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Critical realism: the philosophy of knowledge that is missing from the Curriculum for Wales

John Huckle[1,*]

[1] Independent researcher
* Correspondence: john@huckle.org.uk

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Abstract

The new Curriculum for Wales seeks to develop young people who are ethical, informed citizens of Wales and the world and committed to the sustainability of the planet. While the curriculum requires the integration of subject knowledge, the associated guidance fails to suggest a philosophy of knowledge to inform such integration. Having linked sustainability to political economy and regimes of truth, rule and accumulation, this article draws on the Gesturing Towards Decolonial Futures Collective's typology of social reform spaces to consider spaces of sustainability politics in Wales. It then argues that the curriculum should enable students to articulate and contest sustainability within and across these spaces, a form of radical global citizenship education. Critical realism can guide curriculum delivery as it provides insights into inter-disciplinary enquiry, the role of critical pedagogy and the development of learners as non-dual beings who are at one with themselves and other human and non-human beings and thereby prepared to act as global citizens seeking sustainability.

Keywords curriculum; sustainability; citizenship; decolonialism; democracy; knowledge; ontology; realism; spirituality; Wales

Introduction

The humanities is one of five areas of learning experience (AoLEs) in the new Curriculum for Wales (WG–EW, n.d.). It carries the main responsibility for education for sustainability and requires the development of students' cynefin:

> Learners should be grounded in an understanding of the identities, landscapes and histories that come together to form their *cynefin*. This is the place where we feel we belong, where the people and landscape around us are familiar and the sights and sounds are reassuringly recognisable. Though often translated as 'habitat' cynefin is not just a place in a physical or geographical sense it is the historic, cultural and social place which has shaped and continues to shape the community that inhabit it. (WG–EW, 2022a)

The dialectical relationship between community and place has long been a focus for environmental educators who have sought to provide students with insights into how social processes construct places along with bio-physical processes; how places act back on the continued development of these processes; and how notions of identity, self, and sense or spirit of place are also constructed in the process (Gruenewald, 2003). Places reflect past, present and future political economies and identities and carry the seeds of sustainability in the form of technology-led, market-led, state-led and citizen-led processes of social transformation.

While there is a growing consensus that these should result in a doughnut economy (Rayworth, 2017) in which social goals are met within planetary limits imposed by the earth's ecological systems, there is no consensus on the politics of transition or the type of citizen needed to bring it about. Scoones (2016) reminds us that the construction of pathways to sustainability is always shaped by place and citizens' cynefin and involves moral and political choices. Different politics of transformation are articulated through different regimes of truth, rule and accumulation. They cannot be ordered, managed and controlled, but must emerge from unruly political alliances, diverse forms of knowledge, and collective organisation.

Regimes of truth, rule and accumulation

Regimes of truth

These determine who understands what in what ways, and govern how problems and solutions are framed and what transformations occur in what directions. Critical social and cultural theorists, including decolonialists and those in the environmental humanities, challenge modern universal knowledge and its narrative of progress and development based on empiricist and positivist science of European origin. They draw on a pluriverse of knowledges (Reiter, 2018) that reflect ontological and epistemological innovation, questioning both what it is possible to know (the reality that exists) and how it is possible to know. Pre-modern, indigenous and post-modern knowledges that collapse modern dualisms (such as that between us and them; society and nature; subject and object) (de Lange, n.d.) and combine a critique of capitalism with rediscovered forms of spirituality and transcendence are particularly significant. These can be accommodated by the three branches of critical realism.

Regimes of rule

These determine who controls what, through what forms of governance (the system by which an organisation or society is controlled and operates, and the mechanisms by which it and its people are held to account). Mouffe (2019: 43–4) draws on Gramsci to equate a regime of rule to a hegemonic formation or 'a configuration of social practices of different natures; economic, cultural, political and juridical, whose articulation is secured around some key symbolic signifiers which shape the 'common

sense' and provide 'the normative framework of a given society'. Struggling over hegemony involves redefining hegemonic signifiers, such as democracy, citizenship, sustainability and freedom, and the ways in which they are connected and articulated in everyday social practices and thought. Neoliberalism articulates democracy with free markets, private property and unfettered individualism; sustainability with ecological modernisation, green technology and technocentrism. Left populism articulates democracy with popular planning, equal rights and collectivism; sustainability with socially useful production, social justice and ecocentrism.

Regimes of accumulation

These determine which societies get what and how it is distributed. Marx's theory of geo-historical materialism requires us to see societies undergoing a process of combined and unequal development within the global capitalist system. The need to generate profit and so accumulate capital drives the exploitation of human and non-human nature that has resulted in stark inequalities, the environmental crisis and the continuing search for sustainability. The dominant neoliberal regime of accumulation was challenged by the financial crisis of 2007, the Covid-19 pandemic of 2020 and the cost of living crisis of 2022. An alternative has yet to emerge but much attention focuses on different versions of a green new deal and the associated notions of 'building back better' and 'levelling up'. Political economists such as Mason (2020) and Varoufakis (2020) offer post-capitalist futures that incorporate sustainability while Progressive International (https://progressive.international/) and Radical Ecological Democracy (https://radicalecologicaldemocracy.org/) are examples of global networks where decolonialists, eco-socialists, and other radical voices debate the virtues of alternative social and environmental relations based on radical democracy and new or rediscovered kinds of subjectivity, sensibility and spirituality.

The school curriculum selectively reflects regimes of truth. It can both reinforce and contest the prevailing hegemony and is shaped by the prevailing regime of accumulation. The three regimes determine its openness to education for sustainable development and global citizenship and the manner in which it is accommodated.

Education for sustainable development and global citizenship

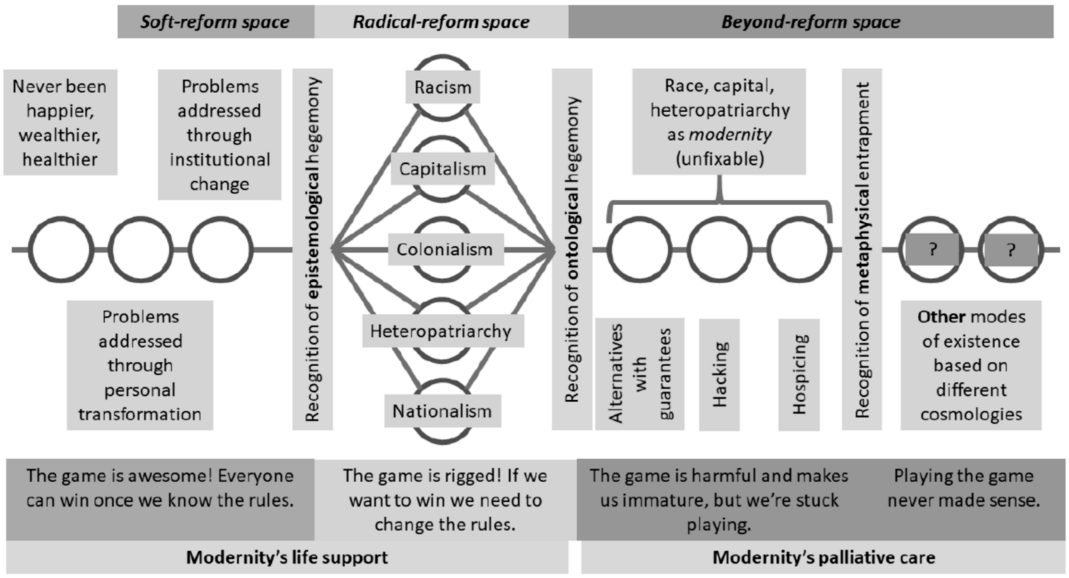
Education for sustainable development and global citizenship (ESDGC) is an educational response to the challenge of sustainability. It challenges policymakers, such as those in the Welsh government, to devise a curriculum that introduces older students to processes of transformation; the politics of sustainability; and regimes of truth, rule and accumulation. While mainstream ESDGC remains focused on the modern grand narrative of progress and features reformist solutions, critical ESDGC is critical of modernity and considers both reformist and transformative solutions. More than one hundred of these are featured in *Pluriverse: A post-development dictionary* (Kothari et al., 2019), where narratives such as sustainable development, ecomodernisation, the circular economy and smart cities are considered reformist and those of radical ecological democracy, eco-socialism, Buddhism and wisdom-based compassion, and the transition movement are considered transformative.

The Gesturing Towards Decolonial Futures Collective (GTDFC) draws on the decolonial theory outlined in the dictionary, along with non-Western psychoanalysis, to suggest that we all have an inner compass that shows us what we need to do to overcome the illusions and denials associated with modernity and so heal human and non-human nature. Drawing on Andreotti (2014) who explores the root narratives or discourses underlying different approaches to development education and global citizenship education (GCE), it labels its approach to GCE 'otherwise'. Its study guide (Andreotti et al., 2019) provides cartographies and pedagogical tools to enable learners to activate their inner compass by engaging with their modern illusions and denials, facing their complicity with harm, retiring old habits of knowing and being and nurturing new forms of co-existence and political possibilities (Amsler, 2019; Stein et al., 2020).

Cartography 3 (Figure 1) recognises soft-reform, radical-reform and beyond-reform spaces as responses to the crises of modernity explored in other cartographies. Soft reform involves changing what we do (methodological or technocratic fixes, problem solving within prevailing political economy and the greening of capitalism, positivism). Radical reform involves changing how we do it (going beyond epistemological hegemony, recognising other forms of political economy and the greening of socialism,

structuralism). Beyond-reform involves challenging basic assumptions about the world and our place within it (going beyond ontological hegemony to explore 'other' ways of seeing, being and living in the world that involve spirituality and transcendence, critical realism). Overcoming nature/society and other modern dualisms is central to the beyond-reform space that leads via the recognition and rejection of metaphysical entanglement with modernity to the adoption of other modes of being based on different cosmologies.

Figure 1. Cartography 3: different approaches to reform with regard to modernity/coloniality (Source: Stein et al., 2020: 51).



Applying Figure 1 to sustainability politics suggests that sustainability politics occupies three spaces in Wales, which overlap, interact and contest one another and have links to such politics in the wider world. They may be considered as three spaces shaping the places citizens inhabit and their cynefin.

Mainstream sustainability politics in Wales: the soft reform space

Wales is a devolved part of the United Kingdom and powers and responsibilities for government are distributed across three levels: the Welsh parliament and Welsh government at the Wales level; the UK parliament and UK government at the UK level; and councils (local authorities) at the local level (Welsh Parliament, 2021). In 2021 Welsh Labour was one seat short of a majority in the parliament after an election in which only 47 per cent of the electorate voted, and 16- and 17-year-olds were able to vote for the first time. It entered a 'bespoke agreement' with Plaid Cymru (Welsh Nationalists) to share power and introduce such policies as achieving net zero by 2035; improving the supply of affordable and social housing; and improving the teaching of Welsh history in schools (Morris, 2021).

Both socialism and nationalism have proud histories in Wales (Atebol and GW, 2018), but social democracy remains the hegemonic regime of rule. Sustainability is to be realised by clinging to modern notions of progress and development and greening capitalism in ways that improve the well-being of present and future generations.

The Government of Wales Act 2006 requires the Welsh government to promote sustainable development. In 2015 the Well-being of Future Generations Act (FGCW, 2021) was passed and required public bodies in Wales to think about the long-term impacts of their decisions, to work better with people, communities and each other and to prevent persistent problems such as poverty, health inequalities and climate change. It establishes Public Service Boards in each Local Authority that are required to assess the state of well-being locally, by reference to seven well-being goals, and produce plans to improve it.

An annual report, *Wellbeing of Wales* (WG, 2020), assesses progress against a series of indicators relating to the goals which are mapped against the UN's sustainable development goals. Under the goal of a globally responsible Wales, a 2019 report *Wales and the Sustainable Development Goals* addressed global education, stating that 'Wales' new curriculum takes a transformational approach that embeds ESDGC throughout the curriculum through an international dimension, aiming to develop pupils to be ethical informed citizens' (WG, 2019a: 57).

The 2015 Well-being of Future Generations Act states that sustainable development is 'about improving the way that we can achieve our economic, social, environmental and cultural wellbeing' (FGCW, 2021). The Future Generations Commissioner for Wales (https://www.futuregenerations.wales/) supports public involvement by finding new ways to help public bodies involve citizens, including school students, in the decisions that affect them. It draws on advice from the Foundation for Sustainable Development and Democracy (Davies, 2017) and represents a move towards more participatory or deliberative forms of democracy. Along with legislative and constitutional reforms and deliberative mini-publics (for example citizens' assemblies), such offices are one means whereby liberal democracies can pay greater attention to safeguarding the future (Smith, 2021).

Future Wales, The National Plan (WG, 2021: n.p.) sets out development priorities for Wales, 'including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of our communities'. Regional and local plans will need to accord with the national spatial plan that is outlined for young people in an attractive summary. All parts of the plan are subject to strategic environmental assessment and sustainability appraisal that incorporates the well-being goals. The website of the Institute of Welsh Affairs (https://www.iwa.wales/) is a key resource for teachers, while Understanding Welsh Places (http://www.understandingwelshplaces.wales/en/) is a key site for information on Welsh places and planning. Environmental and development non-governmental organisations (NGOs) campaign on sustainability issues and engage with schools through the Wales Alliance for Global Learning (Climate Cymru, n.d.).

Radical sustainability politics in Wales: the radical reform space

The hegemony of social democracy and the soft reform space is challenged by those who maintain that the greening of capitalism is an illusion since 'a decoupling of economic growth from resource depletion and environmental degradation is at best possible only within certain sectors or product types and within relatively short time perspectives' (Næss, 2016: 188). Capitalism exploits both human and non-human nature through its growth dynamics and economic and political elites may oppose taxes, public spending and regulations whose purposes are to improve the welfare of present and future generations. Such opposition increases during times of economic crisis. It is also behind the difficulties of realising levelling up (Dean and Evans, 2022) and is reflected in ongoing culture wars and their impact on educational policymaking (ACT, 2022).

The radical alternative is the greening of socialism that involves radical democracy or the democratisation of all spheres of society (economic, political and cultural) at all levels, from the local to the global. Eco-socialism (Kovel, 2007; Löwy, 2019) seeks popular control over what is made, how it is made and how the conditions of production (ecological resources and services, places free of pollution and congestion, healthy and educated workers) are reproduced. It breaks with the productivist and anthropocentric assumptions of capitalism by focusing on socially useful production and ecocentric values. It also recognises the potential of new technologies to liberate human and non-human nature (Bastani, 2019) and seeks new forms of citizenship that recognise responsibilities to others, including others distant in time and space, and other species.

All too Human (2019) sets out a Welsh road to eco-socialism and Daniel (2021) considers the failure of Welsh devolution with reference to colonial and nonconformist legacies. TUC Wales (n.d.) calls for a green recovery and just transition while the manifestos of Welsh Labour, Plaid Cymru and the Welsh Green Party for the 2021 Senedd elections allowed interested voters to look for any impact of radical democracy and eco-socialism on their policies.

Kovel's (2011: n.p.) fifth thesis of eco-socialism states that 'eco-socialism is not a new kind of economy, but a new mode of production, and a new way of being: a spiritual as well as a material transformation, proceeding from prefiguration'. Kovel argues that as citizens engage in praxis

to prefigure eco-socialism and associated ways of living, they will spontaneously adopt an ethic of ecocentrism that cares for nature and grants it intrinsic value.

Struhl (2020) amplifies this claim by suggesting that sustainability requires abandoning the illusion of self, opening ourselves to the mystery, wonder and awe inspired by nature and developing a oneness with others and other species. Such transcendence or spirituality is a feature of Welsh Druidry, the key occupant of the Welsh beyond-reform space (Figure 1).

Sustainability politics 'otherwise' in Wales: the beyond-reform space

> My journey through the cosmology of Druidry, and the moral ecology found there, demonstrates some key points. Contrary to what we might believe, Druids don't seek to connect with nature; rather for Druids, Nature is connection. The cosmos is a community of an infinity of beings brought together through the elemental forms of Earth, Air, Fire and Water. This reality can be known and explored through both the body, and the spirit, the head and the heart. This unfolding landscape of relationships is essentially beautiful and it is through our aesthetic sensibilities we may come to know it for ourselves. In short, what binds the universe together – for Druids – is beauty; as much as physical laws. (Wooley, 2017: 15)

Wooley sees Welsh Druidry as part of the Romantic reaction to modernity, suggesting that it is a form of re-enchantment, an attempt to restore some of the magic and meaning stripped from the land through the alienating forces of capitalism and consumerism. Druidry seeks to put this process into reverse, challenging relentless commodification and alienation from our world by constructing an aesthetic of enchantment. This is done not by transcending our humanity but by forging connections (intellectual, emotional, spiritual and physical) with the world around us. An enchanted existence places the experience of delight and wonder at the heart of living, balancing the physical and aesthetic aspects of being.

Druid cosmology understands the world as enchanted; shared with spirits, gods, ancestors, fairies, sociable animals, speaking trees and divine waters that all take part in their rituals. Druid experience of the environment is animistic: the land, sea and sky are social places where life-essence needs to flow freely and is helped by these rituals and other actions. Animism (Durrant and Dickenson, 2021), where all beings share a human mentality but are distinguished by fundamentally different physical natures, is distinguished from totemism, which holds that human and non-human persons share a common physical and inner nature. Naturalism, the belief that humans have unique mental capacities that distinguish them from everything else in nature, with which we share our physical nature, is the prevailing dualist ontology in European/Western societies.

Druidic moral ecology draws on its aesthetic of connection to construct and enact social norms. Their ritual practices and lifestyles seek to ameliorate suffering experienced by other-than-humans and maintain the natural order. To be connected is to empathise, and empathy prevents cruelty and requires sustainability. The Order of Bards, Order of Bards, Ovates and Druids (n.d.) offers resources on Druidry for teachers.

Having reviewed the three spaces that shape the places that Welsh citizens inhabit, their cynefin and sustainability politics, we now turn to the new Welsh curriculum and its potential to foster students' ability to articulate sustainability within and across these spaces.

Background to the Welsh curriculum

Education in Wales is a devolved responsibility of the Welsh government. The development of ESDGC in the period from 2000 to 2015 was a joint state- and NGO-led process (DCELLS, 2008; Norcliffe and Bennell, 2010; Estyn, 2014) that drew on the concept of sustainable citizenship (Bullen and Whitehead, 2005; Dobson, 2011; Huckle, 2016).

A review of the Welsh school curriculum in 2015, *Successful Futures* (Donaldson, 2015), proposed four aims and six AoLEs (expressive arts, health and well-being, humanities, language literature and communication, maths and numeracy, and science and technology). The review makes no mention of ESDGC and refers to sustainability in the contexts of engaged citizenship and links across learning

(Donaldson, 2015: 28, 39). In the responses to the review some insisted on the inclusion of environmental and sustainable development education (WG, 2019b: 69).

The humanities area of learning and experience

A website (WG–EW, n.d.) acts as a focus for teachers and schools who will begin to introduce the new Curriculum for Wales in 2022. The humanities AoLE (WG–EW, 2022a) is all about 'asking questions about the human condition, encouraging learners to engage with the most important issues facing humanity, including sustainability and social change; and exploring human experiences in the past and present, at local, national and global levels'. It encompasses six disciplines (geography, history, religious education, business studies and social studies) and 'learners and teachers may reference other complementary disciplines, such as classics, economics, law, philosophy, politics, psychology, and sociology, if and where appropriate'. Schools are encouraged to design their own curricula but must have regard to statutory guidance that outlines what they are to take into account and how progression is to be assured.

The guidance for the humanities (WG–EW, 2020a) is in five parts: introduction; statements of what matters; principles of progression; descriptions of learning; and designing your curriculum. The introduction sees the humanities as central to learners becoming ethically informed citizens of Wales and the world and to promoting 'an understanding of how the people of Wales, its communities, history, culture, landscape, resources and industries, interrelate with the rest of the world'. It suggests learners should contemplate different perspectives that will 'help promote an understanding of the ethnic and cultural diversity within Wales' and enable them 'to appreciate the extent to which they are part of a wider international community, fostering a sense of belonging that can encourage them to contribute positively to their communities'.

Five What Matters Statements (HWMS) (WG–EW, 2022b; Box 1) are intended to shape curriculum design in the humanities. These focus on enquiry, representation, nature, society and action. After outlining the principles of progression, the guidance offers descriptions of learning at each of five steps for each statement: outlining achievement outcomes (what the learner can do) and contributory experience, knowledge and skills (what learners need to experience, know and know how to be able to do) (WG–EW, 2020b). These descriptions of learning are detailed and are perhaps the best guide as to what learning experiences are required. At step 5 of statement 4 learners can, for example, 'explain the importance of the role played by groups, governments, businesses and non-governmental organisations in the creation of a sustainable future, and how they impact on people and their rights and on the environment'. Under designing your curriculum (WG–EW, 2020b), the guidance offers itemised disciplinary concepts and contexts (Table 1) while pointing to key links with other areas, including health and well-being and science and technology, and reminding curriculum developers that local, national and international contexts, and human rights are cross-cutting themes. Ecology and sustainability appear to be minor aspects of science and technology with sustainability mentioned once in relation to the Science and Technology What Matters Statements, (STWMS, here STWMS5) (WG–EW, 2022d; Box 1) and ecosystems featuring only in progression step 4 of STWMS3 (WG–EW, 2020c).

Box 1. HWMS and STWMS relevant to sustainability. Note that in the guidance each statement is followed by a paragraph outlining its scope (Source: WG–EW, 2022b, 2022c).

Developing an enquiring mind enables learners to explore and investigate the world, past, present and future, for themselves (HWMS1).
Events and human experiences are complex and are perceived, interpreted and represented in different ways (HWMS2).
Our natural world is diverse and dynamic, influenced by physical processes and human actions (HWMS3).
Human societies are complex and diverse, and shaped by human actions and beliefs (HWMS4).
Informed, self-aware citizens engage with the challenges and opportunities that face humanity, and are able to take considered, ethical and sustainable action (HWMS5).
The world around us is full of living things which depend on each other for survival (STWMS3).
Matter, and the way it behaves, defines our universe and shapes our lives (STWMS4).
Forces and energy provide a foundation for understanding our universe (STWMS5).

Table 1. A selection from the disciplinary concepts and contexts that curriculum design in the humanities should consider (Source: WG–EW, 2020b, 2022e).

Discipline	Objectives of the school curriculum design
History	Develop a rich context for exploring the concepts of governance, economy, power, leadership, diversity, culture, ethnicity, equality and inequality, justice, rights, conquest, social, political and economic ideologies, social organisation and structures, trade, agriculture and industry, power and protest, peace, conflict and cooperation, revolution, devolution and empire (one of seven items).
Geography	Provide a rich context for exploring the issues of sustainability, climate change, energy choices, nature, natural hazards and disasters and hazard risks, pollution, scarcity of natural resources, food security, population, identity, ethnicity, migration, settlements, globalisation, consumerism and trade, initiatives to tackle poverty, inequality and injustice, contrasts between countries at different levels of development (one of five items).
Religion, values and ethics (RVE)	Explore the ways in which religion and non-religious philosophical convictions have influenced human experience throughout history, so that they can make sense of their place in the world, imagine possible futures and create responsible solutions that take into account the diverse needs and rights of all people (one of nine opportunities). Explore the concepts of equality, sustainability, tolerance, freedom, prejudice, discrimination, extremism, good and evil, which can give learners an insight into the challenges and opportunities that face societies (one of eight concepts).
Social studies	Develop an understanding of how systems of government in Wales operate and affect people's lives, and how they compare with other systems (one of six items).
Business studies	Expose learners to the economic reality that shapes the Welsh and global economies, enabling them to appreciate that this reality is constantly changing and to appreciate the impact it has on people's lives and the environment (one of four items).
Additional opportunities	Learn outdoors; visit and explore; engage with the community and observe or take part in social action projects (a selection from around 25 items).

As regards RVE, the guidance asks teachers to address students' connections to the wider and the natural world, and explore ultimate questions regarding the meaning and purpose of life. RVE is to cover religious and non-religious beliefs, foster spiritual development that may or may not involve religion, through connections to the wider and natural world and engage with ethical and moral issues in ways that develop students' cynefin and sense of place and belonging. One of the seven RVE sub-lenses and associated learning journeys focuses on the natural world and living things: 'how and why people show concern and responsibility for the world and experience awe and wonder in nature' (WG–EW, 2022e).

If teachers are to address the What Matters Statements and disciplinary concepts and contexts (see Box 1 and Table 1) in ways that acknowledge the politics of sustainability, develop students' cynefin, and foster their ability to articulate sustainability within and across the three spaces outlined above, they will need to refer to a philosophy of knowledge to guide them on enquiry and subject integration; critical pedagogy and global citizenship; and the development of learners as non-dual beings. Currently the guidance fails to provide that philosophy but it is available as critical realism.

Critical realism: a philosophy of knowledge to guide curriculum delivery

Critical realism is associated with the philosopher Roy Bhaskar and his followers (https://centreforcriticalrealism.com/). Hawke has edited a series of Bhaskar's seminars and videos in which Bhaskar (2017) introduces the three branches of critical realism. Huckle (2004), Khazem (2018) and Price and Lotz-Sisitka (2020) are among those who have applied the philosophy to education for sustainability. It is a development of dialectical materialism that maintains that the world should be understood relationally, holistically and systemically in terms of matter and material causes (see STWMS4, Box 1). Matter is best viewed as a system of relations or structures that give rise to forces and energy (STWMS5) that enable flows of material, energy and information rather than a complex of ready-made things which can be observed in order to deduce scientific 'truths' (positivism). The three branches of critical realism and their relevance to the new curriculum will now be explored.

Basic critical realism, enquiry and curriculum integration

Basic critical realism (BCR) starts by warning against the epistemological fallacy, or confusing what we know (epistemology) with what exists (ontology). While all knowledge is socially produced, changeable and fallible (epistemological relativism), BCR proposes ontological realism or the existence of real phenomena of which we may or may not have knowledge. These are stratified with those in the biological world arising from those in the physical world, and those in the social world arising from the bio-physical world. All phenomena (nature, place, cynefin, cities, political economies, languages and discourses) are hybrids, part bio-physical, part social. By acknowledging this, BCR collapses the modern dualism between society and nature and seeks to go beyond ontological hegemony (Figure 1). It invites a distinctive way of exploring and investigating the world (HWMS1) and thinking about the natural world (HWMS3).

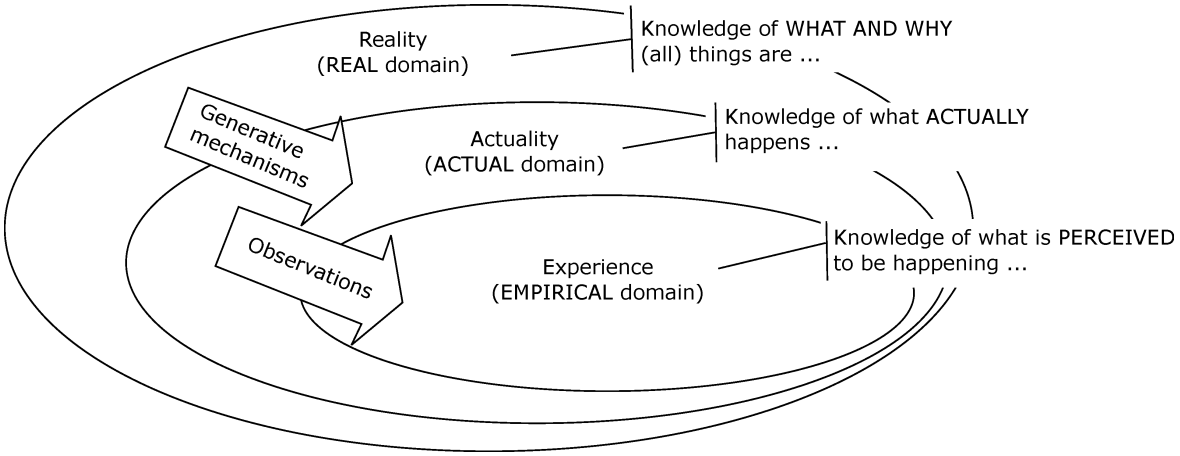
At the deepest ontological level (the reality of the real domain) are the real objective powers of phenomena made possible by the relations within and between them. At the intermediate level (the actuality of the actual domain) are events that are contingent on a particular configuration of causal mechanisms in the domains of the real and actual. These events may or may not be experienced or perceived at the surface level (the experience of the empirical domain). Developing an enquiring mind (HWMS1) consists of connecting knowledge of what is perceived to be happening (warmer winters, more frequent gales) to knowledge of what is actually happening (a warming atmosphere, the failure of global leaders to act on global heating) to knowledge of what and why things are (the greenhouse effect, the history of the fossil fuel economy, the lack of democratic global governance), as illustrated by Figure 2. BCR explains why events and human experiences are complex and perceived, interpreted and represented in different ways (HWMS2).

In expanding STWMS5, the curriculum guidance suggests that 'an understanding of forces and energy can help learners overcome future challenges and use our planet's resources efficiently and sustainably, helping them become responsible citizens of Wales and the world' (WG, 2021). But this is only true if 'understanding of forces and energy' acknowledges a realist nature or the 'nature to whose laws we are always subject, even as we harness them to human purposes, and whose processes we can never escape nor destroy' (Soper, 1995: 156), and considers technology-, market-, state- and citizen-led initiatives on sustainability and the regimes of truth, rule and accumulation (political economy) that shape their uptake in ways that develop students' abilities to articulate and contest sustainability from within soft-, radical- and beyond-reform spaces of sustainability politics. The sample of disciplinary concepts and contexts in Table 1 suggests ample scope for doing this.

Students should consider the real domains of ecology and political economy underpinning landscape, place (cynefin) and society in pre-modern, modern (industrial) and post-modern (post-industrial) Wales, their impact on citizens' lives (events and experiences) and the changing spaces of sustainability politics. Using cartographies in the GTDFC's study guide, they should explore modernity, its 'isms' (see radical-reform space, Figure 1) and their costs and benefits. To what extent has modernity, its dualisms and 'isms', contributed to or detracted from the seven well-being goals? Is the sustainability politics of soft reform hegemonic and if so how might supporters of radical and 'otherwise' politics and citizenship seek to advance their understanding and practice of sustainability? Mock elections

and citizens' assemblies, real or simulated participation in planning and engagement with the Future Generations Commissioner, political parties, trade unions, and NGOs on local, national and international issues, are some of the related pedagogical strategies.

Figure 2. The three domains and three kinds of knowledge proposed by BCR (Source: Bennet, 2013, Figure 4).



In all this, it is important to draw on non-dualistic academic knowledge. The environmental humanities (Heise et al., 2017, O'Gorman et al., 2019) question the form, meaning and ethics of nature and sustainability from the standpoints of philosophy, history, culture, geography and anthropology. The related critical social sciences also draw on philosophy and ethics, along with economics, politics and sociology, to explore what kinds of political ecology (Loftus, 2019) and citizenship (Hinton, 2014) can foster sustainable hybrid natures (Rudy and White, 2014) (see HWMS3and4; Box 1). Both fields of knowledge draw on the knowledges set out in *Pluriverse* (Kothari et al., 2019) and incorporate such concepts of posthumanism (Hobden, 2014) and ecocentrism (McShane, 2014).

Dialectical critical realism, critical pedagogy and global citizenship

Dialectical critical realism (DCR) claims that the agency of actors cannot be separated from social structures for they interact with one another (HWMS4). Citizens inherit social structures (modes of production and social reproduction) and play a role in deciding the extent to which they are reproduced or transformed via such activity as prefiguring alternative futures (HWMS5) (Kovel, 2011). Bhaskar (2002) merges a Western approach to emancipation that focuses on social change outside the self (the realisation of radical democracy) with an Eastern approach that focuses on self-improvement (the realisation of transcendence or higher states of being). He believed that leading a spiritual life does not require religious faith but that achieving oneness with others and the rest of nature is a theme in all the world's major religions. Marx saw in the development of such solidarity the erosion of alienation and the prospect of universal freedom, insisting that the free development of each was the condition for the free development of all (Marx and Engels, 1969). The goal of education is to help learners create themselves as non-dual beings (united with self and the rest of human and non-human nature) in a world that continues to be dominated by duality. This enables them to become global citizens acting in the service of humanity and the living world on which it depends (STWMS3 and HWMS5).

To encourage teachers to envision the pedagogy that is involved, Bhaskar starts from the claim that it is impossible to emancipate anybody and that all learning comes from within and from already lived experience. The role of the teacher is to draw out knowledge via a process akin to critical pedagogy or praxis (Gadotti, 1996) and link this to the student's growing sense of identity, self-worth and fulfilment. Critical pedagogy should develop students' judgemental rationality (what kind of ethics and political economy best enables us to realise sustainability?) and their ability to articulate their beliefs concerning

sustainability politics and citizenship in agonistic debate with others (Kenis, 2016). Ruttenberg (2009) draws on Mouffe's (2019) theory of radical democracy and left populism (see also Gilbert, 2008) to suggest that this ability lies at the heart of radical democratic global citizenship education, a view supported by Snir (2017) and Underhill (2019).

The philosophy of metaReality PMR, the development of learners as non-dual beings

Turning to pedagogy that focuses on self-improvement and spirituality, Bhaskar (2002) suggests that education should foster transcendence or a state of being in which individuals become one with the world, each other and themselves. He recognises four levels of transcendental identification, notes that we already practice these in our everyday lives and labels the highest level the transcendent self or ground state.

Humanity's ground state is the spiritual substrate of social life in which principles of reciprocity, solidarity and trust hold sway (see GTDFC's inner compass). It prompts non-instrumental reasoning, unconditional love, spontaneous creativity and solidarity, and can be used to resolve conflicts and guide decision-making. The related concept of co-presence is a mechanism of identification in which the learner comes to see the other (other human and non-human beings) as not distant from themselves but something they have reciprocal relations with and that they identify with empathetically and transcendentally (compare with the concept of resonance in Rosa, 2015). The other is part of them, is in them, and they are in the other. Being co-present with all other ground states enables global citizens to realise sustainability since it involves having no sense of my interest separate from others' interests, no ego (HWMS5).

Each of us in our ground state is unique. Non-duality is not sameness and our different embedded personalities and notions of how our ground state should find expression allow for agonistic debate over how social and mental blocks to emancipation and sustainability should be removed. GTDF's study guide (Andreotti et al., 2019) offers online resources to address three modern denials (denial of systemic and violent complicity in harm elsewhere, of planetary limits and of entanglement in a cosmology of duality) and help learners to know, be, relate and desire differently. Its exercises are based on two strategies: use of social cartographies to explore and connect challenges and possible solutions; and the development of 'radical tenderness' (practising resonance or transcendence) via the recovery of exiled capacities and support for dealing with the circularities that draw learners back to what they seek to transcend and for hospicing their commitments to an unsustainable modernity (see Figure 1). These exercises have considerable potential to enrich the Welsh curriculum when incorporated into radical democratic global citizenship education, as does the collective's advocacy of place- and land-based pedagogies that involve students in the regeneration of local ecological and cultural systems.

PMR requires the humanities, along with the expressive arts and languages, literature and communication, to foster a sense of belonging to place and community (cynefin) via learning experiences that resonate with learners' ground states. The guidance on RVE (WG–EW, 2022e; Table 1) provides a strong lead and outdoor education, music, literature, art and film should all be used to encourage transcendence, re-enchant the world and cultivate sustainability as a state of mind (Bonnet, 2004). Students should be introduced to the cosmology and 'beyond-reform' space of contemporary Welsh Druidry and should compare this to that of surviving pre-modern/indigenous societies elsewhere in the world.

Global citizenship education and the GTDFC

Readers will wish to place this article's radical democratic approach to ESDGC, underpinned by critical realism, radical democracy and left populism, within such typologies of GCE as those reviewed by Pashby et al. (2020) and compare it to the reframing of GCE as ecological GCE advanced by Jenkins (2021). The approach is post-critical in that it seeks to collapse modern dualisms but questions the GTDF Collective's assertion that many radical reformers have not recognised ontological hegemony. Such argument neglects the turn to ontology by those advocating radical ecological democracy and those researching the environmental humanities, the critical social sciences (Savransky, 2017), environmental

politics (Death, 2014) and environmental education (Toro, 2016; Price and Lotz-Sisitka, 2020; Stables, 2020).

Pashby et al. (2020: 161) wonder whether engagement with ontology can draw together approaches to GCE originating in development education and environmental education:

> A focus on systemic, historical and ongoing colonial and racial violence may prioritise access to means of development and fail to focus on unsustainability and the limits of the planet, while those working with unsustainability tend to foreclose systemic, historical and ongoing colonial and racial violence. We wonder if engaging with questions at the ontological level as suggested above could bring these approaches together.

By focusing on critical realism as a desirable philosophy of knowledge to underpin the Curriculum for Wales, this article has sought to show that engagement with ontology is indeed the key to bringing education for sustainability and education for global citizenship closer together.

Declarations and conflicts of interest

Research ethics statement

Not applicable to this article.

Consent for publication statement

Not applicable to this article.

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