather than focusing on *rural* sustainability, however, the proposal here is that attention is better given to the larger category of *rural-regional* sustainability. What does this entail? In the work that I have been engaged in, with various colleagues, partly as a feature of our own situated practice as educational researchers and teacher educators, particularly with regard to the location of some of us in an inland (‘rural’) university, the significance of the Murray-Darling Basin has been increasingly foregrounded (e.g. Cormack et al., 2008)⁴. The Basin itself as a distinctive space extends across parts of four States and the Australian Capital Territory, and is clearly a major social and economic unit. An ‘extended network of rivers linking communities, livelihoods and life’, it has been described thus:

The Murray-Darling Basin is a large inland river basin in south-east Australia that has been transformed by government and private investment in water infrastructure to provide irrigation for the agricultural industry. This area is now known as Australia’s agricultural heartland (Weir, 2009, p. 26).

Moreover, the Basin is clearly of immense environmental significance, and is vital to Australia’s future, increasingly so in a new global context of climate change. However, the Basin is now widely regarded as being at risk, with ‘extensive river degradation and, among other things, persistent drought [tipping] a precarious system of over-allocated river water into catastrophe’ (Weir, 2009, p. 26). Beyond its obvious economic and environmental significance, however, the Basin can be described as *a distinctive bioregional imaginary*, with deep cultural and historical meaning for Australia more generally, including its Indigenous population. In that regard, it is relevant to point out that ‘[t]oday, Indigenous people constitute 70,000 of the over two million people who now live in the Murray-Darling Basin ... [representing] 3.4 per cent of the Murray-Darling Basin population and 15 per cent of the national Indigenous population’ (Weir, 2009, p. 26) in Australia (see also Somerville, 2013, pp. 7–8).

At this point, I want to refer more specifically to the notion of *regionality*, and to the ‘region’ as a point of reference. Tomaney (2008) indicates that regionality has become a matter of renewed interest and, relatedly, notes the resurgence of regional geography as a field of inquiry. Describing regions as ‘historically contingent social constructions rather than physical entities’ (Tomaney, 2008, p. 8), he distinguishes a number of different senses and uses of the term ‘region’, including ‘statistical region’, ‘economic region’, ‘cultural region’, ‘political region’, ‘ecological region’, etc. For Allen, Massey and Cochrane (1998: 1), ‘... the manner of conceptualizing a region is intimately bound up with the wider debate about the conceptualization of space and place’. This is of particular interest here, especially given our work elsewhere addressing such matters (Green & Letts, 2007; Reid et al., 2010). Hence, bringing regionality into consideration in this fashion provides particular insight into the issue of sustainability.

This has two aspects. Firstly, a crucial consideration is the value of thinking not simply relationally but also, as it were, ‘trialectically’, with *space*, *place* and *scale* brought together in a single, dynamic framework. Space(s) and place(s) have increasingly been mobilised in the literature as relevant to rural education (e.g. Corbett, 2007, 2015; Halfacree, 2006; Green & Corbett, 2013). These concepts can be supplemented, more explicitly, by mobilising notions of ‘scale’, and also of ‘region’. In this regard, Smailes, Griffin and Argent (2005, p. 100) propose the following:

⁴ Of particular note here is the work of the River Literacies Project, an ARC-funded study of literacy education and environmental awareness in primary schools located in the Murray-Darling Basin, focusing on the children’s creative writing and artwork in response to place (Comber, Nixon, & Reid, 2007).

sustainability needs to be sought at a level somewhere between the 'region' – a large and somewhat artificial construct, in theory possessing an adequate critical mass to achieve scale economies – and the local community, which possesses the necessary cohesion, social capital, and group identity, but in most cases lacks scale and critical mass.

This is an important point, and worthy of further investigation. What constitutes the appropriate reference-points, or contextualisations, for thinking about sustainability?

Secondly, what is becoming increasingly important is the need to make climate change a key reference-point for rural-regional sustainability and indeed for education more generally. The fact is that, notwithstanding the significance of social and economic considerations, ultimately they are ecosocial, played out in the world – or rather, the Lifeworld. Everything depends, ultimately, literally, on the continued health and well-being of the natural environment: the land and the water, the air we breathe, the food we eat. Hence a new, or renewed, ecological awareness becomes a priority for everyone, across all fields of human endeavour, which means being more attuned to the Earth, locally and globally. Regionality is therefore a particularly important and generative concept. As Tomaney (2008, p. 14) writes:

Regions can be characterised in relation to geographically distinct assemblages of natural communities and species. Human activity occurs in relation to flows of matter and energy. Relief, climatic conditions and water catchments affect the biodiversity of flora and fauna and continue to place constraints on patterns of development, even if, simultaneously, they are transformed by human activity (Tomaney, 2008, p. 14).

There are useful links here with Lemke's account of ecosocial dynamics. As already noted, the world comprises flows of matter and energy, but also information, and hence issues of meaning and representation (and therefore education) are necessarily drawn into consideration. Conceptually and analytically, the question of deciding on a relevant contextualisation becomes imperative. Hence, as Lemke writes:

The fundamental unit of analysis will turn out to be a 'patch', a mini-ecosystem containing human organisms in interaction with their social and material environments according to both cultural and ecological-physical principles. The patch is part of a mosaic of other patches, each with its own unique history, all interacting and forming a larger scale patch in a larger scale ecosocial system (Lemke, 1995, p. 93-94).

Worth highlighting here is the manner in which Lemke brings in directly the notion of the 'city', as *par excellence* a complex dynamic open system, in his terms, as well as a distinctive 'patch'. This is something that could be very usefully drawn on in contemporary work on the notion of 'sustainable cities', envisaged as not simply social systems, involving a complex of social relations and social practices, but as (eco-)material sites for the exchange of matter, energy and information, on a number of levels, internally *and* externally. In this regard, '[a]chieving 'An Environmentally Sustainable Australia'⁵ will require socially sustainable cities *and* rural areas' (Mackenzie, 2004, p. 13; my emphasis).

However, even more pertinent, is the notion of the Murray-Darling Basin as a 'patch' in the sense outlined above, at once a social, cultural and economic unit *and* a material, ecological, biophysical unit: a (not so) mini-ecosystem comprising various human and other populations distributed in specific arrangements of time-space, interacting all the while with their social and material environments 'according to both cultural and ecological-physical principles'. Moreover, the Murray-Darling Basin is itself to be understood not simply as a 'region', but also, and perhaps even more pertinently, as a *bioregion*. In Tomaney's (2008, p. 15) terms: 'The Murray-Darling Basin represents a natural region, albeit one which has been transformed by human intervention'. He uses the related term 'ecoregion', indicating that '[b]elow the level of ecoregion, water catchments – or drainage

⁵ One of several formally designated National Research Priorities in Australia, in recent times.

basins – often have delimited natural regions, with watersheds, for instance, providing natural boundaries’ (Tomaney, 2008, p. 14), which here I take as roughly coterminous with ‘bioregion’.

What becomes increasingly relevant and generative, then, is *thinking bioregionally*. ‘At the heart of a bioregional sensibility’, writes Thomashow (1999, p. 25), ‘is the concept of place-based reinhabitation’ in the sense outlined above. ‘To engage in reinhabitory practice is to challenge the human imagination.’ Further, as Buell notes (2005, p. 84), ‘thinking bioregionally ... is to provoke within and against ingrained grid-think keener attention to how interaction with topography, climate and nonhuman life directs not only how people ought to live but also the way they do live without realizing it’. Buell further points to an associated ethic ‘not simply of environmental literacy but also of ‘sustainability’ – of more prudent, self-sufficient use of natural resources such that environmental and human quality will be maintained (and ideally improved) with better human/human and human/non-human consideration both within the bioregion and beyond’ (Buell, 2005, p. 84–85). A crucial point here is to acknowledge that, ultimately, population and production are both contingent on the (natural) environment:

Despite the focus on the region as a medium and outcome of social processes, the physical environment continues to place constraints on the human populations that occupy it. The implications of this are very obvious in rural societies, where forms of agriculture are dependent in a more or less direct way on the physical geography of territory (Tomaney, 2008, p. 25).

Bringing the region into calculation is important, therefore: ‘the return to the region reflects very real concerns about environmental sustainability; that is, with the life-giving qualities of land and water’ (Tomaney, 2008, p. 16; see also Somerville & Green, 2012, p. 67). Place matters, as does space, and the scalar dynamics which characterise them. Together, one way of representing the Murray-Darling Basin, is as a space of places and flows, stories and relations (Cormack et al., 2008). How does the Murray-Darling Basin sustain itself, then? How is it to become sustainable? What are the forms of constraint that operate on its most efficacious and responsible sustainability? What might be the best relationship to work for and to build between, say, population dynamics, social policy and environmental realities, in bioregional Australia, over the next thirty to fifty years, *as well as in and for the longer-term future*? These are important, even urgent questions, and clearly have relevance for rural education and schooling.

PUBLIC EDUCATION AND RURAL-REGIONAL SUSTAINABILITY

What are the implications of this account for education, and more specifically for rural schooling? What is the role and significance of education in and for the project of rural-regional sustainability? Elsewhere a conceptual and analytical framework has been developed with reference to rural (teacher) education, which we have called the Rural Social Space model (Reid et al., 2010; Green & Reid, 2015). It argues that education policy in this regard needs to take due account of prevailing matters of economy, demography and geography, and within that, must bring explicitly into due consideration environmental and Indigenous issues and perspectives. This in itself may be a challenge for rural education. Up until quite recently, the field has tended to operate as something of a silo in this and other respects, in teacher education as well as in curriculum policy more generally, with little direct connection to either environmental education or Aboriginal education. That is changing now, and not before time. Work is increasingly addressed to the changing constitution and complex interplay of rural industries, rural populations and rural environments in new eco-social conditions, in Australia and beyond.

However, a case must be made, and urgently, that climate change represents a game-changer here. Increasing awareness that we are now living in the age of what has been termed the Anthropocene (Steffen, Crutzen, & McNeill, 2007; Bergthaller et al., 2014), across the disciplines as well as outside the university sector, and in the popular-public sphere more generally, raises all sorts of implications and challenges for policy and practice. This certainly includes education – and indeed, it can be argued that education has a particularly important role to play here. The caveat is that education

itself must be reconceptualised, and understood in a more integrated, holistic way. In the first instance, a fundamental distinction can be observed between education and schooling, and certainly education should not be limited to schooling, in the conventional, current-traditional sense. This does not mean that schooling is unimportant – far from it. Schools (and universities) continue to have a role to play in educating the emerging generations, and their characteristic concern with questions of knowledge and learning remains significant. But increasingly they need to be complemented and supplemented by other educational agencies. The game is changing, as it must.

In a recent survey-based study of sustainability initiatives in the Gippsland region, Somerville and Green (2012, p. 65), for instance, point to ‘... the need for new ways of thinking and knowing, and for innovative forms of action’, with specific regard to engaging with climate change and environmental distress. Their work is located with a larger investigation of ‘place-based sustainability education for the Anthropocene’ (Somerville & Green, 2012, p. 65), which explicitly mobilises notions of ‘place’ and ‘regionality’, while seeking to re-articulate them. What is important about their study is that it seeks to bring together work in schools and communities, in ways that are rarely evident in conventional school-centric policy and practice. Their concern is ‘... how to better link community place-based sustainability initiatives to formal educational curricula and pedagogies’ (Somerville & Green, 2012, p. 66). Their point is that there is little evidence of this happening, to date, and that indeed all too often a sharp disjunction exists between communities and school initiatives in this regard. As they write, ‘... preliminary observations suggested that the most exciting and innovative sustainability education initiatives are emerging at grassroots community level, but do not appear in the formal curriculum of school education’ (Somerville & Green, 2012, p. 73). The implication is that sustainability work in schools is all too often constrained and largely sporadic, although undoubtedly occurring, despite problems of funding and other resources. More importantly, however, it tends to be framed within Western rationalist epistemologies and values, including scientific-disciplinary views of knowledge and, more recently, the discourse of ‘neoliberalism globalization’ (Somerville, 2013, p. 84). While noting that ‘at present ... ‘there is little evidence of new concepts of sustainability in Australian syllabuses’ (Skamp, 2010, p. 10), or indeed elsewhere (Nolet, 2009)’, Somerville and Green’s work is striking in seeking explicitly to bring together ‘formal, nonformal and informal’ education sectors and initiatives (Somerville & Green, 2012, p. 65). They lay particular stress on ‘[t]he importance of partnerships, networks, and community’ (Somerville & Green, 2012, p. 74) in promoting appropriate forms of education for sustainability, and moreover the importance of ‘thinking [bio-]regionally’ (p. 67).

A subsequent study is currently aiming to build upon their insights, focused more directly on the Murray-Darling Basin itself (Roberts et al., 2013, 2014). Its work includes surveying school personnel (public and private) as well as community members, along with various other stakeholders. The study differs from earlier work in that it is able to explore the affordances and constraints of the new national curriculum in Australia (aka the ‘Australian Curriculum’), including its identification of sustainability as one of three ‘cross-curricular priorities’. While the project is still underway, some preliminary observations are relevant here. Firstly, there would appear to be a potentially significant disjunction between rural schooling and rural communities in terms of their respective values, especially and specifically with regard to sustainability. While there is general adherence to a ‘triple-bottom-line’ view of sustainability, the school sector tends to put the stress on the environmental, whereas the community is more attuned to the social and economic (and also the cultural) aspects. Indeed schools and teachers are sometimes at odds with their communities⁶, or at least not as engaged with them as they might be. Secondly, while the new Australian Curriculum constitutes a significant frame for thinking about curriculum and pedagogy in schools in this regard, indication exists that this is all too often a matter of constraint and contradiction, and indeed unduly if perhaps understandably school-centric. Importantly, not enough connection is made to lay and local knowledges, including Indigenous knowledges, or to what might more broadly be called community funds of knowledge. Sustainability itself, notwithstanding being designated a cross-curricular

⁶ Something that also emerged in the River Literacies Project (Comber, Nixon & Reid, 2007).

priority, would appear to be problematically conceptualized. This is because, while there is indeed general adherence to a ‘triple-bottom-line’ view, a tendency exists for the formulation to become reified and to turn into something of a formula, in the transition from policy to pedagogy. Furthermore, little regard is given to the specificity and distinctiveness of the rural condition (Roberts, 2014), and hence there is no reference at all to what has been called here rural-regional sustainability, or anything like it.

What emerges from both these studies⁷, however, is the need to think beyond the school, and beyond what are all too often narrow, overly institutionalised views of education. Working with a broader understanding of educational practice as bringing together the ‘formal’, the ‘nonformal’, and the ‘informal’ sectors, as Somerville and Green (2012: p. 65) argue, would appear a crucial move here. It opens up the possibility of rethinking public education in Australia, as in effect a matter of ‘educating the public’. This is to re-position the school as one agency, albeit a significant one, within a larger educational ecology. The American educational historian Lawrence Cremin provides another useful resource in this regard in his rather neglected monograph on public education (Cremin, 1976), as does the educational philosopher Gert Biesta (2012). There are rich implications and challenges in their work for educational research and curriculum inquiry, as well as for teacher education, broadly conceived to encompass practice development across the professional career. Thinking all this through is urgently needed work. In the meantime, going beyond what has been called ‘the **school first**’ paradigm and taking into due account that ‘... a huge amount of scientific learning occurs outside limited school hours’ (Cormick, 2015, p. 14) is something worth exploring – perhaps especially with regard to raising environmental awareness and developing pro-active forms of eco-citizenship. As argued recently, science centres and the like, linked as they are with media, point to new questions for education and environmental policy alike ‘as to where we should be putting our efforts if we really want to widely improve public understanding of science, technology and innovation. *‘Australia needs a strong, informal learning sector working alongside school-based education’* (Cormick, 2015, p. 15; my added emphasis).

CONCLUSION

In this paper I have sought to present a quite specific notion of rural-regional sustainability. This is presented as a context for rethinking rural education in the Anthropocene age as more specifically education for rural-regional sustainability. Rural-regional sustainability, as I understand it, involves bringing together rurality and (bio-) regionality, and thus taking a more ecosocial account of the actual places and spaces of rural life (including life in schools) – where it all happens, located as always in a global network of complex interrelations, at once material and virtual. Related concepts are global sustainability and ecosocial sustainability, and work is needed to think these through, in themselves but also specifically in relation to rural-regional sustainability. Education has a crucial role here, particularly when conceived broadly as embracing all forms of educational agency, including media and popular culture, and embracing the relations among information, understanding *and* action. Thinking beyond the school is crucial, but that does not mean that schooling is now somehow irrelevant, or marginalised. Rather, it is to say that schools are embedded in communities, and potentially integrated with them, as multi-scalar sites of communication and learning, being and becoming.

It is likely, too, that the notion of *place*, properly and critically conceptualised, is usefully mobilised as an organising, integrating principle in this regard. This is best done, I believe, by not only working within the terms and frame of reference of a properly informed and reflexive *critical pedagogy of place* (Greenwood, 2008, 2013), but also by drawing in, explicitly, notions of space and scale, within a ‘trialectical’ conceptual framework (Green, 2013)⁸. Relatedly, it would seem important and

⁷ Though not specifically addressed to rural education, nonetheless both work directly with rural schools (although here they are effectively unmarked as such).

⁸ For critical perspectives on the emergence of a ‘place’ focus, see McInerney, Smyth and Down (2011) and Gulson (2014).

generative in this context to bring together Education as a scholarly domain with other areas, such as Health and other professional practice fields, with a particular shared focus on rural-regional sustainability, and with regard to both policy and professional education. This would certainly support inter-agency initiatives, something increasingly recognised as particularly suited to rural circumstances and to small communities operating within rural social space. Operating under the banner of rural-regional sustainability is likely to be strategically useful, and increasingly so. Above all else, however, what is required is greater appreciation of, and engagement in, the public-educational practice of rural-regional sustainability, at all levels and in every sphere of life and learning. While this certainly includes the world of formal schooling, it is by no means limited to it, and should be seen as a long-term investment in the Lifeworld itself.

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