



# **Commentaries on the discussion paper: Will SDG4 achieve environmental sustainability?**

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## **Commentaries by**


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## **Will SDG4 achieve environmental sustainability?**

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# Commentary 1

## Will SDG4 achieve environmental sustainability? Some Thoughts and Suggestions

Mary Metcalfe  
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I welcome the robust challenge made by Komatsu and Rappleye to the promotion of individualism over the conscious development of a selfhood that is deeply rooted in mutual-interdependence. In South Africa, this debate takes as its starting point the concept of *Ubuntu*: the promotion of African Communalism as opposed to Western Individualism. The generally accepted definition of *Ubuntu* is derived from the translation of the Zulu, *Umuntu ngumuntu ngabantu*—I am because you are. My own working definition of Ubuntu is that my own humanity is diminished when I fail to recognise, and respond to, the humanity of another.

*Ubuntu* is a cultural phenomenon that is deeply social, and that has changing forms of parallel and reciprocal interdependence with economic relations. In social terms, grieving is communal, celebration is communal, eating is communal. In matters of faith, the ancestors are present and participate in significant ways in daily life. In economic terms, in agrarian and labour-intensive communities this interdependence is manifest in reciprocal assistance in times with intensive labour requirements.

But these conceptions of self in relation to others are complex and multifaceted and exist in tension with each other, taking different forms in different contexts. Historically and currently, these two concepts exist on a continuum of collectivism-and-individualism. A romantic attachment to the collective ideal should not freeze this concept in a way that denies the dynamism of human relations. The simultaneous coexistence of the communalism of *Ubuntu* with individualism is recognised in traditional proverbs *Akukho nkwal' iphandela enye*: “no one works for another,” or “each person to succeed must do so on his own because others don’t do it for you.”

Why do I begin with this reflection? Because the values and cultures of individualism and communalism are deeply related to structures and cultures of economic systems and respond to changing structures of the economy and differential access to that economy—what Hayek so many years ago explored in *Individualism and the Social Order* (1948). The social order is related to the structure of the economy and the organisation of labour. A range of scholars have shown that industrialized, wealthy, and urbanized societies tend to be individualistic while traditional, poor, and rural societies were observed to be collectivist in orientation (Hofstede, 1980, 2001; Kim et al, 1994).

In post-apartheid South Africa, many young (and older) African people are “succeeding” on their own in an economic culture that rewards individualism and where individual success enables them to claim their rights to establish themselves in the middle class with all its attendant aspirations and

consumerism. They drive cars, fly in aeroplanes, and consume coal-generated electrical power—but may at the same time have within their extended family network, relatives without access to electricity, sanitation, or refuse removal. The economic status of this emerging middle class is deeply tied to the economic circumstances of an often economically precarious extended family. Our term “black tax” denotes the price they pay to support the network of unemployed relatives. But this is generosity rather than collectivism. I would argue that as formal employment in a market economy expands within that family network, economic communalism or collectivism will fade, and that this fragmentation may over time weaken social forms of collectivism. At the same time, if negative economic conditions result in formal employment opportunities diminishing within that extended family network, I would anticipate the economic necessity of greater economic collectivism.

Why have I used so many words from my ration of 1,000 words to describe this? Because I am puzzled by the two key empirical claims made by Komatsu and Rappleye about the relationship (correlations) between:

- “Better” education and detrimental impacts on climate change.
- Low individualism scores and low CO<sup>2</sup> emissions

To look at these relationships separately from the economic order and structures of the society is problematic, and may make for wholly unintended conclusions. This includes their caution of “potentially negative interactions between education and other SDGs,” which is the conclusion drawn from the two claims above of “empirical confirmation of potentially negative impacts” (p. 3).

Firstly, should we not examine the relationship between “better” levels of education and the wealth of countries, their economic histories, industrial practices, and patterns and legacies of consumption and extraction—with all of the associated problems of resource depletion, habitat loss, and pollution? Komatsu and Rappleye are correct to argue that in these contexts, education has been promoted as an instrument of development, and that education has failed to produce citizens that are conscious of environmental sustainability. The education received has not gifted citizens with the knowledge, foresight, or activism to challenge the economic practices threatening sustainability. But it is not the education that is the major determinant of the massive detrimental impacts on climate change. It’s the economy.

The important question is, what forms of consumption and extraction are sustainable? What kinds of economic systems offer equitable and sustainable access to and benefits from the resources of the planet within and across countries? And what kind of education is required to simultaneously drive sustainable economic growth, and a citizenry that is a jealous custodian of the environment?

Secondly, the individualism data used by Komatsu and Rappleye omits countries where life expectancy is short. Limited life expectancy is demonstrably linked to poverty. A cursory study of the individualism versus collectivism index on the Hofstede insights website, (<https://www.hofstede-insights.com/product/compare-countries/>) shows a clustering of poor countries with a low ‘individualism’ index, and clustering of wealthy countries with a high “individualism” index. The low carbon emissions are not a consequence of a collective mindset, but of low levels of industrial activity associated with poverty and lack of development. A case can be made that collectivism is associated

with greater levels of poverty and the accompanying limited economic, industrial, and consumption practices that are less harmful to the environment, while individualism flourishes in competitive economies with unsustainable practices. It is not the collectivism/ individualism that is the major determinant of the impacts on climate change. It's the economy. Again.

To return to South Africa, *Ubuntu*, economic and social development, and the reduction of inequalities to address the two-worlds described earlier is imperative for social and political sustainability. The solution is not to promote collectivism as the social order, or to be anxious that the development education may have negative impacts on the environment. The solution must be to increase access to quality education that empowers citizens to make economic and socially just decisions that are sustainable.

Two points in closing:

1. It is urgent that both developing and developed countries promote an education that prioritises sustainability over a culture that promotes values of consumerism and accumulation. But, as Basil Bernstein (1970) famously argued, "Education cannot compensate for society." The economic order and its inequalities imperils sustainability, not education.
2. I look forward to debating this more in the symposium, but the goals of SDG 4 are an important battleground to fight for increased access, quality, and the reduction of within- and across-country inequalities in education. We cannot invest all of our necessary education battles in that terrain. To do so over-complicates the achievement of these key goals, and over-emphasises the practical import of these goals in the lives of countries. There are indeed serious "missing dimensions of the current education paradigm" in SDG 4, but strategy suggests that we need to secure our SDG victories, tactically select key sites of struggle that must be won within these goals, and plan to open new spaces to contest additional issues—such as "the core cultural assumptions of the dominant paradigm."

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## Commentary 2

# Will SDG4 achieve environmental sustainability? Some Thoughts and Suggestions

Michael Ward

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This is an interesting and timely paper. It raises some fundamental questions about the effectiveness of the Sustainable Development Agenda as a whole and education's role in this in particular. While some aspects of the analysis in the paper are less convincing than others, the general thesis that the "business as usual approach" to education will not deliver the aim of sustainable development is hard to disagree with.

As the paper explains, education is seen as central to the achievement of all the SDGs. Indeed, it is widely acknowledged that education increases the productivity of individuals and strengthens the potential for economic growth; develops skills needed for decent work; develops professional skills needed for sustainable development, including water and sanitation, green energy or the conservation of our natural resources; helps eradicate poverty and hunger; contributes to improved health; promotes gender equality and can reduce inequality; and promotes peace, the rule of law and respect for human rights. While all this is undoubtedly true, it is also the case, as the authors highlight, that the world's population is the most educated in history, yet also the nearest to environmental disaster.

The paper's objectives are, therefore, to highlight what the authors describe as the "negative interactions" between education and other SDGs and the role of culture, particularly Western culture, in adversely affecting the environment. The paper is critical of the Western model of education promoted, say the authors, by UNESCO, OECD and the World Bank in particular (disclosure: I am employed by the OECD) and is also critical of the concept of education for sustainable development (ESD) as framed by UNESCO. The main argument put forward by the authors in this regard is that these international organisations base their view of education on an 'infinite growth paradigm.' Moreover, argue the authors, the leading international organisations do not recognise possible negative interactions between education and the environment.

At the centre of the paper is an analysis of some of these negative interactions between education and the environment and it is here where the paper is least convincing. The authors' argument that more education and higher levels of basic skills, such as literacy and numeracy, in a population leads to higher per capita CO<sub>2</sub> emissions is hard to substantiate. So many economic, political, social, cultural and technological factors play into higher per capita CO<sub>2</sub> emissions and education policies and higher levels of learning are not necessarily correlated with this outcome. While it is absolutely the case that the most polluting countries also have the highest education levels the authors are not able to make a convincing case for a causal relationship between the two variables. What is true, however, is that

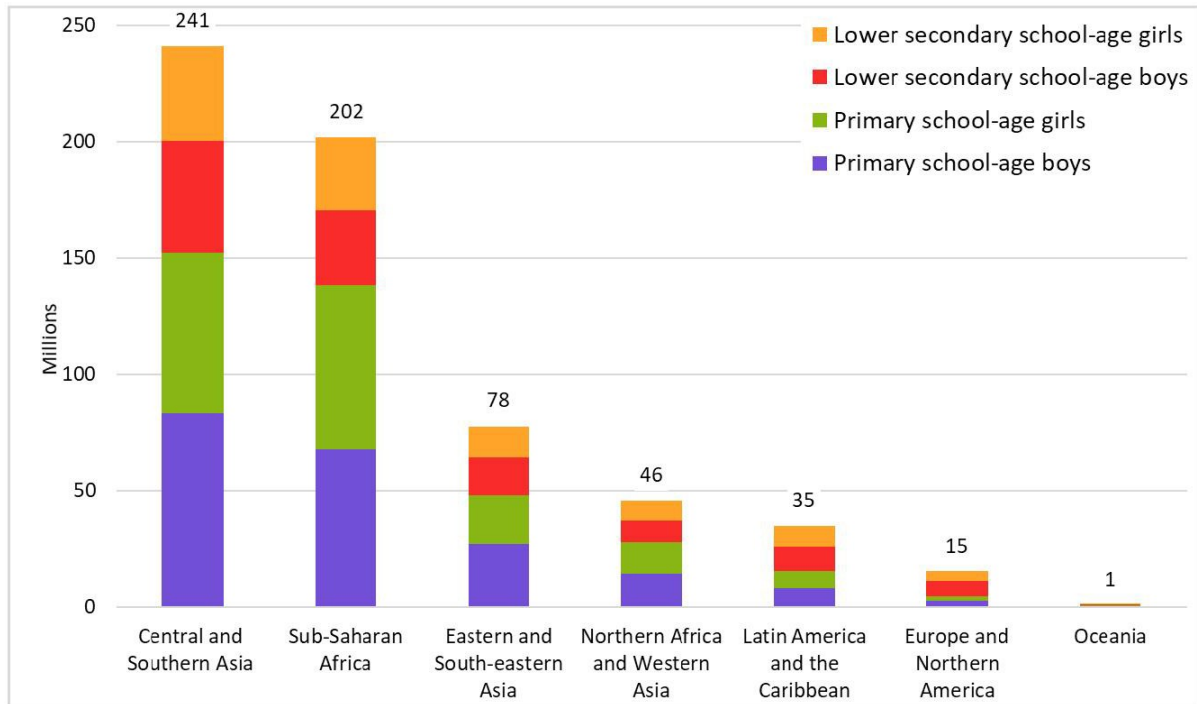
education can and should do more to help populations address climate change, especially in the most polluting countries.

The paper highlights the need to revisit ESD and to reform this from its current position as a curricular 'add on' rather than as the organising principle of the educational project itself. The authors are not alone in making this call for a reform of ESD and education itself in the light of climate change. The authors are not the first to argue that addressing climate change will require action at all levels of society, including individuals, organizations, businesses, local, state, and national governments, and international bodies. It cannot be addressed by a few individuals with privileged access to information, but rather requires the transfer of knowledge to decision-makers and their constituents at all levels. Education is vital in this process because, as the world is finding to its cost with climate change, learning from experience is learning too late. The delay between decisions that cause climate change and their full societal impact can range from decades to millennia. As a result, knowledge and understanding, the kind that can only come through learning and education, rather than experience, is necessary to avoid those impacts. Knowledge and understanding acquired through learning and education are therefore fundamental to climate mitigation efforts. Knowledge and understanding acquired through learning and education are also important for climate change adaptation that seeks to reduce the vulnerability of social and biological systems to relatively sudden change and thus offset the effects of global warming. Even if emissions are stabilized relatively soon, global warming and its effects should last many years, and adaptation would be necessary to the resulting changes in climate.

While I find some of the analysis in the paper less convincing, I agree with its conclusion that we need to examine the potential for education to serve as a vehicle for societal change. In particular, education can enable society to benefit from environmental sustainability science by transferring scientific knowledge across the society. However, for education to fulfil its potential in this regard it will be important to ensure, as SDG 4 requires, that all children, young people and adults achieve at least a minimum level of proficiency in literacy and numeracy. The world is seriously off-track when it comes to this aim, see Figure 1.



**Figure 1. Number of children and adolescents who do not achieve the minimum proficiency level in reading by region, age group and sex**



Source: UNESCO Institute for Statistics Database

The paper makes three recommendations that are aimed at re-thinking education for sustainable development and sustainable approaches. The three recommendations in the paper are useful starting points for such re-thinking, but the aim must be to achieve effective education and ESD that ensures two basic outcomes: first, that all children and young people achieve at least minimum levels of proficiency in basic skills; and, second, that all children and young people acquire relevant knowledge and understanding in respect of environmental sustainability. These outcomes, if achieved, would increase the number of informed and engaged citizens, building social will or pressure to shape policy on environmental sustainability, and building a workforce for a low-carbon economy.

# Commentary 3

## Will SDG4 achieve environmental sustainability? Some Thoughts and Suggestions

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At the 70th Session of the UN General Assembly in September 2015, 193 member states adopted a new global development agenda, *Transforming our world: The 2030 Agenda for Sustainable Development*. At its heart are 17 Sustainable Development Goals (SDGs), including SDG 4 on education, and 169 targets. The SDGs establish development priorities to 2030 and succeed both the Millennium Development Goals and the Education for All (EFA) goals, both of which expired in 2015.

This paper by Hibiru Komatsu and Jeremy Rapple, two distinguished education researchers at Kyoto University in Japan, asks whether the global goal of education (as embodied in SDG 4) is a help or hindrance in achieving environmental sustainability (embodied in SDGs 12-15).<sup>1</sup> Their response, in a nutshell, is dubious, if not downright pessimistic. They cover a lot of ground – analytically and otherwise -- to substantiate their views. While the questions and arguments they pose are certainly worthy of our attention, the evidence and analyses they present are quite problematic.

The paper initially focuses on the nexus of complex relations among the SDGs, particularly the role of SDG 4 on environmental sustainability. The first section raises a clear cautionary flag. The dominant (“official”) discourse portrays education (SDG 4) as a driver of economic and social development – for example, positively linked to goals on poverty reduction, food security, improved health outcomes, gender equality, reduced inequalities, sustainable cities and more just and inclusive societies. However, in their view, most discussions of the interdependent nature of the SDGs have relatively little to say about the links between education and the environment, and the possible *inability* of education, as conventionally conceived, to address urgent challenges around climate change and environmental sustainability. In fact, as the authors attempt to demonstrate empirically, existing forms of education are likely to exacerbate, rather than solve, environmental problems. Mainstream international policies that seek to expand access to quality education or enhance narrowly defined learning outcomes may make environmental matters worse. Furthermore, they question efforts to promote ‘education for sustainable development’ (ESD), since most approaches to ESD are based on “modernist” Western assumptions,

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<sup>1</sup> Goal 12 states “Ensure sustainable consumption and production patterns.” Goal 13 states: “Take urgent action to combat climate change and its impact.” Goal 14 makes reference to “Conserve and sustainably use the oceans, seas and marine resources for sustainable development.” And Goal 15 states: “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.”

outmoded worldviews, with little demonstrable impact. In short, few international actors and agencies seriously discuss the potential negative links between education and the environment-focused SDGs. Their paper seeks to shed light on this blind spot.

The authors solidify their arguments in several steps. First, they seek to demonstrate that key publications by UNESCO, OECD and the World Bank -- international agencies committed to the 2030 development agenda -- continue to advance “business-as-usual” education policies, which almost invariably prioritize economic growth and social equity over environmental sustainability. They chastise these agencies for treating education in an uncritical light, ignoring the fact that “the world is the most educated it has ever been and yet the nearest to environmental breakdown.” Indeed, evidence shows that countries that have higher scores on the UNDP Human Development Index (based on education, living standards and health) tend to have larger ecological footprints (UNESCO 2016: 22-23).

Specifically, they find that UNESCO publications, even those discussing environmental concerns, tend to valorize the “dominant education paradigm” and claim, with little evidence, that education enables learners to acquire knowledge, skills and competences needed for sustainable development. This agency’s publications assume -- embedded as they are in Western Enlightenment ideals -- that education will enable students to process and analyze information about the environment around them, and eventually become “sustainable citizens” who rationally choose desired courses of action to mitigate environmental problems. Komatsu and Rappleye’s review of select publications and web pages published by the OECD and the World Bank does little to alter their overall conclusion: international agencies promote conventional education policies, which either give lip service to or ignore the complex, and often times negative, ties between education and environmental sustainability.

In a second step, the authors mobilize a wide array of quantitative information to substantiate their claim that improvements in education access and quality may have negative consequences for climate change (“arguably the most urgent piece of the environmental sustainability puzzle”). They show that countries with higher completion rates in lower secondary education also have higher CO<sub>2</sub> emissions per capita. They also show that countries in which adolescents perform well on PISA (with higher literacy and numeracy levels) also have higher per capita CO<sub>2</sub> emissions.<sup>2</sup> The aim of these analyses “is not to empirically verify the impact of education on the environment as a whole. Rather...at opening current discussions to the plausibility of potentially negative interactions between [select] targets in SDG 4 and the environment...”

In the next step, the authors argue that culture plays a particularly important role, influencing environmental action and behavior. The acquisition of knowledge and skills alone cannot address global problems like climate change and achieve environmental sustainability. “[C]ulture, which encodes our attitudes and values and sets the pre-theoretical starting point for interactions with the world, strongly affects human impacts on climate.” To substantiate these arguments the authors draw on data from an international Gallup Poll (2007-08) and construct measures of Hofstede’s cultural

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<sup>2</sup> The analyses, it would appear, are based on data from about 60 countries, presumably more high- and middle-income nations.

dimensions of collectivism and individualism (Hofstede et al., 2010) in order to demonstrate that countries with higher individualism scores have higher CO<sub>2</sub> emissions per capita. They find it worrisome that “countries whose people were aware of climate change and perceive the potential risks of climate change did not always have lower per capita CO<sub>2</sub> emissions.” These analyses underscore, in their view, the complicated links between knowledge, awareness, attitudinal change and actual behavior. The discontinuity between individualistic cultural orientations and environment-friendly behavior helps to substantiate their claim that the dominant education paradigm, which privileges learner-centered pedagogy and autonomous learners acting independently in the world, is unlikely to contribute to real environmental change. Thus, to the extent that efforts to promote ‘education for sustainable development’ (ESD) are mainly based on Western rationalistic assumptions and notions of independent selfhood, there is little reason to expect that ESD will alter deep-seated worldviews that influence climate change mitigation and environmental sustainability.

The paper succeeds in my view in raising important questions to those who are inclined to view education as a panacea for many societal ills – including those related to environmental deterioration and sustainability. However, I remain unconvinced by certain claims and evidence presented by the authors. Below are a few points to bring into this on-going conversation:

1. The 2030 Agenda is a country driven agenda. International organizations actually played a muted role in the formulation and adoption of the SDGs and their targets. The ‘forefront of implementation’ is at the national, not the international, level. It is misleading to deconstruct the statements, publications and websites of international development or education agencies, rather than the drivers of the 2030 Agenda – the countries themselves – to discern where existing policies may or may not be short-sighted or overly sanguine in relation to education and sustainability. The authors make no discernable attempt to explore country statements or policy commitments that explicitly link education to greater environmental sustainability. This might involve, for example, a content analysis of [Voluntary National Reviews](#), in which countries report on on-going efforts to implement the 2030 Agenda. Or it might include an analysis of country efforts to implement Target 4.7 – the key target focused on educational sustainability – in terms of revising policies, curricula, textbooks, teacher training, and assessment in line with sustainability demands. It may turn out that many countries subscribe to the “dominant education paradigm” and its assumptions, with which the authors take issue, but it is likely that some countries are moving in different directions, and these are worth highlighting.
2. The authors analyze the relationship between an indicator of education completion (in lower secondary education) and CO<sub>2</sub> emissions. While they realize that correlation is not causation, the direction of the relationship is quite clear: a more educated population increases emissions and not vice versa. The fact that high-income countries (with higher living standards and consumption levels and more expanded school systems) leave larger economic footprints is well known. The question is whether countries with more educated populations can *alter* their consumption patterns and reduce their footprints. To test this idea, one would want to examine *changes over time* in data on emission levels or ecological footprints, which the authors have not provided. (One would also want to examine these relationships using multivariate models).
3. Many of the empirical relationships presented by the authors are based on skewed samples, contested learning measures and do not necessarily demonstrate a linear relationship. Using data on completion rates presents few validity and reliability problems. Not so with data on learning

levels. The UNESCO Institute for Statistics and the World Bank have recently published large datasets including minimum proficiency levels in literacy and numeracy for dozens of countries based on diverse assessment platforms and education systems. The authors employ more standardized PISA data, but in doing so they reduce the presence of low-income and lower middle income countries in their analyses. If the authors had made use of the aforementioned new datasets to correct for sample skewness, they are likely to discover that the relationship is curvilinear – that is, below some cut off point, say 75% proficiency, the relationship is weak or non-existent, but above this point it increases appreciably. Again, without over time data on emissions, it is quite difficult to predict the true form and significance of the relationship between the acquisition of foundational skills and environmentally friendly lifestyles. A deeper issue, which goes beyond the impact of literacy and numeracy skills, is whether exposure to sustainability-oriented contents in school or in classrooms (e.g., through syllabi, textbooks, teacher pedagogy, extracurricular activities.) have a subsequent impact on behavior as children mature and participate in society.

4. Which bring us to the complex inter-relationships among attitudes, awareness, acquired knowledge and skills and sustainability behavior. The authors are right to underscore the many discontinuities between knowledge and skills presumably acquired in school and the kinds of indelible imprints they may or may not have on current or future lifestyles. (Such discontinuities between knowledge and competences on the one hand, and actual behavior on the other, are prevalent in many areas of education). In fact, there is a substantive and growing international literature examining many of these issues. In my view, the authors would have been wise to critically summarize this literature in order to better frame the particular analyses and contributions they wish to advance. There is merit in asserting that evidence from existing literature, and their analyses, call into question current approaches to ESD. Thus efforts to uncritically promote all forms of ESD are likely to have a limited impact.
5. As to their point about culture mediating the relationship between education and emissions: The question is not simply whether certain cultures, with less individualistic orientations, live more sustainable lifestyles, but whether countries with other cultural orientations can, through various mechanisms, including through education, alter their lifestyles in more sustainable ways. The lack of longitudinal data on measures of environmental sustainability (and not just in relation to CO2 emissions) makes it impossible to determine whether different types of cultures and cultural orientations lend themselves to real change in lifestyles.

This paper invites readers to reconsider the usual lens and perspectives through which they understand the role of education in relation to environmental sustainability. I believe that the paper enables readers to probe and ponder what kinds of education, for what purposes, are more likely to contribute to climate change mitigation and sustainability practices. For this reason alone, and notwithstanding the various caveats I have noted above, the paper deserves to be widely read.

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## Commentary 4

# Reimagining education and sustainability in times of climate change

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Over the past five decades, education has come to be seen as a long-term strategy to address environmental degradation and a myriad of sustainability challenges. Specifically, scholars and activists have called for education that goes beyond teaching about the environment, and includes outdoor and experiential education, increases awareness and pro-environmental attitudes, and promotes citizenship. Although this curricular movement, which is known as Environmental Education (EE) has spread worldwide, the current education paradigm does not embrace EE as a guiding principle.

In their working paper Hikaru Komatsu and Jeremy Rappleye question whether promoting the current education paradigm would help the international community to achieve environmental sustainability. As reflected in the targets of SDG 4 and the emerging monitoring efforts, the current education paradigm focuses on increasing access to quality education. However, in contrast to previous international documents on the link between education and the environment (e.g., [The Belgrade Charter: A Framework for Environmental Education](#) [1975]), SDG 4 does not offer any vision for what kind of education is desirable and important.

Through an analysis of statements by international organizations and cross-national data, Komatsu and Rappleye point to the potential friction among different SDGs. Specifically, they point to positive association between country-level educational outcomes and CO<sub>2</sub> emissions. Countries with more educated societies have larger ecological footprints. In other words, promoting SDG 4 could result in even more negative impacts on our planet. This analysis echoes [David Orr's reflection](#) that contemporary sustainability challenges are largely the result of work by highly educated societies (Orr, 1991).

The evolving learning metrics are another source of friction between the overarching goal of sustainability and SDG 4. These metrics seem to rely on the international large-scale assessments (ILSAs) regime that emerged in the mid-1990s. ILSAs present at least two challenges for the implementation of EE.

First, the main ILSAs pay little attention to EE-related content. For example, TIMSS measured “environmental and resource issues” only in the first three cycles (1995, 1999, and 2003), and PISA measured environmental knowledge and attitudes only when science was a core subject (2006 and 2015). This approach signals to participating countries that EE-related content should not be a priority.

Second, ILSAs operate on a disciplinary base – math, science, civics – while EE is an interdisciplinary subject. As such ILSAs “split” or “break” EE into different components: environmental knowledge in TIMSS and PISA, environmental citizenship in CIVED/ICCS, etc. By doing so, ILSAs prevent scholars and practitioners from having a more holistic perspective on how education systems engage with EE.

To demonstrate the potential of ILSAs to inform EE policy and practice, I turn to early cycles of TIMSS and CIVED/ICCS. In 1999, the International Association for the Evaluation of Educational Achievements (IEA) conducted both assessments in the same year. Seventeen countries participated in both assessments. Figure 1 presents the correlation between average achievement in life science (x-axis) and average achievement in environmental science (y-axis). The correlation is positive and strong: Countries perform well on both measures. Figure 2 presents the correlation between mean support for environmental citizenship (x-axis) and average achievement in environmental science (y-axis). The negative correlation ( $r = -.65, p < .05$ ) suggests that countries with students who perform well on knowledge-related tasks tend to have students who are less supportive of environmental citizenship. The Chilean education system serves as an illustrative case: The mean achievement is 450 but the mean support for environmental citizenship is 3.46.

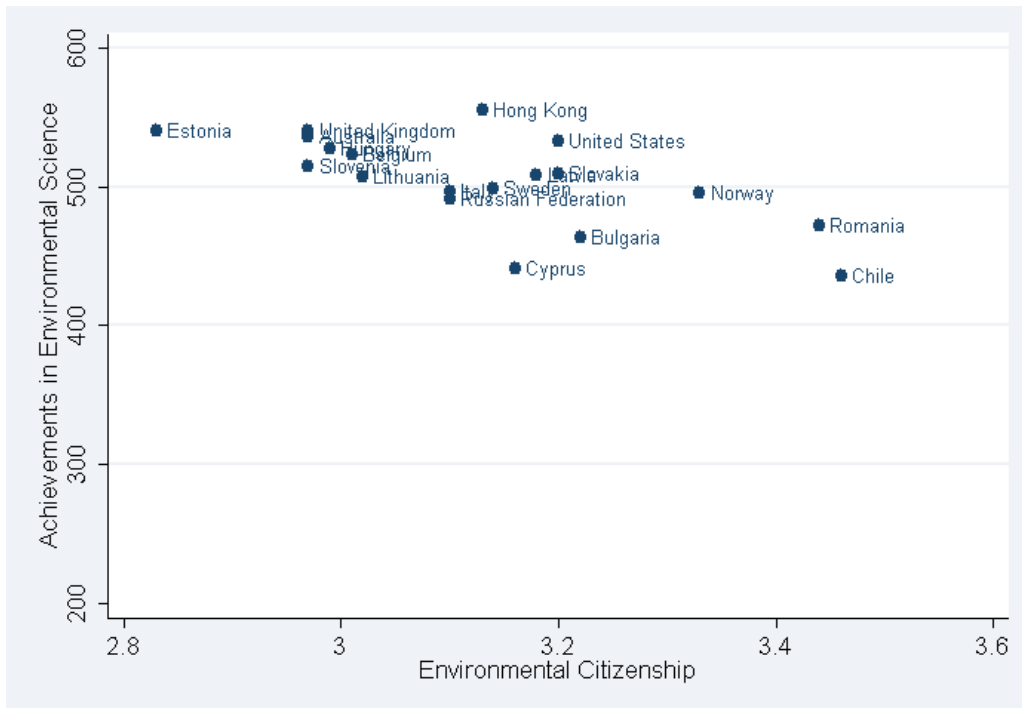
**Figure 1:** Correlation between achievements in environmental science and life science



Source: TIMSS 1999



**Figure 2:** Correlation between achievement in environmental science and environmental citizenship



Source: TIMSS 1999 and CIVED 1999

This pattern further supports the conclusion of Komatsu and Rappleye. The current education paradigm, which emphasizes knowledge and skills that are relevant to the labor-market, is at risk of promoting an unsustainable future. To achieve environmental sustainability, education systems should provide young citizens with knowledge, skills, attitudes, and motivations, and empower them to work individually and collectively toward solving sustainability challenges. One possible way forward is to start a serious conversation around the question, “Education for what?” or “What is the goal of education?” Further, it’s time to critically assess whether ILSAs are useful in helping policy makers to achieve environmental sustainability through education.

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