



Learning for Sustainability Research into Action Briefings

Learning for Sustainability – effective pedagogies

Context

Internationally it is recognised that achieving sustainability, *'the will to improve everyone's quality of life, including that of future generations, by reconciling economic growth, social development and environmental protection'* (UNESCO, 2016a)¹, will require 'new' values, attitudes, skills and knowledge. In Scotland 'Learning for Sustainability' (Lfs) brings together Sustainable Development Education, Global Citizenship and Outdoor Learning (specifically immersive and sensitising experiences of the natural world), with the intention of affording young people opportunities *'to develop practices and take decisions which are compatible with a sustainable and equitable society'* (GTCS, 2013)². Engaging with Lfs educationally requires learners to consider complex cross-disciplinary and interdisciplinary issues in a way that enables them to feel able to take positive action and move towards transformational change at a personal and everyday level.

UNESCO Findings

The search for effective pedagogies to address the complexities of Learning for Sustainability or Education for Sustainable Development (ESD – the term used by UNESCO) has been a feature of research and school practise for several decades and in many countries, resulting in dedicated journals, numerous textbooks and international handbooks. The local UK context is the key focus of this briefing, but the broader international research-based guidance from UNESCO provides a useful start point. Education for sustainable development³ in that context

1. is based on the principles and values that underlie sustainable development;
2. deals with the well-being of all four dimensions of sustainability – environment, society, culture and economy;
3. uses a variety of pedagogical techniques that promote participatory learning and higher-order thinking skills;
4. promotes lifelong learning;
5. is locally relevant and culturally appropriate;
6. is based on local needs, perceptions and conditions, but acknowledges that fulfilling local needs often has international effects and consequences;
7. engages formal, non-formal and informal education;
8. accommodates the evolving nature of the concept of sustainability;
9. addresses content, taking into account context, global issues and local priorities;
10. builds civil capacity for community-based decision-making, social tolerance, environmental stewardship, an adaptable workforce, and a good quality of life;
11. is interdisciplinary - no single discipline can claim ESD for itself; all disciplines can contribute to ESD.

What is plain from this list is that content, pedagogy and the values, attitudes, skills and knowledge are inextricably bound together in the structure, purpose and process of ESD/LfS. In a sense this is as it should be, because sustainability issues themselves are complex, interdisciplinary and 'wicked' (so tightly bound that an effort to 'fix' one may have inadvertent and unpredictable consequences). What is left unsaid is that the 'higher-order thinking skills' referred to must include building capacity for deep critical thinking that allows learners to critique and act to counter the economic and social causes. In short, content knowledge alone is not sufficient, there must be opportunity afforded for consciousness-raising pedagogical experiences that enable teachers and learners to reflect upon their personal ethics; such personal examination provides a starting point or context for the flourishing of care, which may lead to positive action and behaviour change. Sánchez and Lafuente⁴ refer to this integration of beliefs, knowledge, attitudes and behavior as an 'environmental consciousness', others, such as Kollmuss and Agyeman⁵ refer to the relationship between behavior and knowledge as 'pro-environmental consciousness' and suggest that the relationship is fraught with complexity, therefore too difficult to rationalise or explain. Olsson, Gericke, and Chang Rundgren⁶ acknowledge this tension and suggest 'sustainability consciousness' as a broader, more holistic term that acknowledges the inherent complexity by creating a space for both a technical-rational cognitive approach and a deeper, more philosophical examination; this appears reasonable.

It is notable that in the UNESCO list there is no mention of experience of contact with nature and the natural world, despite increasing evidence that contact with nature and the natural environment is important for human wellbeing. This has led to the increasing prominence of outdoor learning as a key pedagogical approach in Scotland, supporting the use of school grounds and local environments for learning experiences⁷. Linking to the concept of 'sustainability consciousness', such outdoor approaches could afford fertile ground for the type of immersive and consciousness-raising experiences required to attend to the complex cognitive and affective pedagogical domains, outlined above.

This briefing draws upon UK research, specifically that commissioned by WWF⁸, to identify the key strategies and approaches to teaching used in primary and secondary schools to effectively support learning for sustainability. The key study by Gayford⁹, asked 'what key pedagogical approaches effectively support learning for sustainability?'. Twenty-six schools were sampled and a series of examples of teaching were drawn from the 16 primary schools, one middle school and nine secondary schools (seven of which were from Scotland and the remainder in England). The schools were selected from those involved in longitudinal sustainable schools studies in England and selected as examples of good practice by WWF and Eco-Schools in Scotland and those that had received a national award for their learning for sustainability work.

UK Findings

All schools used participatory approaches, with teachers facilitating and guiding learning and the learner an active partner in judging progress towards learning objectives. Approaches most commonly used were:

1. pupil-led research and enquiry, providing opportunities for pupils to find out things for themselves;
2. use of stimulus material such as DVDs, films, talks and artefacts to develop pupils' knowledge.
3. creative presentation of research findings;
4. used group work, collaborative tasks and peer learning;
5. involved meaningful participation in decision-making about school and community life;

6. employed enquiry-based, problem-solving approaches, involving critical and systems thinking; developing an ability to work with complexity and uncertainty;
7. used role-playing aimed at developing an understanding of different perspectives and experiences; reflective learning research¹⁰¹¹ indicates that this is an essential step in changing behaviour with regards to sustainability;
8. used expressive arts to explore thoughts and ideas;
9. taking action to address 'real life' issues in practical ways based on what has been learned;
10. organised special events, for example a conferences, a fashion show;
11. used the school ground for outdoor learning to provide opportunities for regular contact with nature (which has also been shown to have a host of other pedagogical and developmental benefits;¹²¹³¹⁴
12. used school grounds to grow food and other plants - the practical 'hands on' approach has also been shown to be beneficial in increasing motivation for learning¹⁵;
13. involved parents and the wider community;
14. used a local to global progression and/or linking with schools in other countries to explore the interconnected nature of the world.
15. engaged and involved external experts.

In addition to this study, other UK based research has established similar features of effective pedagogies. For example in the recent Scottish study¹⁶ as part of an 18 nation UNESCO study on the relationship between ESD and attainment¹⁷, many of these themes were evident in the reports of staff and pupils. Most notably key features included interdisciplinary learning, development of critical thinking skills and outdoor learning experiences.

Conclusions

Learning for Sustainability themes are now well-rooted in the Experiences and Outcomes across the Curriculum for Excellence. The present review indicates that there are a number of pedagogical approaches that support good learning for sustainability practice in schools. In addition to teachers possessing secure subject knowledge that will help support pupils' enquiry, independent thinking and debate, use of participatory approaches is found to be vital. Indeed, whilst it is evident that there is a great deal of similarity between these studies reported above, the UK based studies cited (along with others) do emphasise the importance of practical as well as theoretical learning and the development of critical skills necessary to build action competences.

More work is needed to evaluate the impact of these pedagogical approaches on pupils. A three-year longitudinal study in England¹⁸ found that where pupils were involved in monitoring, recording and reporting the effectiveness of the measures taken to improve sustainability within their school, or involved in planning changes in the school or local community, there were valuable educational outcomes and increased pupil motivation. It was also found that pupils appreciated events and activities that interrupt the routine of the school and extend their experience of learning for sustainability. Clearly further research is needed to evaluate impact on the values and attitudes of pupils.

Whilst we know far more about effective pedagogies for LfS (and incidentally these are entirely appropriate for much other learning in schools) the complexity of the challenge, ranging across knowledge, values, attitudes and skills, is such that the creativity of the teacher and the ethos of the school will always have a significant role. As Scott¹⁹ argues, there is no straightforward process for a school to become 'sustainable', instead we have 'an embryonic and sketchy map to the terrain, rather than as a set of instructions or a detailed plan to follow'.

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¹ UNESCO (2016a). *UN Decade of Education for Sustainable Development 2005-14*.

<http://unesdoc.unesco.org/images/0014/001416/141629e.pdf>

² General Teaching Council for Scotland (2013).

³ UNESCO (2016b). *Education for sustainable development*.

<http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development/education-for-sustainable-development/>

⁴ Sánchez, J., & Lafuente, R. (2010) Defining and Measuring Environmental Consciousness. *Revista Internacional De Sociología* 68 (3): 731–755.

⁵ Kollmuss, A., & Agyeman, J (2002) Mind the Gap: Why Do People Act Environmentally and What Are the Barriers to Pro-environmental Behavior? *Environmental Education Research* 8 (3): 239–260.

⁶ Olsson, D., Gericke, N., & Chang Rundgren, S.N. (2016) The effect of implementation of education for sustainable development in Swedish compulsory schools – assessing pupils' sustainability consciousness, *Environmental Education Research*, 22:2, 176-202, DOI: 10.1080/13504622.2015.1005057

⁷ See other briefings in this series, particularly Christie, B. & Higgins, P. (2012). *Learning for Sustainability and attainment in schools*. Research into Action Briefings. Edinburgh: University of Edinburgh.

⁸ WWF (2010). *Learning for Sustainability: Effective Pedagogy*.

http://assets.wwf.org.uk/downloads/wwf_pedagogy_report_final__no_back_tint__web.pdf

N.B. This was followed in 2012 by WWF Professional development framework of teacher competences for learning for sustainability. http://assets.wwf.org.uk/downloads/wwf_lfs_teacher_competences.pdf

⁹ Gayford, C.G. 2009 *Learning for sustainability: from the pupils' perspective*. (Report of A three-year longitudinal study of 14 schools from June 2005 to June 2008). WWF-UK, Godalming.

¹⁰ Scottish Executive Education Department (2005). *Assessment is for Learning*.

<http://www.gov.scot/Resource/Doc/148738/0039551.pdf>

¹¹ WWF Scotland (2009). *The Natural Change: Psychology and sustainability*. Dunkeld: WWF Scotland.

¹² Rickinson, M. Dillon, J. Teamey, K. Morris, M, Choi, M.Y. Sanders, D. and Benefield, P. 2004. *A Review of Outdoor Learning*. Shrewsbury, UK: NFER & Kings College London.

¹³ Beames S., Higgins, P. & Nicol, R. (2011). *Learning outside the classroom: theory and guidelines for practice*. New York: Routledge.

¹⁴ Christie, B., Beames, S., Higgins, P. (2015). Culture, context and critical thinking: Scottish secondary school teachers' and pupils' experiences of outdoor learning. *British Educational Research Journal*.

DOI: 10.1002/berj.3213

¹⁵ Ofsted, 2009, *Education for sustainable development: Improving schools – improving lives* (Ref 090004. Ofsted: London)

¹⁶ Education Scotland (2014). *Conversations about learning for sustainability: A series of case studies of schools and early years centres to mark the conclusion of the United Nations Decade of Education for Sustainable Development*. Glasgow: Education Scotland.

¹⁷ Christie, B. & Higgins, P. (2012). *Learning for Sustainability and attainment in schools*. Research into Action Briefings. Edinburgh: University of Edinburgh.

¹⁸ Gayford, C.G. 2009 *Learning for sustainability: from the pupils' perspective*. (Report of A three-year longitudinal study of 14 schools from June 2005 to June 2008). WWF-UK, Godalming.

¹⁹ Scott, W. (2013): Developing the sustainable school: thinking the issues through. *Curriculum Journal*, <http://dx.doi.org/10.1080/09585176.2013.781375>