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Education for Sustainability:
How Can Educators Address the Failure of Government?

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Abstract: In many respects education systems worldwide still contribute more to the obstacles than to solutions in humanity's quest to implement acceptable forms of sustainable living. The same appears to be the case with governments, especially at superregional and national levels. We summarise evidence suggesting that many governments fall short of their own broadly stated commitments towards sustainability. Their achievements are evaluated in relation to the Millennium Development Goals, and currently discussed notions about the forthcoming Sustainable Development Goals. Also, widely advocated transition strategies, in the educational sector and elsewhere, have met with only partial success. Our findings confirm our previous critical assessment of the UN's Decade of Education for Sustainable Development and of the dominant interpretations of sustainable development per se. We describe the extent of the shortfall and offer some explanations for it. In the classroom, efforts to educate for sustainability are dominated by contingencies, norms and possibilities that differ fundamentally from governance in their dynamics and contingencies. It is therefore possible for teachers at all levels to take the initiative in ways that can compensate to some extent for the failures of governments. This possibility is documented and further expanded conceptually to describe a productive operating space for educators to help prepare learners for the inevitable challenges of the transition. We refer specifically to the goals of making communities more resilient, reducing their ecological overshoot, and

maximising their human security. It is the level of community that offers the greatest potential for mitigating the failures of government as well as of traditional education.

1. Introduction

In her thought provoking political analysis of the 14th century, Barbara Tuchman [1] noted that "between the happening of a historical process and its recognition by rulers, a lag stretches, full of pitfalls." Such a lag has become painfully apparent during the past decade, as the biosphere continues to deteriorate while humanity's impact on it increases without any organised attempt to slow that increase. Since the mid-1980s global environmental degradation has been caused by humanity's condition of overshoot, defined as the collective ecological impact exceeding the biosphere's capacity to sustainably support it. Overshoot was initially demonstrated by comparisons of ecological footprints against biocapacities [2, 3] and later by analyses that showed the transgression of specific environmental boundaries [4]. The growing impact, as well as the self-reinforcing effects of overshoot have already contributed to the proliferation of violent conflict [5] and resource shortages [6], with worse to come as planetary conditions change [7].

The general lack of sustainability extends not only through the ecological dimension but it also manifests in the social and cultural dimensions as inequities in global citizenship. This includes extreme and growing socioeconomic inequity and inadequacies in literacy and women's empowerment. These factors contribute to structural and cultural violence, which fuels social upheaval and conflict [9].

In spite of the obvious deleterious effects of overshoot, the world's governments have neither acknowledged its existence nor attempted to mitigate its impact or to adjust its five driving factors – population growth, economic growth, technological expansion, arms races and growing inequity [9, 10, 11]. Proposals for mitigation date back to the 1970s [12], including equitable redistribution of resources, slowing the growth of populations and industries, and switching to sustainable technologies. Because unmitigated overshoot is destroying scores of ecosystems and uncounted numbers of species, along with our children's future, we regard this the most tragic failing of government; unfortunately it is by no means the only one.

The notion of governmental failure arises from several considerations. First, the public has numerous expectations of government that are fulfilled less and less. The Occupy movement of recent years was fuelled by frustrated expectations, demanding governments to intervene in the trend towards extreme financial inequity and reminding them of their duty to make such efforts. Those expectations are widely shared on the basis of familiar historical precedents that set certain performance standards, where responsible and farsighted persons in positions of leadership enacted policies that favoured social justice, economic stability, equitable quality of lives, and sustainable peace. Examples such as the Roosevelt presidents (a possible standard for the Occupy movement), the founders of the European Union, the founders of the League of Nations and the United Nations, Nelson Mandela and various other notable leaders verify abundant opportunities for success. Those exemplary leaders were able to

overcome the confines of entrenched beliefs that have historically led many average administrations into failure [13, 14]. Other notable successes were achieved in response to public pressure and referenda. Expectations of governments also derive from an understanding that governments have a duty to exercise all their power for the benefit of the broad citizenry and not influential special interests. Some responsible leaders, such as former US vice president Gore, expressly acknowledge the duty and opportunity on the part of governments to effectively facilitate sustainable policies, as well as their widespread failure to do so [15].

Furthermore, many present-day governments are routinely breaking their own campaign promises as well as established rules of procedure such as court rulings against them. Ideals of honesty and fair dealing that are kept alive through shared myths and values in a society are gradually being repudiated [16]. By their own conduct and discourse, governments affirm their duties, the existence of opportunities to fulfil them, and the public's expectations on them, only to renege on their affirmations later. Promises are habitually inflated to unrealistic proportions during election campaigns, which is difficult to refrain from as long as the opposition does likewise. They make disappointment inevitable and by and large the public come to expect it. The resulting disillusionment on the sides of both governments and the governed is particularly obvious in North America where the "violence of organised forgetting" has depoliticised, homogenised and disenfranchised the citizenry [17]. Globally, widespread public disillusionment over the inability of the most influential world leaders to agree on binding emission targets and production limits in one glamorous conference after another, aggravated by news of deliberate disinformation campaigns about anthropogenic climate change with occasional governmental complicity [18], has fuelled intense civil protests and NGO initiatives. They charge governments with wasting real opportunities and demand that they act on their duties [19, 20, 21] – a clear indictment by a majority.

Moreover, even outside of election campaigns governments appear unable to adjust their promises to what is realistically possible. Expectations are kept high partly by inflated notions of the possible, fuelled by ideologically influenced beliefs in materialistic progress and endless growth. To a large extent those cornucopian notions proved baseless once humanity entered overshoot, though to the scientifically literate minority they must have always seemed unsound. Other notions of the possible are fed by democratic ideals that form the basis of constitutions and political norms in Western societies. Those ideals are jeopardised to the extent that electorates have become undereducated, disinformed, disenfranchised and misled by demagogues and corporate interest groups [22]. While the global crises demand unusual levels of enlightened international cooperation, voters in the United States and several other countries are engulfed by 'endarkenment' [23]. Governments have found it increasingly difficult to cater to their often unrealistic demands while disavowing them remains politically suicidal – hence their inflated promises. This dilemma provides a partial explanation for the politicians' obstinate insistence on economic growth as an absolute requirement of progress while every schoolchild understands that nothing can physically grow forever.

Table 1. Manifestations and Evidence for Government Failure.

CATEGORIES & MANIFESTATIONS	EVIDENCE
Injustice Collusion in the delaying, distorting, denying, discrediting of evidence for anthropogenic climate change; Inequitable emphases in health research and reproductive services; Continuing adherence to undemocratic electoral systems (FPP), nevertheless not making use of the theoretical advantages of plutocracy; Relinquishing important decisions about the public good to the private corporate sector Refusing to take effective steps towards demilitarisation and to stop arms races and torture; Shifting fiscal priorities from public to private education; Support of liberalisation of global trade as an unacknowledged ideology.	Organised public misinformation [31]; Canadian federal policies [32, 33]; one result is the 'culture gap' [34]; Budgetary priorities are unjust and counterproductive [35]; insisting on a pointless 'war on drugs'; "Tragedy in the Commons" [36]; "Social de-engineering" [37]; Decision-making shifted from states to corporations [38]; prolonged labour disputes in Canadian provinces; abuses of power [16]; Absence of learning from history [39]; expansionist policies by NATO and Russia; failure of the Canadian government to sign the 2002 Optional Protocol to the Conventions Against Torture, as promised in 2006. Disproportionate budgeting. Provincial legislation in some Canadian provinces; "organised forgetting" [17]; Public pretenses of trade liberalisation as "*post-ideological* recognition of law-like truth" [40]
Unsustainable economics Failing to limit unsustainable lifestyle choices while disadvantaging small businesses; Subsidising unsustainable industries and refusing to subsidise sustainable ones; Shifting the tax burden away from the 1% most affluent ("corporate welfare") Enforcing global trade and catering to free markets while	Agricultural subsidies; permitting malnutrition; Misguided policies for development aid [30]; Fossil fuel production versus solar and other alternative energy sources; no plans for "peak everything" [41]; Eight % of humanity reaps 50% of global income; the top 1% alone takes home 15% [42, 37]. WTO rules discourage many sustainable policies. Stifling of domestic manufacturing. Neo-imperialist co-opting of agricultural land in countries that need it desperately for

prices do not reflect full costs; 'Land grabs' by affluent countries in poor regions; Continuing obsession with economic growth and associated policies; neglecting the precautionary principle; short sighted, exaggerated optimism;	themselves [37]. Explicit, unapologetic public statements, partial failure of MDGs [30]; extreme status quo bias [43, 37];
Environmentally destructive Instigating or colluding with the obfuscation of threatening scientific information; Failure to implement drastic regulations, limits, norms on greenhouse gas emissions and other pollutants despite overwhelming evidence; Allowing ecosystems to collapse as long as the perceived economic damage is negligible; UNESCO's failure to achieve the goals of sustainability education (DESD) [48]; Unworkable and ineffective environmental agreements; Millennium Development Goal (MDG) on environmental sustainability was not achieved.	Slow reaction with neonicotinoids and other harmful industrial products [44]; Failure to reach consensus at Rio, Copenhagen, etc. [45]; poor attendance at UN Global Climate Summit 2014; encouraging fossil fuel extraction despite peak oil; building coal power plants despite worsening climate change [46]; exploitation of resources to their depletion (e.g. fisheries); "Trophic downgrading of ecosystems" as a result of "development" [47]; Educational outcomes remain widely unachieved [49, 50]. Overshoot continues unabated [51]. Only 10% of environmental agreements are effective [52]. MDG Gap Task Force Report [53] admits partial failure. Instead, MDGs are to be replaced with SDGs [54].
Detrimental to public health Monopolistic production and continued marketing of unhealthy foods; Refusal to acknowledge the population problem; Failure to curb greenhouse gas emissions in a timely fashion, jeopardising environmental health Laissez-faire attitudes on labour relations increased stress at the workplace.	Dominant unsustainable agricultural practices and their legislation; continued incidence of obesity and malnutrition; [55] Governments and media continue to avoid discussing population issues [24]. Continuing subsidies and promotion of fossil fuel production [56]; The average British employee works 80,224 hours over their working life, compared with 69,000 in 1981. Similar figures hold in the US and Canada [57, 42; 58:21].

Nowhere is this insistence more uncompromising and naïve as with issues involving population growth. The widespread belief that the continuing growth of the global human population even at this stage does not constitute a problem is protected by a taboo so powerful that few politicians have found it safe to support any effective countermeasures [24, 25], despite a strong moral duty to try [23]. The numerous policies and programs of the United Nations indicate a virtual paralysis on this point, restricting themselves to hopeful exhortations about hypothetical demographic transitions [26]. At the same time, any effective plan to counteract overshoot would be doomed from the start if it did not include sustainable population targets and measures for reducing fertility accordingly [27, 28]. More than any other shortcoming, this failure renders a considerable portion of the UN's Millennium Goals unachievable [29, 30].

Any charge of failure rests on a claim of superior judgment. We wish to emphasise that for most of the incidences discussed here that judgment is not just ours but that of many analysts [15, 16, 20, 24, 23]. This does not mean that such judgment necessarily concurs with the majority opinion. Some critics go further, alleging active collusion of governments with corporate interests in dismembering and silencing civil society and democratic discourse [21, 18]. Our evaluations are based on comprehensive concepts of human security such as the Four Pillar Model [59] which favours long term sustainability over short term benefits. Yet, comprehensive interpretations of human security are not universally accepted.

Table 1 lists the most obvious manifestations of governmental failure in no particular order. In keeping with the Four Pillar Model, the entries are organised according to four primary effects: injustice, unsustainable economics, environmental destruction, or detriment to public health. As many kinds of failure exert their effects across those fields, alternative associations are plausible. The four effects show the diversity of arguments for those failures, from deontological charges of violation of professional duties to consequentialist charges of injustice or economic, environmental or physical harm.

Some of the failures are particular evident primarily in the US or Canada, as in the cases of permissive emission policies and the gagging of scientists. Others, such as trade liberalisation, occur much more globally. Likewise, their effects range from regional (as with undemocratic electoral systems) to global (as with UN population policies). Other items in the table exert their harmful effects indirectly, as with the shift in educational priorities; a semi-private education system will aggravate social stratification and inequity, which in turn gives rise to social instability and conflict at some future stage [17].

Some countries present notable exceptions, indicating what can be accomplished when governments are empowered and morally conscientious enough. An example is the development of labour rights in the EU with the aim to reduce stress at the workplace, saving millions in public health expenditures. In North America, the trend goes in the opposite direction [42]. Fertility rates have been dramatically reduced by deliberate government policies in China, Iran and Costa Rica [60]. Unfortunately such positive examples are unlikely to accomplish a global turnaround as long as they remain exceptions.

Many of the negative effects give rise to potential downstream cascades that could manifest in diverse dystopias. For example, an undemocratic electoral system is likely to cause public disaffection, civil disobedience. The lapse of central authority at a national scale invites the danger of brigandage [1], a kind of collective anarchy, which in turn would have disastrous consequences for economies,

public health and human security in general [61, 62]. Because of their more speculative nature, we are not focussing on such downstream scenarios in this essay.

2. Explanations for Government Failure

In order to find how these failures might be mitigated, it helps to look for some explanations. Foremost in that analysis comes the question of intent. To what extent is a governmental failure, and underlying negligence or malpractice, intentional? The corollary question is, to what extent is such failure by omission or commission caused by mere incompetence?

Intentional failure means governance in bad faith. Causative factors include counterproductive ideologies or worldviews, such as cornucopianism or cultural parochialism [63], or corrupt practices and hidden agenda. Many spectacular failures are caused by policies that favour the short-term interests of corporate groups and not the public good, suggesting possible corruption and morally sanctioned greed [37:15].

Conversely, inadvertent failure could be caused by a lack of vision, lack of confidence, excessive caution, lack of information, or basic incompetence [64]. The latter includes *status quo bias* favouring the path of least resistance. Among the citizenry, pervasive manifestations of cognitive bias, mental habits and moral ineptitudes tend to hamper the transition to sustainable life styles [65] and permit failing governments to continue. However, at the level of government it seems appropriate to expect a higher standard. To the extent that positive precedents suggest that governmental success is possible in principle, we exclude scenarios where prohibitive circumstances compromise a government's odds to succeed. In other words, our charges of failure only apply to governments with a realistic potential of achievement under their specific circumstances. As Table 1 suggests, this still leaves plenty of occasions.

The debate on government failure developed an interesting twist with the contention that democracy in itself may be unsustainable under the present circumstances [66]. Powerful arguments have been proposed in favour and in opposition to this contention [37, 67, 23]. For reasons of brevity we conclude only that no acceptable correlation exists between the form of government and its likelihood to succeed on particular policies. We acknowledge that a shift in modes of decision-making away from the democratically inclusive mode toward a plutocratic industrial mode is viewed by many as morally objectionable, because most of the important decisions are made in secret on the basis of minority interests. At the same time, we cannot reject out of hand the proposition that such decisions as are most urgently necessary under the current predicament are becoming increasingly impossible to achieve by democratic means, at least at the national level. We will revisit this question in the discussion of educational mitigation.

Among the many contextual factors that determine a government's latitude for failure is the capacity of civil society, and especially the media, to monitor and critique official policy and to force a change. Specifically, one might ask if a persistent failure of government is even possible without a parallel failure of the media in their responsibility. While such general questions lie beyond the scope of this essay we will explore below the particular potential and obligation of educators to make a difference.

Lastly, objections to our approach might be raised with the proposition that all governments will inevitably fail eventually as their life spans, resources, and capabilities are more limited than are many

of their potential challenges. In response we point again to the wealth of historical precedents where governments succeeded against significant odds, if in some cases only temporarily. It is the comparison against such precedents, given approximately comparable circumstances, on which our definition of failure is based. Even with respect to challenges in the transition to sustainability, where a successful transition depends on discontinuing dominant traditional trajectories and embarking collectively on radically new policies, historical precedents have been identified where some cultures succeeded while others failed [68].

3. Mitigating Governmental Failure: The Potential of Education

Obviously humanity has every reason to re-evaluate its practices and aspirations in order to achieve a timely transition to a sustainable existence on the new *"Eaarth"* [7]. At the levels of government such a re-evaluation has evidently not occurred. Yet, the prospects for 'fixing governments' directly are not encouraging. Conservative neoliberal majority governments with expressly laissez-faire agenda continue to govern in many countries over multiple terms, as in Canada and New Zealand, and time is running out as overshoot worsens. Moreover, there is no guarantee that changes in governing parties or individuals would improve the situation. A look at factors external to government such as education seems therefore not inappropriate. However, before we explore the potential of education to mitigate that situation, it is necessary to point out that with respect to sustainability and many of the other challenges discussed above, education, too, has failed us so far [69, 70, 71].

Nowhere is this more evident than in the absence of appropriate behaviour change in graduates, especially from economics departments at universities, which blatantly contradicts explicit commitments to sustainability made by their own institutions [72, 73]. We agree with others that the greatest amount of harm in this crisis has been done by people with higher degrees [74, 70]. Their actions and decisions tend to contribute to a worsening of the crisis and a deepening of inequities and insecurity. The five self-reinforcing processes that drove humanity into overshoot and the present crisis are to a large part propelled by the ill-advised, short sighted and self-serving decisions of this well-educated minority who collectively hold a considerable share of global political power. By virtue of their educational backgrounds, professional competence and social status those individuals are privy to all the pertinent information regarding the consequences of their decisions. They can neither claim ignorance nor can they deny moral culpability. The primary motivators in those leaders as well as in many affluent consumers are inappropriate values and attitudes, and that is mainly where education has failed [65].

Recognising the potential of education for sustainability and humanity's global responsibility to work towards a timely transition, the United Nations established the Decade of Education for Sustainable Development (2005-2014) (DESD). Yet, the continually worsening overshoot raises the question why it has accomplished so little. UNESCO's own report [49] indicates that DESD has achieved its aims only marginally, and that it has created little progress on the main agenda for the transition. In an earlier work we suggested that the failure of DESD was mainly caused by the use of inadequate theoretical models, inattention to systemic limits, and unwillingness to resolve among conflicting values [50]. Like many other policy makers, UNESCO evidently did not recognise the extent to which a successful transition depends on radical breaks with traditional policies [61].

The failure of education can partly be blamed on inadequate top-down support by governments, support that should have strengthened appropriate learning outcomes in the official school curricula [34]. But since all education amounts to a political statement made by its contributors (administrators, teachers and parents), it is also the cultural context that has been failing to supply adequate incentives. Counterproductive learning outcomes continue to be promoted through the hidden curriculum [75]. A re-evaluation of education must address the cultural drivers - dominant beliefs, attitudes and values – that have caused the delaying, distorting, ignoring or denying of signals of overshoot. This potential for grassroots initiative is mainly where education can play a crucial role towards facilitating our transition to sustainability and mitigating the failure of governments to do so.

Toward that end, we identified six major aims for a revised educational approach towards sustainability and more effective government [65]: developing a notion of progress independent from material growth; shifting from anthropocentric values towards ecocentric ones; developing a vision of the future built on real change and innovation; abandoning parochialist thinking in favour of a sound balance between global and local; acquiring the requisite cognitive skills; and liberating oneself from oppressive socioeconomic constraints. Numerous methodological recommendations, largely culturally contingent, have been made (e.g. experiential approaches), including their applications to teacher education [76]. In order to identify particular educational agenda for mitigating government failure, we compared those six aims against the manifestations of government failure listed in Table 1. Four such agenda emerge, which we will discuss in turn.

3.1. Addressing Beliefs About Progress and Development

One reason why DESD failed to live up to its ideals is evident in its title: It implies that its designers regarded sustainability by itself to be insufficient as a goal, that it needed to be framed as 'development'. Unfortunately the literature on sustainable development is fraught with contradicting interpretations of sustainability and development.

Although much controversy has arisen around the meaning and implications of the term development, most people generally equate it with multidimensional innovation or growth that achieves positive outcomes for the quality of human lives and/or for human security. It is variably applied to the areas of financial income, employment, distribution of wealth, education, political autonomy, basic needs for survival, health of populations and ecosystems, equality, self-esteem and dignity, and freedom. *Sustainable* development, then, includes any such innovation or growth that does not compromise the ability of future generations to develop along the same lines [77]. This agrees with the definition by the World Conservation Union (IUCN), 'improving the quality of human life while living within the carrying capacity of supporting ecosystems' [78]. Thus, living sustainably means that no systemic limits are being transgressed.

The majority of humanity no longer live sustainably, nor can their collective impact be sustained. In the context of international aid, we have shown [30] that most programs and initiatives proclaimed to promote 'sustainable development' qualify neither as sustainable nor as development in any long-term sense. Any educational effort towards clarifying what a progressive vision of a better world might entail would therefore have to build on a concise, scientifically sound definition of sustainability, as a vital part of a grounding in scientific literacy.

Scientific literacy is often interpreted as a set of practical skills, culturally contingent and enabling the student to interpret competing arguments about science and technology concepts [79], as well as logical reasoning from available facts and planning ahead. However, in order to meet the task of mitigating the effects of government failure, it needs to include humanist values, transformative and collaborative attitudes, moral judgment and empathy [37:5]. Skills for critical thinking and transdisciplinary analysis also need to be complemented by appropriate dispositions [80, 37, 81]. Cognition and scientific understanding by themselves cannot inform moral decision-making [82].

Another necessary set of skills addresses the need to unlearn much of the obfuscatory and misleading interpretations of sustainability that abound [83]. Important targets for unlearning are some of the myths that we tend to create and rely on for conceptual explanations and for normative justification and evaluation [84]. Those myths take the form of explicit values, attitudes, ideals, beliefs and paradigms that have outlived their utility in this crisis situation. One myth that clearly informed DESD and many other well-intentioned development programs, is the belief in the unlimited growth of economies and populations (cornucopianism) and resulting counterproductive notions of what constitutes progress [85, 30]. The need for unlearning follows from the fact that much of education has resulted in the perpetuation of those myths rather than in their critique [23, 87]. We therefore suggest that scientific literacy should include the skills for metaethical comparisons and moral reasoning. As a contingent objective, the learner should become aware of the manifestations of government failure (international comparisons might help) and possible explanations.

Fortunately much more scientifically sound visions of progress have been proposed by numerous professional organisations and experts [56, 61, 88]. They define progress as movement towards sustainability. Supported to a much greater degree by legitimate scientific assessments of the status quo and its trends, they demonstrate how misconceptions about 'sustainable development' can and should be resolved. They share the recognition that all human activity depends unconditionally on the health of the biosphere. As this dependency is unidirectional there can be no 'balance' between the two, or between environmental, societal and economic considerations, as the UN postulate - only compliance by the former with the conditions imposed by the latter.

The requisite behaviour change goes rather deep: Humanity's collective environmental impact must decrease and remain below the maximum sustainable impact, according to the I=PAT relationship [89]; this will require not only much greater efforts towards lowering consumption and greater distributive equity but also a reduction in population; and natural ecosystems around the world will have to be strengthened, stabilised, restored and enlarged to halt deteriorative trends. A team from the Stockholm Resilience Institute proposed a set of sustainable development goals to meet most of those conditions [4].

A scientifically sound vision of development and progress also recognises, unlike the DESD, that substantial global environmental change has already invalidated some treasured assumptions, such as an immutable carrying capacity supporting several billions, a benign and predictable climate, and the eternal availability of fertile coastal lowlands [7]. The likelihood of an ecological 'bottleneck' event and the humanitarian duty to prevent suffering necessitate measures to ensure the acceptable survival of the greatest sustainable number [90, 30]. The required collective wisdom could only be developed through intense educational efforts. The emphasis should be on the word 'collective', for it is in the collective respect that our species utterly fails to live up to its species name. Collective wisdom also

includes effective and ethically acceptable population policies that cushion the impact of what will otherwise be a cataclysmic reduction in the world's population by natural means [29].

3.2. Conflict Resolution and Non-Violence

Of the five factors that have been driving humanity into overshoot, arms races are probably the most irrational, devastating and intransigent at the same time. Global military spending, about half of which is contributed by the US alone, has exceeded the levels of the cold war [91]. Contrary to continued lip service by governments to peaceful coexistence and disarmament, the development, production and sales or arms has never been more lucrative. Somehow not even the horrific humanitarian toll of the armed conflicts in recent history, the obvious zero-sum limitation of power struggles on a single planet, the diversion of resources away from the most pressing humanitarian causes, and the tragic and pointless damage to the biosphere caused by high-tech weaponry are able to sway governments towards serious collaboration. Nor do the underlying massive industrial interests seem to make any change of mind on their part appear likely.

Sadly, the failure of governments to drastically curb militarism and to redirect public initiative towards the crucial challenges at hand can only indirectly be counteracted by civil action. That is, it can mitigate the economic and political causes of war only in small increments over long periods. As an instrument of ideology, education has contributed significantly to the militarisation of societies during the past century, enabling unscrupulous leaders to send entire generations to their death in the senseless meat grinder of modern warfare without substantial civil opposition. Education has variously promoted or abetted nationalism, hatred, delight in spectacles, masculinity, religious extremism, and the search for existential meaning by violent means.

We suggest that this pivotal role of education can also act in the reverse direction, that appropriately designed learning activities can erode and replace those attitudes and tendencies [39]. Such efforts must aim at rendering explicit those psychological factors and helping students to understand the forces that manipulate them [92]. Efforts to erode parochial nationalism, selective remembrance, and the sheer glorification of organised violence by the media and entertainment industries would be more successful if they were supported not just by pacifist NGOs but by legions of teachers committed to a vision of peaceful futures for the students under their care. Again, much of these efforts rely on unlearning harmful ideological baggage.

The scope for such action is still wide open. The groundwork would include a serious effort to adapt to the political realm the principles of nonviolent conflict resolution under which many schools have operated for decades. The growing anti-bullying movement at schools is an example how the principle of nonviolence can inform resolute opposition to the axiom of "might makes right" [92] which often still dominates political decision making in economic and environmental policy. This would necessitate the opening of the student's mind to the political dimension of public life, rather than the compulsive turning away from politics that is fashionable in many North American schools.

3.3. Critical Reflection and Active Involvement

Compensating for the failures of political leadership requires that teachers and curriculum designers become convinced of the importance and the potential of education for change. Opening students' eyes to their rights and obligations in the political sphere is one necessary condition. Another is to induce

students to apply an adequate measure of critique of current governmental practices and omissions. This requires that classroom practice must be enriched with elements of critical theory [87]. Targets include the many instances where official policies force people to live unjustly and unsustainably. Whether such policies are governmental or corporate, they must be faced head on through critical engagement by the learner [23].

Some behavioural psychologists have focused on remediating specific human characteristics that prevent people from responding appropriately to information about a crisis [93, 84]. They include conceptual blocks and cognitive bias, moral ineptitudes, and counterproductive mental habits [65]. One example is Aristotle's *akrasia* (weakness of will). Official curricula, even those that mention sustainability, offer little indication that their authors might have considered any of those specific issues. Nor do they fare much better on the affirmative side, where educational reform needs to strengthen affective learning outcomes that help with the transition (such as intrinsic values, sufficiency, biophilia), and to empower learners to liberate themselves from oppressive dependencies such as consumerist norms [65].

A crucial area of learning that determines whether such a widespread change of heart is possible addresses the question of who makes the important political and normative decisions, and at what levels of the public sphere. Sociologists distinguish four theoretical models of decision making - atomistic or individual, collective, autocratic, and fatalistic [94]. The last one involves laissez-faire, or the absence of any significant innovative decision making of any kind. In the real world, societies use culturally contingent combinations of those. The learners are to engage in deliberations about optimum combinations that might maximise our chances to achieve sustainable solutions. Historical precedents are to be considered [68], various forms of participatory governance, the contributions of civil society, as well as the scope of subversion by individual citizens and communities that might help destabilise counterproductive policies and turn the tide towards sustainable living at the local level, away from the 'problem of civil obedience' as Howard Zinn [95] put it.

The need for civil disobedience represents a political can of worms that many teachers and students would rather leave closed. However, the failure of governments has rendered that option increasingly unjustifiable. The historical framing of counterhegemonic movements depends largely on the politically partial evaluation of their successes; the Merriam-Webster Dictionary (of American English) describes the Jacobites as a terrorist movement while the French consider the Jacobites among the founders of their republic and its democratic values. Anders Behring Breivik, the perpetrator of the 2011 mass murders in Norway, said that one person with strong beliefs holds more power than ten thousand with mere interests [96]. Obviously strong beliefs can lead to any behaviour ranging from mass murder to extreme selflessness. Can the optimum distribution of decision-making be achieved if more people ardently believe in sustainability? We believe that a carefully guided learning process involving the general citizenry can make the difference between a sustainable future of democratic governance and the descent into dictatorial rule inspired by immoral consensus [66].

3.4. Values and Attitudes

Prevailing values and attitudes will exert the pivotal influence between those two alternative futures, and the preceding discussion suggests that education can make a crucial difference. It has been argued widely that value education for sustainability is not only feasible, its considerable potential

renders such efforts entirely worthwhile and imperative [65, 92]. Numerous initiatives, both of the bottom-up and top-down kind, are underway [97, 98, 73]. Yet, on the whole the education sector worldwide has not lived up to its potential because many teachers are officially discouraged to explicitly engage with values, and hesitate to engage with the pedagogical challenges associated with the teaching and the assessment of affective learning outcomes [99]. Official curriculum programs such as DESD mainly ignore the metaethical analysis of conflicting popular values and the specific promotion of dispositions towards sustainability [70], which, as we suggested [50], may have been instrumental in their lack of success. The question underlying this metaethical analysis is not whose values should count but which values inform safe and sustainable behaviour [65].

The essential role played by affective learning outcomes in allowing the learner to achieve is also illustrated by the frequency at which their absence correlates with failure. Academic underachievement is almost always accompanied by a lack of productive attitudes, poor self image, and a fatalistic outlook towards the future [100]. Moreover, individuals who have changed their ways of living towards sustainable alternatives invariably invoke new personal values as their main motivators, such as intergenerational justice. In view of this powerful potential of value change, there seems no excuse for continuing the traditionally permissive views and moral relativism in current curricula. In the absence of adequate support from regional ministries, the requisite sea change towards globally equitable human security and justice and ecocentric restoration [23, 70] must be driven by teachers, local schools, and local communities [87]. They are best able to facilitate the unlearning of traditional moral norms such as boundless anthropocentrism, wealth as security, commodification of nature, and ethnocultural parochialism.

Of course, any such profound course change in education must be accompanied by similar changes in teacher education. Some pre-service programs have begun to include a sustainability focus including learning outcomes on taking appropriate action, compensating for past failures, problem based learning and critical scientific literacy; also the questioning and challenging of values, though not going as far as their subversion. They also recognise the teacher's obligation to engage with the wider social context and to work towards institutional restructuring [71, 76].

4. Complementing Towards Success: The Community as a Unit of Activism and Resilience

We suggest that the appropriate level at which educational mitigation of government failure can be effectively implemented is the local community, for several reasons. First, we saw that convincing learners of the reality of overshoot in pursuit of sustainability-focused scientific literacy is left to individual teachers who themselves must be so convinced in the first place. Top-down directives are less likely to accomplish that than is intercollegial networking and professional development, as well as appropriate pre-service training. The message that the most sustainable countries tend to be among the least 'developed' [86] would be met with petulant disbelief by teachers and students in affluent countries if it came from a central government, as it directly contravenes their lifelong indoctrination with patriotic ideals of hyperconsumption. In contrast, such a critical examination of their assumptions about progress can come about through a gradual development of critical scientific literacy as we explained it.

Secondly, communities are less prone to government failure. The failure of governments at the international, national and regional levels have inspired ideas about greatly empowered municipal

administrations becoming the most effective unit of government in the future [101]. Cities are not caught in zero-sum competitions for power. Within properly drawn bioregionalised boundaries (including satellite communities and ideally the cities' entire footprints) and including their informal economies, cities are economically viable and ecologically sustainable autonomous units. Such bioregionalised communities can serve to reinforce the idea of our absolute dependence on host ecosystems that has become largely obscured with the advent of the industrial age [43].

Internal arrangements of informal power sharing within a community allows for a degree of equity that could not be realised at a national scale. Community citizens are participants in the political process, not passive bystanders, and their autonomous governance can bypass the prohibitive inertia of national institutions. Global coordination as 'networked glocalism' can be achieved within a 'world conference of super mayors' [101] inspired by the common goal of mutual survival [30] and the shared interest to ensure a 'prosperous way down' [102] and a soft landing into a sustainable modus vivendi.

Thirdly, the environmental exigencies of global environmental change and our transition to sustainability will be accompanied by significant hardship. The most promising unit of social organisation that could cushion that impact is a resilient community within glocalism - a network of cooperating autonomous communities [103, 37:12). Resilient communities illustrate not only the interdependencies between humans and nature, they are most likely to develop the necessary flexibility and adaptive capacity to move below sustainable boundaries, by establishing a new kind of social contract. Their place-based perspectives facilitate the necessary social-ecological innovation, addressing ingenuity gaps through networking and through governance informed by scientific and ecological literacy [37].

An important aspect of community resilience is its cultural dimension. The social function of local schools contributes to the cultural vitality of a community, and ultimately promotes its social and cultural sustainability. At the individual level, retaining one's cultural identity is important for student motivation, and for finding relevance in the curriculum. It is at the community level that students can be prevented from losing their cultural identity and contact with nature [104].

Lastly, the lack of effective top-down initiatives for educational reform and the urgency of the situation leave little alternative besides proactive initiatives from the bottom up. But the much acclaimed libertarian ideal of autonomous individuals changing their own lives and those of their family members will not suffice unless it is complemented by a cohesive community motivated by a common cause. We conclude that it is the level of community that offers a promising compromise between individual autonomy and collective empowerment, as well as the greatest potential for mitigating the failures of government and of traditional education.

5. Conclusions

Our documentation of government failure included many levels and many countries. It pointed to a leadership vacuum that greatly impedes humanity's transition to a sustainable future of acceptable quality in humanist terms. In collusion with that shortfall, traditional education has in many respects also failed to prepare learners for the requisite cognitive and normative sea change. The good news is that by remedying that failure of education, particularly at the level of community schooling, the failure of governments can be mitigated as well, at least in part.

A central focus of effective education for sustainability is the development of community resilience. It prepares communities for a safe transition by empowering learners to actively contribute to the governance and management of their community as the appropriate bioregional unit of survival. The educational aims of this pedagogy include critical scientific literacy as a means to revise dominant counterproductive beliefs about progress and development; a firm commitment to peaceful and nonviolent means of conflict resolution; opposition to further militarisation of cultural discourse and the intrusions into local economies by national military-industrial interests; critical reflection on manifestations of undemocratic, unethical or unsustainable government-industry collusion and deliberation on community-based countermeasures, including subversion; and the development of values and attitudes that support the above outcomes and sustainable life style choices.

By focusing on community resilience, these educational measures help to enable communities to mitigate and adapt to the impacts of environmental change, economic constrictions and political strife while taking an active role in shaping the transition at the local level. In contrast to the failures of government at the superregional levels, communities in urban and rural contexts appear better equipped to achieve those changes.

One cautionary note on the limits of the community approach concerns the danger of relapsing into cultural parochialism. Communities in many parts of the world will be obliged to accept large numbers of refugees from inundated coastal lowlands, from regions rendered uninhabitable by changing climates, and from armed conflicts. In 2013, unprecedented numbers of newly displaced peoples (10.7 million) swelled the total of forcibly displaced peoples to 51.2 million [105], not counting environmental refugees. Refugee populations will inevitably affect the human security of prospective host communities [106]. To prevent conflict, host communities will need to develop values of global equity and justice and an attitude of humanitarian empathy towards ethnocultural strangers. The potential rage against faceless multitudes on the other side of the world for 'ruining the planet' needs to be pre-empted by an awareness that humanity shares only this one boat, and our only hope lies in well-governed cooperation.

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Conflict of Interest

The authors declare no conflict of interest.

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