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Developing the sustainable school: thinking the issues through

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This paper reports on a study that was a response to a call from the UK government's Department of Children, Schools and Families for research into the link between the work of schools that address sustainability and the UK's national sustainable development indicators. This was part of the government's sustainable schools initiative, developed as a contribution to the UN's Decade of Education for Sustainable Development. The paper uses the four capitals model of Herman Daly and Donella Meadows to critically examine, firstly, how a school might make such a contribution to sustainable development, and, then, how we might come to know how effectively this is progressing. In doing this, the paper builds on Webster's work about the stages that a sustainable school might go through in its development, and the result is three sets of process descriptors to guide a school's thinking about what it might do. These are presented in the sense of an embryonic and sketchy map to the terrain, rather than as a set of instructions or a detailed plan to follow.

Keywords: sustainability; sustainable school; four capitals model; indicators; restorative

Introduction

This paper reports research that was a response to a call in 2009 from the UK government's Department of Children, Schools and Families (DCSF) for investigations into the link between the work of schools that address sustainability and the UK's national sustainable development indicators. Specifically, DCSF asked: *How can we know what the development of sustainable schools is contributing to UK sustainable development?* as part of its sustainable schools initiative which it established as a contribution to the UN Decade of Education for Sustainable Development (DESD 2005–2014). The Decade aims to influence education to integrate the principles, values and practices of sustainable development. ESD (education for sustainable development) has come to be seen as a process of learning how to make decisions that consider the long-term future of the economy, ecology and equity of all communities; building the capacity for such

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futures-orientated thinking is a key educational task. Key features of ESD (UNESCO, 2005) are that it is based on sustainable development principles and values, and is locally relevant and culturally appropriate, such that it enhances civil capacity for environmental stewardship, social tolerance, and participation in community-based decision-making.

The research was carried out by the author and funded by the Government Office South West (GOSW), through the South West Learning for Sustainability Coalition (SWLSC) which is a loose federation of groups and individuals with interests in sustainability and learning. This paper is an edited version of the fuller, final research report.

The research built on a number of research studies, in particular: ESRC research carried out by the Universities of Lancaster and Bath [*Natural Capital: metaphor, learning & human behaviour*; 2004]; Anglo-German Foundation-funded research [*Indicators of Progress in Education for Sustainable Development: the state of the art*; 2006]; Specialist Schools and Academies Trust research [*Raising Standards: making sense of the sustainable school*; 2008]; evaluation studies of school development programmes in the south-west of England, funded by GOSW [2007–2009]; and a range of other UK studies on schools' interpretation of ESD (Birney & Reed, 2009; Gayford, 2009; Porritt, Hopkins, Birney, & Reed, 2009).

The paper uses Daly and Meadows' *four capitals* model to critically examine the idea of a school making a contribution to sustainable development. In doing this, it builds on Webster's work (2004, 2009) about the stages that a sustainable school might go through in its development, and the result is three sets of descriptors that might guide a school's thinking about what it wants to do. It is possible to see two sides to this coin: (1) a heuristic – a rather embryonic and sketchy map to the terrain left by those who've travelled part of the way and reflected on the journey; or (2) a set of instructions – a rather detailed and certain plan to be followed, and evaluated against. It is in the former sense that all that follows has been written. The paper begins with the introduction of terms and issues. Twelve descriptor texts then follow.

Mapping the ground

The UN Decade encourages schools to take sustainability seriously in what they do across buildings and grounds, in what they teach, and in how they link with local stakeholders. That is, across campus, curriculum and community, and it is clear that what schools do also needs to contribute to wider attempts to change social practice to more sustainable (or, at least, less *unsustainable*) ways of operating. In other words, what schools do, as social institutions, should make a contribution to wider efforts at sustainability.

Schools are not alone in having this expectation placed upon them as it now falls to all institutions: hospitals, banks, car dealerships, broadcasters, supermarkets, etc., to not only *do* something about sustainability, but also *learn* through doing this. Despite the encouragement of the Decade, the significance of this meta-level learning aspect to education for sustainable development (ESD) can be hard to appreciate, especially when so much emphasis is placed on changing behaviour with the need to understand, and build capacity, played down. Schools, however, along with colleges and universities, can be under no such illusions, as they have the extra imperative of remembering that their *raison d'être* is to help young people learn about such matters. For these institutions, it seems clear that, if choices have to be made between helping young people learn and, say, saving carbon, then it is learning that needs to take priority. Fortunately, however, such stark choices do not need to be made, as each of these is most effective when viewed as complementary components. DCSF's sustainable schools initiative understood this. See Scott (2010) and Vare and Scott (2007) for two explorations of this issue.

During the early years of the Decade, when this research was conducted,¹ for most schools engaged in the sustainable schools initiative, there were links to wider sustainability matters which were, superficially at least, fairly obvious. These included:

- The DCSF focus on eight sustainable schools doorways (including energy, water, travel, traffic, purchasing and waste) that linked to attempts to reduce resource and energy use and develop alternatives.
- DCSF's *Every Child Matters* focus, and the elaboration on this by the UK's Sustainable Development Commission: *Every Child's Future Matters*.
- The focus on the global dimension, global citizenship and global learning, and on well-being, which connects to attempts to increase inter-cultural understanding and, more sharply, to decreasing poverty and enhancing quality of life, with links to the UN's millennium development goals.
- Charity sector support for environmental education that is linked to international attempts to avoid species loss, habitat destruction, deforestation, and to enhance stewardship, and biodiversity more generally, and;
- The curriculum focus on citizenship with both in-school and school-community opportunities to practise the development of citizenly (*action competence*) capability.²

These foci map, albeit uneasily, onto a common way of thinking about sustainable development as requiring improvement in environmental,

economic, and social spheres at the same time, with minimal trades-off between these, although this last condition is not always fully appreciated. In the next section, there is an exploration of the idea that a means of indicating development is necessary if we are to know something about what we are achieving, and if we are to be able to plan sensibly.

Progress sought: indicators needed

As Schumacher noted:

That which is good and helpful ought to be growing and that which is bad and hindering ought to be diminishing.... We therefore need, above all else... concepts that enable us to choose the right direction of our movement and not merely to measure its speed.³

Given the nature of the DCSF's sustainable schools initiative (Reynolds & Scott, 2011), it is clear why government should want to be able to indicate the link between schools' work and the country's development, through policy and practice, of more sustainable ways of living. There are a number of dimensions to this, but two stand out, albeit for quite different reasons. One would give rise to *external* judgements, and the other to *internal* ones.

External

The *external* relates to national sustainable development indicators. The UK environment ministry, DEFRA,⁴ publishes a set of national sustainable development indicators which cover a very broad range of socio-economic activity deemed to be germane to sustainability. Currently, there are two indicators (Nos. 47 & 48) directly focused on education. The first, 'educational attainment', is determined to be the proportion of 19-year-olds with level 2 qualifications and above. The second, 'sustainable development education', DEFRA notes, remains 'to be developed'. This is still the case.

Evidence of sustainable development might be indicated by changes in three areas: (1) the review and re-orientation of education policies; (2) the building of personal and social capacity through leadership and educational programmes; and (3) the development of personal and social understanding and skills. Clearly, the last two of these link to what *individual* schools do, but only in a quite diffuse way, as any indicator will aggregate a set of judgements that will be arrived at externally, and made at the sector level, and will likely say nothing about how an individual school is faring in, or equally crucially, *understanding*, its own journey towards sustainability, and learning from this. This problem that DEFRA has of finding an indicator for 'sustainable development education' has been

grappled with extensively. See Reid, Nickel, and Scott (2006) for a thorough review of the history of this development and its many pitfalls,⁵ and Di Giulio et al. (2012) for a more recent attempt to conceptualise ESD indicators for three German-speaking national contexts.

The most straightforward way of indicating that schools are doing something has been put forward by Dorset Local Authority and by Paul Vare, one of the UK's members of the UN Economic Commission for Europe (UNECE) indicator group. They independently proposed that the baseline indicator ought to be that schools have developed their own contextually appropriate indicator, and were actively monitoring this;⁶ a key distinction is that Vare proposed this as an indicator of *learning* in the broad domain of sustainability rather than an indicator for sustainable development per se. Clearly, an eco-school's⁷ green flag might be thought of as one such indicator, but the fragmented view of sustainability which eco-schools presents, the way that success is possible without the whole-hearted involvement of the entire school, along with the relative ease with which such flags are obtained, mean that this will not, in and of itself, suffice. Neither will any of the increasing number of awards that are readily available for UK schools to collect.

Internal

The *internal* response relates to the ability of schools to be able to make such judgements for *themselves* about how they are progressing. As noted above, these will, one way or another, be related to how the institution understands the idea of sustainability, and the commitments that it has to being a sustainable school. There are a number of ways of addressing this.

This ability to track the development of practice across campus, community and curriculum is something that DCSF and others have taken seriously during the Decade. In the case of the DCSF, this was through the use of the *s3* documentation which provided schools with a voluntary way to record and report their efforts to promote sustainable schools, as an integrated part of a self-evaluation process. Considerable thought went into the *s3* and 108 separate descriptors resulted. It was handicapped, however, by being complex and hard to use, and also because it did not map well onto sustainability ideas (the lack of any reference to biodiversity was the most egregious example of this). Ultimately, the fragmentation of ideas made it not only hard to use, but also misleading, as learning was divorced from sustainability which was fractured into parts never to be put together again. But is it possible to draw on these ideas and produce something that is at once more whole and easier to use – whilst being complex enough to be meaningful? It is to this question that the paper now turns.

Beyond indicators: developing descriptors

One way forward is to think about stages⁸ that schools can go through in their institutional journey towards being more sustainable, and to approach this by drafting what are, in effect, *progress descriptors* which would have two linked functions: (1) as a way of gaining an understanding of progress made; and (2) as a means of scoping the next developmental steps that might be taken.

Building on Webster's (2004) work, it was possible to outline broad stages in the development of a sustainable school. The following (stage model 1) was developed from work carried out for the Specialist Schools and Academies Trust [SSAT] (SSAT, 2008) which drew on DCSF, National College, SSAT, and Government Office case studies of school practice, and on the broader literature, and is one way of thinking about these stages and their connection. Each of the stages encompasses a range of developments and does not represent a static picture. Inevitably, institutions will vary considerably in the way that they move through, and between, such stages whose characteristics are sketched here:

Stage zero is where there might be initiatives in a school through the work of interested teachers in clubs and out of school activities, or even through teachers just doing what they're supposed to do: teaching about biodiversity, ecological systems, social structures, or global poverty, for example, but where this is unacknowledged by school leaders.

The **first stage** is characterised by the work of individuals, with isolated curriculum inputs here and there, perhaps building on what is already done. School leaders are probably not convinced or particularly supportive, but they are reasonably tolerant, and perhaps a co-ordinator is in place.

The **second stage** is where the school leadership has accepted the idea that a broad view of sustainability needs to be taken seriously in relation to the school's curriculum, and supports the opportunities that exist for mutually beneficial links with the local community that involve the campus as well. It will be providing active leadership and drawing staff, governors and students into this process.

The **third stage** needs a different way of budgeting and thinking about curriculum. The aim is to reduce carbon emissions substantially at source, where the exchange between school and community is more extensive, and adds to social capital. It seems certain that there is, as yet, insufficient school experience from which to say much more.

The **fourth stage** probably sees the idea of a school – and perhaps education itself – changed, and it is not possible to say much more about this with any confidence. However, the school buildings and campus are probably eco-restorative in that they contribute to social, cultural and natural capital stocks.

In parallel to this, Webster's recent book with Johnson (2009) sets out four stage descriptors: *exploratory*, *assimilating*, *strategic*, and *eco-restorative*, being the equivalent to stages 1 to 4, above. Looking at both of these it is possible to see their similarity, which is unsurprising given that the ideas evolved through exchange and discussion. What is also clear is how much more demanding these are when compared to what the DCSF's *s3* looked for, and how much more realistic they are of a truly sustainable school. However, these descriptors are still not really fit for purpose because they do not map sufficiently convincingly onto our ideas of sustainable development itself, and because they do not differentiate sufficiently between ideas which are packed into each descriptor in a single block of text that tries to cover all aspects of the sustainable school. Because of this, these descriptors are not yet much better than is the *s3* at mapping onto sustainable development and indicators.

In what follows there is an introduction to the development of a set of structured descriptors that do link sustainable schools with sustainable development. This begins with a focus on leadership because of its crucial nature.

The centrality of leadership

The DCSF's foregrounding of *curriculum*, *campus* and *community* within its sustainable schools initiative ignores the crucial importance of leadership. Despite this, it is clear from other sources (e.g. Fullan, 2005; Harris, 2008) that DCSF appreciated the importance of school leadership and its distributed nature to the sustainable schools initiative, and the role of young people in this. Each of the stage models set out above indicates the key dimension of having an institutional leadership that understands the issues, and *owns* the process of addressing them. The first does this explicitly; the second, more implicitly.

SSAT (2008) sets out a range of attributes that might characterise effective leadership in sustainable schools, and without which nothing very much will be embedded within both school culture and practice. In summary, these are the establishment of . . .

A. A vision which is . . .

- co-created with those with a direct stake in the endeavour
- fully congruent with the ethos of the institution
- widely endorsed, informing everything the institution does

B. A high-trust culture that . . .

- empowers governors, staff, students and parents, providing opportunities to get involved and take responsibility

- devolves leadership, and maximises collective and shared responsibility
- involves students in planning and decision-making
- demonstrates innovation, risk-taking, security, resilience and flexibility
- values a diversity of views as a way of engaging people
- is committed to learning by everybody – and from experience
- has regular, open reviews of progress made

C. An institution that. . .

- is a hub for activity for and with its local community
- builds and fosters mutually supportive partnerships that support life-long learning and community well-being
- brings real-world issues into the curriculum through the involvement of community groups

D. An organisation where issues around sustainability. . .

- have a high profile across the work of the institution, and in its community links
- are fundamental to, and integral across, the institution's work rather than being add-on or fragmented
- are raised in different settings, as appropriate, and treated as holistically as possible
- represent one of the institution's key ethical stances
- enable the national curriculum to be taught more effectively, core priorities to be more readily accomplished, the Every Child Matters agenda realised through close connections with the community, and student achievement to be broadened and heightened
- are not just focused on behaviour change in terms of known problems, but also on the building of students' capability for critical and independent thinking for the future

E. A social learning community with a systemic view of the world and a heightened sense of place that. . .

- has a growing awareness of its environmental impact (footprint), has a strategy for steadily reducing it, and uses these as foci for learning
- values outdoor, environmental, experiential and exploratory learning as a means of effectively engaging with real-world issues in authentic settings
- is outward-looking, and whose work is embedded not only in its local context (socially, economically, environmentally, and culturally),

but which has tangible links to real communities in other parts of the world

- recognises that *place* is now a global phenomenon that raises moral issues of inter-dependence and shared responsibility, in relation to social and environmental justice
- understands that it can, and should, contribute not just to maximising learning and skills acquisition (its traditional role), but also to enhancing social cohesion, as well as lessening its need for natural resources and its creation of waste, and maximising the efficiency of its buildings.

Here, **A**, **B** and **C** are generic attributes which describe a particular view of an effective school, and their inclusion is necessary rather than exceptional. Much the same can be said of **D** in that other concepts could be substituted for sustainability with little loss of coherence; for example, *health*, *faith*, or *enterprise*. It follows that it is the issues highlighted in section **E** that are key if we are to have any sense of what is particular about the leadership of *sustainable* schools. What is set out in **E** is undoubtedly the business of sustainable schools, and it owes much to environmental education over time. Thus, the extent to which a school has developed these characteristics, and has locked them into how it operates, can be used as a measure of how well positioned it is to become more sustainable. The ‘*locked in*’ notion is particularly crucial as development will not take place in a progressive way unless there is firm ground upon which to build – ground that will not shift or be eroded with, for example, the arrival of a new school leader.

A running theme throughout this paper has been the need to find a way of indicating how schools contribute to sustainable development, not only in relation to the education that they provide to young people, but also in other ways representative of the *idea* of sustainable development. In the next section, the metaphor of capital is examined as a means of modelling the relationship between the human political economy and the earth.

The metaphor of capital

As already noted, sustainable development is widely recognised to have social, environmental and economic dimensions,⁹ and so schools should expect to be making a contribution in all these areas at the same time. One effective way of thinking about this is in terms of the asset base we draw on for our civilisation and well-being. This (Daly, 1973; Meadows, 1998) has been described in terms of four ‘capitals’.¹⁰ These are: *natural capital*; *built capital*; *human capital*; *social capital*.

The essence of Daly’s idea is set out in Figure 1 which models the relationship between the human political economy and the earth, and aims to

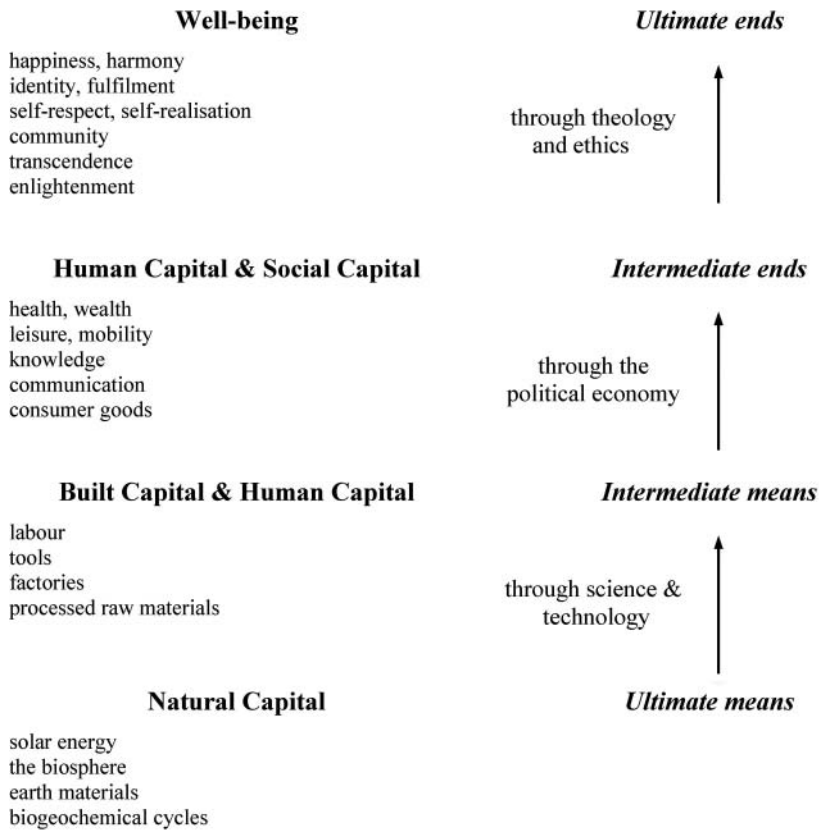


Figure 1. Indicators and information systems for sustainable development.

Note: Meadows notes (1998, pp. 41–42): ‘The framework I suggest is based on a diagram Herman Daly drew more than twenty years ago. It pictures the relationship between the human economy and the earth in a way that is, to me, logical, systematic, and clarifying’. For a discussion of the drawbacks of this model, see Meadows’ paper. <http://www.nssd.net/pdf/Donella.pdf>

represent how all life and the economic transactions that underpin it are ultimately supported from within the biosphere. It also sets out the ends to which these are put. It is significant that what really matters (to Daly) is beyond ‘health, wealth...knowledge...consumer goods’ which are merely means to a fulfilling end. As Reid et al. (2006, p. 12) note, this illustrates:

one model from which indicators for measuring SD trends over time and context might be derived, particularly for governance purposes. In this case, indicators are targeted at a measurable quality or characteristic of an aspect of SD at the various levels...or perhaps more importantly here, at the connections and relationships between them.

Meadows (1998, pp. 41–43) notes:

At the base...supporting everything, are what Daly calls the ultimate means out of which all life and all economic transactions are built and sustained. This is natural capital, the matter of the planet, the sun's energy, the biogeochemical cycles, the ecosystems and the genetic information they bear, and the human being as an organism. These ultimate means are not created by us; they are the heritage we were born into, and out of them we fashion everything we have or know. The intermediate means are tools, machines, factories, skilled labor, processed material and energy – built capital and human capital and raw material. These intermediate means define the productive capacity of the economy. Economists call them inputs to the economy (systematically ignoring nature's unpriced inputs from the level below). Intermediate means are necessary but not sufficient to accomplish all higher purposes. Managing, valuing, distributing, maintaining, and using these intermediate means is the concern of economics and politics, or the political economy. The intermediate ends are the goals that governments promise and economies are expected to deliver – consumer goods, health, wealth, knowledge, leisure, communication, transportation – what economists call output. They are what everyone wants, but they by no means guarantee satisfaction, as is revealed by societies where intermediate ends are abundant but people still feel their lives are empty. That is because intermediate ends are not ends in themselves, but instruments to achieve something yet higher.

With the Daly/Meadows work in mind, the SSAT monograph argued that a sustainable school can be thought of as one which:

- manages its use of the earth's natural capital in such a way as to minimise its depletion
- has buildings and equipment which are fit for purpose and as efficient as possible
- maximises its contribution to human capital through its core business of educating students, and also members of the wider community, thus developing capacity for social action and further learning
- maximises its contribution to social capital by adding to social cohesion, community well-being and mutual understanding, both locally and globally.

It argued that this was a helpful way of seeing issues in a wider context which made clear schools' importance, especially in relation to human and social capital, where the focus on increasing human capital has to include helping learners develop a critical and operational understanding of sustainability itself.

These ideas are already reflected in the two models outlined above. What follows is a synthesis of these ideas into a new model based around the capital conceptual framework.

Although there are four capitals in play here, it is clear from the model (and from real life) that it is helpful to see these in combination. For

example, *built* capital (BC) needs both *human* and *social* capitals ([HC] and [SC]) if it is to be created, and *built* and *human* capitals go hand in glove in creating knowledge, health, and material possessions. Experience shows that social capital is a fundamental aspect of any technological change (Hawken, Lovins, & Lovins, 1999) or innovation and this is relevant to a sustainable schools agenda.

A school, where its *social* capital is embedded in its community, both draws on and enhances *human* capital (knowledge, skills, understanding, capability. . .). Where there is a focus on *natural* capital (e.g. energy, biodiversity), this fits with a focus on BC (e.g. buildings, grounds, materials, waste). Changes in *natural/built* (NBC) capital stocks are much easier to identify and measure, than are similar changes to *human/social* (HSC) capital, and this is reflected in extant sustainable development indicators, and in the difficulty of identifying ones relating to ESD, as noted by DEFRA.

In what follows, therefore, the building of descriptors around the development of the sustainable school is based around these two foci (NBC and HSC), and around leadership with which we begin.

Capital-based descriptors, and leadership

Three sets of descriptors are set out with titles developed from those used by Webster and Johnson (2009): *initial exploration*; *some assimilation*; *more strategy*; and *towards restorative*.

The titles of these *steps on the journey* are largely self-explanatory and set out a story line: from initial ideas and exploration, to doing more (and better) with more people involved, on to being much more strategic (integrated thinking) about what is done and why, and then to something which, as already noted, has to be both open-ended and without end – and genuinely open to the innovation and creativity that we shall need. This is best regarded as a continuing process of becoming (more) sustainable, and the development of the social learning that this implies. It is when a school is taking these steps, with its own journey planner, that it might, with some justification be seen as a ‘sustainable school’.¹¹

What follows is not a checklist, recipe card or planning tool for everyone to use. Rather, it is a set of ideas for schools (with others) to think about and use in their own planning and development – in their own way. If aspects of it are found useful more or less intact, so be it, but that is not its purpose. Because of this, it seems inevitable that what follows will have more developmental than evaluative value, particularly as schools shift to *more strategic* and then *restorative* thinking. A consequence of this is that, despite its links to clear thinking about sustainable development (Daly & Meadows), it may not be all that helpful to those looking for easy measures of ESD that can be reported at the national level. Because of its over-riding significance, *leadership* is considered first as, without this, little of any moment will be achieved.

Leadership

Initial exploration

The school leadership does not yet understand the significance of sustainability issues to young people's education, and has not considered (or has rejected as irrelevant) that such issues might usefully inform young people's current learning as well as their development of awareness, skills and capability. It does not actively support teachers, and others, who already carry out this work. Whilst there may be an awareness of sustainable schools initiatives, their significance is not really grasped by school leaders. Sustainability work in the school is characterised by the work of isolated teachers and young people, or of small groups which may tend to adopt a behaviour-change focus, and there may well be some latent frustration in this. There has been little or no financial contribution to making sustainability-focused change, or to staff professional development.

Some assimilation

School leaders have some limited awareness of what sustainable schools initiatives set out to do, and understand something of the utility for learning that a focus on sustainability can have. A co-ordinator post may be funded with schemes such as Eco-schools in place, and the school may acknowledge the significance of existing school-community interchange resulting in some formal recognition of what already goes on. This falls short however of an endorsement of sustainability as a key feature of how the school sees itself, or recognition that it is important to students' lives and to society's positive evolution. The ethos of the school does not relate to these issues, and a critical consideration of sustainability is not actively promoted through the curriculum whilst narrow behaviour change is the main focus. However, enthusiastic staff and students (and possibly others) are getting things done, building up experience and developing a critical mass that will increasingly bring internal influence to bear on school leaders to match the external pressures that are building up. Modest investment is available to effect simple infrastructure changes and save recurrent costs (e.g. energy-efficient light bulbs).

More strategy

The school leadership sees sustainability as one of its key drivers, and has accepted the idea that a broad view of sustainability needs to be taken seriously in relation to the school's curriculum, and supports the opportunities that exist for mutually beneficial links with the local community that involve campus and/or curriculum. It is a key feature of any federation and cluster arrangements. Senior staff provide active leadership and welcome empowered staff, governors and students into this process

through inclusive decision-making processes. Appropriate plans and policies will be written, and teacher professional development for all staff will be used strategically. Increasingly, there will be emphases on making sustainability a significant aspect of the life of the school, and central to student learning, and one of the things the school is known for. Sustainability will be the focus of much discussion and debate across the school and community in relation to curriculum, campus and community and their intersection. There may well be a vision that addresses sustainability, and a recognition that this is not just about what the school teaches, how it links with the community, or how its own campus is managed, but is about all three of these in an integrated and managed fashion. A more critical approach to learning and to school management is seen to be necessary as the tensions and uncertainty inherent in sustainability are exposed, and the implications of the breadth of sustainability for the entire operation of the school begin to be fully appreciated. Greater investment in professional development is seen to be essential if pedagogy is to be made more suitable, appropriate learning domains identified, carbon emissions reduced, and plans are made: (1) to enable the significant expenditure that will be needed if the barriers to greater sustainability presented by current infrastructure are to be surmounted; (2) to identify both how teaching has to change, and how ideas about learning have to be developed; and (3) to enable the necessary focus on raising social capital as the school and its community develop together.

Towards restorative

The school, through its re-thought vision/mission statements, has reoriented its ethos to a focus on learning *as* sustainability. This has fundamentally changed how curriculum is conceived, what and how the school teaches, how this links with the community, and how the campus is managed, and how all of these are integrated. Leadership is active and devolved, encouraging staff, governors and students to participate meaningfully. Sustainability is a very significant aspect of the life and work of the school, which is known for this focus. In the institution, the exchange between school and community is extensive, two-way, and real, and can contribute both as a role model, and as an advocate for socio-environmental change. Owing to focused capital investment, increasingly the school's ecological/carbon footprint is reduced, with the enhanced ability of the institution to lead sustainability initiatives, and serve to enhance open-minded, open-ended learning that is focused on change and on raising student capability and confidence. Crucially, the school's commitment and orientation to sustainability is so embedded in its ethos and practice, and within succession planning for example, that this is *sustainable* in the more quotidian sense.

In summary, at this point, the school has a devolved and shared leadership that has created a social learning community with a systemic view of the world¹² and a heightened sense of place that:

- understands that it can, and should, not just contribute to maximising learning and skills acquisition (its traditional role), but also enhance social cohesion, lessen its need for natural resources and the creation of waste, maximise the efficiency of its buildings, and have a strategy for making all these foci for learning.
- is outward-looking, with its work impacting on the local context (socially, economically, environmentally, and culturally), with the understanding that *place* is a global phenomenon that raises moral issues of inter-dependence and shared responsibility in relation to social and environmental justice which have to be addressed: for example, through mutual partnership with communities¹³ across the world.
- values exploratory, experiential, outdoor and environmental learning as a means of effectively engaging with real-world issues in authentic settings, and understands the need for appropriate pedagogies and communications that enable the student voice to contribute to the understanding of their own learning, and to the development of the school and community.

***Human & Social Capital*¹⁴**

Initial exploration

Individual staff contribute to un-coordinated clubs and out-of-school activities that tend to focus, fairly uncritically, on externally identified behaviour change with little link to the curriculum. There is formal, but mostly unconnected teaching about biodiversity, ecological systems, energy, social structures, development, poverty, trade, etc., through mostly conventional takes on curriculum where the *campus* and *community* are mainly seen as resources, with the latter not yet viewed as a source of active partnership in collaborative learning, and the former not itself seen as a valid focus of enhancement. Learning, and learning outputs, are predominantly viewed in academic terms, and sustainability issues tend to be seen as external to the school and its work, with learning mostly seen as something done by students within narrow, defined limits. Where there is developing sense of the aims of the sustainable schools initiative (and ESD more widely), there will be growing levels of dissatisfaction with this 'business as usual' approach, and this leads to a greater examination of how well conventional approaches and assumptions meet student needs, and an active exploration of other possibilities.

Some assimilation

There is a growing understanding that links between campus, community and curriculum can both enhance student (and staff) understanding and skills, and potentially result in wider learning, greater community cohesion, and also, for example, enhanced biodiversity and reduced carbon footprint; with this, comes the realisation that the campus and community can be more than mere resources. There is growing understanding of the need to link the formal and informal curricula and help students make connections if learning is to be optimised; and a growing awareness of the significance of the breadth and reach of sustainable schools initiatives, with their focus not only on learning, but also on tangible sustainability improvements. As the tensions within sustainability come to be recognised, there is a growing realisation that there is a need to focus on learning as well as on behaviour change, that these are not alternatives, but that each is a necessary but insufficient focus,¹⁵ that a focus on sustainability will contribute to enhancing student achievement, and that student learning can contribute to sustainability, both now and life-long. There is also an increasing recognition that responsibility for stimulating learning has to involve both the formal and informal curriculum, and these must be seen as an integrated whole; there is also an understanding that responsibility for teaching can usefully be seen as a partnership with NGOs, businesses, and community organisations where the key contributions of the teacher are pedagogical and in the building of relationships. The value, in themselves, of eco-schools and similar approaches begin to be questioned where they are recognised as initiatives isolated from the curriculum and the life of the school as a whole. The investment in modest changes to infrastructure means that there is growing scope for using the school as a positive teaching resource, and that the ethos of the school needs to relate to these issues, in a specific way. The limitations of viewing student learning only in terms of exam success are recognised, as is the need to find a way of thinking about how social capital can be conceived, supported and evaluated.¹⁶

Here, more of the curriculum – and more often – has a sustainability focus, and it draws on what the school is trying to do in its management. The approach here is more critical, and questioning is to the fore in order to reveal the tensions and contradictions that are inherent in sustainable development, and ideas of what needs to be learned are opened up.

More strategy

Schools start to think in terms of social capital in relation to networks and learning, and how to enhance and measure this. Human capital is understood to involve more than academic knowledge and the development of skills and capabilities are to the fore. Students, staff, and others, are encouraged to be open-minded learners through expansive and exploratory

pedagogies that are open-ended, experiential and negotiated with students and the community.

A broad range of themes is identified which capture the essence of the learning necessary for success within which learning outcomes can be agreed. As a first draft, these could be conceived as follows, where school leavers¹⁷ are enabled to be:

...academically excellent: They...

- have a strong sense of intellectual integrity and ethics
- have age-appropriate knowledge of pertinent areas of study
- reach a high level of achievement in enquiry skills, problem-solving, collaboration and communication
- are critical and creative thinkers, with an aptitude for continued self-directed learning
- are adept at learning in a range of ways, including first-hand enquiry and ICT

...knowledgeable across disciplines: They...

- examine critically, synthesise and evaluate knowledge across areas of study
- expand analytical and cognitive skills through learning experiences in diverse subjects
- have the capacity and willingness to participate in collaborative learning and to confront unfamiliar problems
- have flexible and transferable skills for further study and/or employment

...active in communities: They...

- participate in initiating and implementing constructive change in their communities (including the school itself)
- have developed interpersonal and decision-making skills, including an awareness of personal strengths and limitations
- mentor future generations of learners
- engage in meaningful public discourse, with a growing understanding of community needs

...attuned to cultural diversity: They...

- value variety and difference in and between cultures
- are well-informed citizens able to contribute to their communities wherever they choose to live, study or work

- have an understanding of the social and cultural diversity in their community
- respect indigenous, and other, knowledge, cultures and values

...active global citizens: They...

- accept social and civic responsibilities
- are advocates for improving the sustainability of the environment
- have a broadening global understanding, with a high regard for human rights, equity and ethics.

Learning programmes in these schools have a wide range of the following characteristics¹⁸ of effective ESD, that are congruent with Decade aims. They...

- (1) let young people see that the school takes sustainability seriously, making it a strong focus of the school development plan, and using it to create an inclusive school ethos.
- (2) are positive in their approach to sustainability, taking young people's aspirations seriously and giving them hope for the future through being honest with them and encouraging an open, questioning approach.
- (3) listen to, and take account of, young people's environmental and community perspectives, involving them in thinking about, and responding to, issues, and helping them connect ideas.
- (4) value the natural and cultural worlds, involving young people in outdoor learning enabling them to work with local groups in and out of school, seeing both school and community as learning resources.
- (5) involve young people in developing and modelling sustainable school practices, improving the quality of their surroundings and school buildings, integrating this with curriculum activities.
- (6) understand that sustainable development is a social learning process, and are open to learning from evaluated case studies of school practice drawn from a range of contexts, while acknowledging that what needs to be done and learned may vary dramatically from setting to setting.
- (7) set out to help young people to manage sustainable development choices, and make judgements about the need for the compromises and trades-off between desired goals.

In relation to social capital, schools fully accept the idea that a broad view of sustainability needs to be taken in relation to what the school teaches, how it links with the community, or how its own campus is managed, and

about all three of these in an integrated fashion. There will be projects in operation that bring benefit to the local community, and there will be more interchange with the community around issues such as transport, gardening and food. As shown above, the exchange between school and community is more extensive and more real and it adds to social capital. It could be that schools at this point will be both role models and advocates for socio-environmental change.

Towards restorative

If schools are to take the next necessary steps then some substance will need to be added to the skeletal framework of ideas, such as those set out above. In doing this, learning outcomes will need to be specified and agreed. Whilst there is much to be said for these being negotiated locally, there is also the need to identify a suitable framework of ideas from which to begin. A convincing start was made on this over 10 years ago.

Following a consultation process, the UK Government's Panel for Sustainable Development Education (SDEP, 1998) wrote a report as a contribution to the (then current) review of the English national curriculum. In this, the panel identified seven key concepts (it also called them principles/dimensions) of sustainable development.

These are:

- (1) *Interdependence – of society, economy and the natural environment, from local to global.* Understanding how people, the environment and the economy are inextricably linked at all scales from local to global.
- (2) *Citizenship & stewardship – rights and responsibilities, participation and co-operation.* A sense of responsibility for personal and group actions, and an awareness of their likely impact on natural and human communities, both locally and globally.
- (3) *Needs and rights of future generations.* Appreciation that the quality of life of future generations is endangered or enhanced by actions we take now.
- (4) *Diversity – cultural, social, economic and biological.* Respecting and valuing both human diversity – cultural, social and economic – and biodiversity.
- (5) *Quality of life, equity and justice.* Appreciating why equity and justice are essential to sustainability and that basic needs are vital everywhere in the world.
- (6) *Sustainable change – development and carrying capacity.* Understanding that resources are finite and that this has implications for people's lifestyles, and for economic and political priorities.

- (7) *Uncertainty, and precaution in action.* Appreciating that there are a range of possible approaches to sustainability and that situations are constantly changing, indicating a need for critical thinking and lifelong learning.

The Panel explained the rationale underpinning this selection:

The first concerns the interdependent nature of the world. This gives rise to the need for a participative response through the exercise of citizenship and stewardship... The third through sixth concepts cover further key dimensions of sustainable development, leading to the seventh which, as a logical consequence of those that precede, is concerned with the limits of knowledge and exercise of the precautionary principle.

Although these ideas were briefly taken up in the early 2000s, they were not built on when DCSF developed its sustainable school doorways.¹⁹ They remain, however, a valid framework for critical and creative thinking which complement the doorways as ways to think about sustainability across community, curriculum and campus, and as a means of identifying learning outcomes. The Panel recognised this potential, and the report also set a range of generic and indicative learning outcomes for each of the key concepts. It did this in two ways: (1) in relation to *values and dispositions, skills and aptitudes*, and *knowledge and understanding*; and (2) in terms of what might be learned at the end of each of the five stages of formal schooling (age five to 19).²⁰

In its *key concepts* report to QCA, the Panel recognised the necessary limitations of what they outlined, calling for ‘further elaborative work [and] exemplification’. Despite their being 10 years old, these ideas remain the best starting point for any school wishing to think through what young people might learn in relation to sustainability. This is unsurprising, given that the issues the world faces have not got any less serious in the intervening years.

Natural & Built Capital

In many ways this ought to be the easiest category to write descriptors for in that aspects of the area lend themselves to quantifiable measurements, for example, in relation to reducing energy and water use. It is also the only one that has some possible end-points. In this sense, the following seem appropriate.

Initial exploration

Limited, responsive, changes are made following conventional framings, for example in relation to recycling and composting initiatives by Local Authorities and/or NGOs.

Some assimilation

There is a growing understanding that active steps need to be taken on all fronts, including planning to enhance biodiversity,²¹ as well as reducing footprints. With awareness raised, piecemeal, opportunistic change occurs, for example a school transport plan, the care of the school grounds, monitoring energy and some other resource use, and all improvements that are feasible without a strategic review or significant investment have been made.

More strategy

Following revisioning, a carbon reduction strategy is evolved and agreed with all stakeholders,²² along with a biodiversity enhancement strategy; these are implemented, monitored and audited as a normal part of school review that embraces both curriculum and campus activities (i.e. human and social capital measures), and involves everyone. The school has identified all the changes that can bring about improvement and has a costed plan to put these into effect over a specified timescale. There is also a plan to use any financial savings made to support the further development of the sustainable school.

Towards restorative

In a sustainable school, over time, the:

- (1) Net amount of energy imported from the grid reduces; when possible, net energy exports increase.
- (2) Amount of water brought in from external sources, and the amount of waste water and sewage sent off-site for treatment reduces; when possible, this is minimised.
- (3) Amount of waste organic matter composted and used in the community rises; when possible to 100%.
- (4) Biodiversity value of the grounds and community increases.
- (5) Carbon footprint of the school's transport falls; when possible to zero.
- (6) Waste sent to landfill reduces; when possible to zero.
- (7) Use of virgin raw materials only happens where this is part of a benign (i.e. restorative) biological cycle fuelled by renewables.

The rate at which progress is made in making these shifts depends not only on leadership and context, but also on the rate of investment in buildings, energy systems and the like. As such, the notion of discrete points has limited utility, except in that institutions can themselves identify what these should most usefully be, seeing progress in either absolute

terms, or as percentage improvements; for example, setting year-on-year percentage reduction targets might be useful in some circumstances.

Concluding remarks

In all this, however, it is clear that progress through each of these is independent of the others, and leadership sets limits on what can be achieved. If it is effective, school leadership can lead to the evolution of carbon reduction and biodiversity enhancement strategies, to curriculum re-orientation and effective student learning, and a rethinking and enhancement of the school's contribution to social capital. Unless school leaders understand the issues, and are in the vanguard of change, however, little of real substance will be possible. It is for this reason that work by the UK's *National College* around sustainable schools and leadership was of such significance. See, for example, Birney and Reed (2009) and Porritt et al. (2009), and the case studies of practice that they set out.

The approach that this research has taken is a development / internal and formative evaluation framing where the core question is:

How can we know how effectively the development of the sustainable school is progressing?

...where the 'we' refers to all stakeholders in the school, and 'the sustainable school' to the school in question, in its community. It has set out to have heuristic value in the sense of a rather embryonic and sketchy map to the terrain left by those who've travelled before and reflected on the journey. As such, the report is only of value if it is of use in the on-going conceptualising and developing of the sustainable school – and the thinking through of the issues.

Looking back to the aims that the UN Decade set itself, which were touched on at the start of the paper, it is clear that these can be addressed by an institution such as a school without adopting the very integrated view that this paper has examined, and many an educational institution will say that it is the curriculum, and what students learn, that is of prime importance. Whilst this seems reasonable at one level, at another it no longer is. Schools are important institutions within society; they have a significant carbon footprint, and they are role models in many respects. Thus, enhancing student learning now sits at the apex of a range of associated priorities, one of which could be seeking to establish a restorative purpose in respect of natural and social capital, as Daly, Meadows, and Webster argue.

Although the Decade and its promoters and supporters emphasise that when schools work with students, parents and others to address community and campus issues the result is enhanced learning and capacity that all can benefit from, they do not yet prioritise the restorative arguments set out here, and seeing the development of the thinking and visioning of schools along these lines is not part of mainstream ESD practice. And

yet, as the ways in which we all live continue to place increasingly untenable burdens on the biosphere's ability to support life at an appropriate level of quality, the need for restorative practices can only increase. Whatever follows on from the achievements of the Decade, as something substantive must, it is to be hoped that this rounded view of the contribution that a school can make becomes more prominent.

Notes

1. These links are now less obvious, as emphases on such issues have diminished owing to a change of government in 2010.
2. Two reports (Ofsted, 2010; Keating et al., 2009) have highlighted the link between sustainability and curriculum, as have thoughtful new books such as Webster and Johnson (2009). The helpfulness of ideas around action competence, a concept that was evolved in Denmark in the context of health and environmental education in the 1980s, has yet to be appreciated in the UK (Jensen & Schnack, 1997).
3. Quoted without citation in Meadows (1998).
4. <http://www.defra.gov.uk/sustainable/government/progress/data-resources/sdiyp.htm>. These include CO₂ emissions per end user, renewable energy, household waste per person, bird populations, river quality, economic output, fear of crime, childhood poverty, healthy life expectancy, road accidents, and so on. These indicators are now (2013) being revised through public consultation.
5. The UN's Economic Commission for Europe (UNECE), and initiatives such as ARIES, have also laboured long and hard in this vineyard, though to no great practical effect. See <http://www.unece.org/env/esd/SC.EGI.htm> and <http://www.unece.org/env/esd/SC.EGI.htm>
6. Whilst there is definitely something in this idea, and its simplicity appeals, the issue of tokenism is acute, and there would need to be other indicators indicating how effective the indicator was at indicating.
7. <http://www.eco-schools.org.uk/>
8. Another way to express this is to refer to the *steps* that schools can take on their institutional journey towards being more sustainable. There are advantages to this language, not least that it locates the agency and responsibility firmly with the school, but also that it embodies movement. Despite this, the notion of *stages* is persisted with here, as this was the original language used.
9. Rather than seeing sustainable development as separable into these three components, a more useful way of viewing it is: **The environment** – the limited (and ultimately limiting) framework within which development takes place. **Social development** – the purpose of sustainable development. **The economy** – the means whereby development will be effected. The advantage of this is that the link with sustainable development is not lost even though the idea has been disaggregated. It clearly links back to Brundtland and the World Conservation Strategy, and makes immediate sense.
10. Sometimes, a fifth capital 'financial' can be included in arguments similar to these. Here, whilst the need for financial capital in appropriate forms is assumed, issues relating to it are not addressed.
11. It is, of course, impossible to be a sustainable school if it is an island in a sea of business as usual, and it follows that there will need to be a degree of co-evolution between school, community and wider society if significant developments are to take place.
12. There is insufficient space here to re-emphasise the value of a systems approach to thinking about and understanding sustainability. The need to do this is, however, assumed throughout.
13. Criteria for setting up such links might include that: they are founded on mutual learning, there is a parity of esteem between partners, there are openly negotiated aims and objectives and a commitment to setting stereotypes aside, and all young people in the schools are able to participate and benefit.

14. Space does not allow an exploration of the vital, but complex, concept of social capital. See, for example, Putnam (2000) and <http://www.nationalcollege.org.uk/index/leadershiplibrary/leadingschools/working-in-partnership/ecm/school-families-communities/understanding-social-capital.htm> for key aspects of the argument.
15. Of course, not all behaviour change is necessarily beneficial – even where it does appear to be reducing a burden. Webster and Johnson (2009) make the point that changing what we do *just* to do less harm is not what we need to be aiming for. Rather, it needs to be a question of building ‘benign cycles which restore capital’ (Webster, pers. comm.).
16. There is also a growing understanding of how young people’s learning and well-being can benefit from a focus on the sustainable school. See Barratt Hacking, Scott, and Lee’s research (2010) for the DCSF.
17. This set of attributes has been developed from *The Melbourne Experience* which, although originally focused on graduates, has, if appropriately interpreted for age and experience, a generic applicability across sectors and phases. See: <http://www.unimelb.edu.au/about/attributes.html>. These are similar to the six areas of QCDA’s personal learning and thinking skills (PLTS: *independent enquirers, creative thinkers, reflective learners, team workers, self-managers & effective participants*); see: <http://curriculum.qcda.gov.uk/key-stages-3-and-4/skills/plts/index.aspx>; and to the ideas set forth in the Cambridge Primary review (Alexander, 2009).
18. These have been developed from work presented at a TIDE~ seminar in 2004 – see <http://www.tidec.org/Tidetalk/articles/Growing%20ideas.html> – and from recent research for the DCSF (Barratt Hacking, Scott, & Lee, 2010).
19. In February 2010, the Education and Training Inspectorate in Northern Ireland published: *Effective Practice in Education for Sustainable Development in a Sample of Primary, Post-primary and Special Schools in Northern Ireland*. This report uses the seven key concepts although it repeats the error first made by QCA by terming these key concepts of ESD rather than sustainable development.
20. This detail is set out at <http://www.bath.ac.uk/cree/publications/index.html>
21. A range of opportunities for doing this are available, including the Botanic Gardens Education Network: www.bgen.org.uk – Breathing Places Schools: www.bbc.co.uk/breathingplaces/schools – an ecosystems approach: www.defra.gov.uk/wildlife-pets/policy/natural-enviro/eco-approach.htm – and the Biodiversity Benchmark scheme: <http://www.wildlifetrusts.org/index.php?section=corporate:biodiversity:whatisit>.
22. This will include using procurement policy to influence supply chains.

Notes on contributor

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