Journal of Learning for Development – JL4D

ISSN: 2311-1550

Vol. 4, No. 3, pp. 275-286

Open Education and the Sustainable Development Goals: Making Change Happen

Andy Lane

The Open University, Milton Keynes, United Kingdom

Abstract: Education for All has been a concept at the heart of international development since 1990 and has found its latest instantiation within the Sustainable Development Goals (SDGs) as SDG 4, 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'. Open education, in the form of resources and practices are both seen as contributors to SDG4 as evidenced by the recent 2nd World Open Educational Resources Congress. The ambition for open education to contribute to the SDGs is clear from this and other gatherings but the means to make it happen are not as clear, and many have claimed that little has happened since the SDGs were launched in 2015. To help address this apparent gap, this paper: (1) sets out the scale and scope of the SDGs; (2) reviews the potential contribution of open educational resources and practices to support the SDGs, and (3) uses a framing of power and systems thinking to review the way open education activities might be fostered within tertiary education in all local, national and regional contexts in order to support the SDGs, and not just SDG 4. It will also tentatively propose a theory of change that brings together power relationships, systems thinking and open education as key components and provide a case study of how this might work in practice through a newly funded project proposal. It is hoped that this theory of change and proposal will be a starting point for wider debate and discussion on how to make change happen in this important arena.

Keywords: Open Education, Sustainable Development Goals, Systems Thinking, Power, Theory of Change.

Introduction

Education for All has been a concept at the heart of international development since 1990, firstly within the Millennium Development Goals and more recently within the Sustainable Development Goals (SDGs), most notably as SDG 4, 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' (Uvalić-Trumbić & Daniel, 2016). The role of education in underpinning sustainable development in all countries, not just those egregiously categorised as 'developing countries', is widely accepted and a 2013 report from the Organisation for Economic Co-operation and Development (OECD) was clear about the perceived benefits of wider and deeper educational attainment:

> Educational attainment is frequently used as a measure of human capital and the level of an individual's skills, in other words, a measure of the skills available in the population and the labour force. The level of educational attainment is the percentage of a population that has reached a certain level of education. Higher levels of educational attainment are strongly associated with higher employment rates and are perceived as a gateway to better labour opportunities and earnings premiums. Individuals have strong

> incentives to pursue more education, and governments have incentives to build on the skills of the population through education, particularly as national economies continue to shift from mass production to knowledge economies. (OECD, 2013)

More recently the OECD has noted:

> Making SDG 4 a reality will transform lives around the globe. Education is so central to the achievement of a sustainable, prosperous and equitable planet that failure to achieve this particular SDG puts at risk the achievement of the 17 SDGs as a whole. (OECD, 2017 p. 27)

This latest OECD report has a whole chapter devoted to the SDGs, assessing where the OECD and partner countries are in relation to the targets. There is widely reported variation in performance even amongst these more 'developed' countries. For example between 10 and 70% of 25-34 year olds (OECD average 42%) have tertiary level qualifications, which means that performances are likely to be lower than these figures if 'less-developed' countries are assessed in a similar way.

While education, and higher education, are seen as critical to the SDGs there are those who see distance education as playing a central role (e.g., Uvalić-Trumbić & Daniel, 2016), those who see open educational resources as important (MacKinnon, Pasfield-Neofitou, Manns, & Grant, 2016), others who forefront education for sustainable development (e.g., Gokool-Ramdoo & Rumjaun, 2016) and others who mention two or more of these, such as the International Council for Distance Education who quoted from the Incheon Declaration to state that:

> A well-established, properly-regulated tertiary education system supported by technology, Open Educational Resources (OERs) and distance education modalities can increase access, equity, quality and relevance, and narrow the gap between what is taught at tertiary education institutions and what economies and societies demand. The provision of tertiary education should be progressively free, in line with existing international agreements. (UNESCO, 2015).

These different perspectives are inevitable for a topic and a challenge of such scale and complexity, and raises questions about whether the ambition of the SDGs and the many authors I have quoted can be fulfilled in practice. While many authors (e.g., MacKinnon et al, 2016) do set out key questions for open education and other authors (e.g., Wright, Dhanarajan, & Reju, 2009) have set out the key challenges for distance education and e-learning and we have major multi-lateral international declarations such as the Ljubljana OER Action Plan 2017 from the recent Second World OER Congress[i] describing *'concrete action in five strategic areas to support the mainstreaming of OER around the SDG4 goal of quality, lifelong learning'*, there is often little or no effective theory of change espoused through which actions can be coordinated and evaluated. In this paper I offer such a theory of change based on notions of power and systems thinking.

The Scale and Scope of the SDGs

There are 16 sector-based Sustainable Development Goals in total with 179 targets[ii] and they apply to all countries in the world. There are 10 separate targets within Goal 4 on Education but in this paper I will concentrate on two of them – numbers three and seven:

- By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university

- By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

This latter target, that relates directly to education for sustainable development, is also known as education for sustainability, which in itself sets up another never ending debate on what is meant by sustainable development or by sustainability in general (Gokool-Ramdoo & Rumjaun, 2016) and in relation to higher education (Wals & Jickling, 2002; Blackmore, Ison, & Reynolds, 2014; MacKinnon et al, 2016).

As well as the 16 sector-based SDG Goals there is a 17th that deals with how these 16 should be tackled through partnerships. One part of this Goal mentions the integration issues that influence their implementation:

- *Policy and institutional coherence*
    - *Enhance global macroeconomic stability, including through policy coordination and policy coherence*
    - *Enhance policy coherence for sustainable development*
    - *Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development*
- *Multi-stakeholder partnerships*
    - *Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries*
    - *Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships*

Yet, again, the ambition is clear but the means to make it happen are not as noted by this commentator:

> Twelve months in, and there's been some good progress on the Sustainable Development Goals (SDGs) from governments, NGOs and businesses alike: looking at what's material, making commitments, testing what's possible and confirming shared roles in delivering these ambitions. But there is a missing piece in all this activity, and it's the glue that holds it all together – systems thinking (Draper, 2016).

So what does systems thinking provide to help manage change and meet the SDGs?

Power and Systems Thinking as Agents of Change

Complexity and uncertainty can be features of any human activity system but this is more so when considering many larger scale situations operating across the world (Ison, 2017), as is the case with the SDGs. The number of facts and factors involved, the number of people with different perspectives

and disciplinary expertise, all grow larger and seemingly more intractable. To be able to represent a complex messy situation by showing most of the components and how they are thought to fit and work together is, therefore, very helpful when designing and implementing systemic changes that draw upon and integrate the thinking and activities from many disciplines (Reynolds, Blackmore, Ison, Shah, & Wedlock, 2017).

There are three generic elements underpinning systems thinking in practice:

- understanding inter-relationships ('thinking' about the bigger picture including power relationships and coherence of interventions)
- engaging with multiple perspectives (the 'practice' of joined-up thinking through considering multi-stakeholder partnerships at all levels)
- reflecting on boundary judgements (the praxis of thinking in practice and understanding what is relevant to the system of interest and what is not relevant at a particular point in time).

And one powerful way of representing systems of interest is through diagrams, which I will return to later when discussing my case study.

It is not only academics who are promoting this approach. Green (2016), an experienced development worker, has also claimed that a power and systems approach to making change happen is critical because it: "*cover[s] our ways of working—how we think and feel, as well as how we behave as activists.*"

Indeed, systems thinking is increasingly being used by people and organisations in all sectors of the economy. It is an approach being taken up by many organisations in the UK such as PwC[iii], Nesta[iv], Forum for the Future[v], Advice UK[vi] and Oxfam[vii] among others. Further afield, in the US, there is the Waters Foundation[viii], the Institute for Systemic Leadership[ix], and the Donella Meadows Institute[x]. Systems thinking is used in UK policy making at both a local and national government level and has influenced the work of the Ellen MacArthur Foundation on the Circular Economy[xi] with its many multi-national business partners.

Systems thinking has been defined as an approach to problem solving, by viewing problems as parts of an overall system, rather than reacting to specific parts, outcomes or events. Systems thinking is not one thing but a set of habits or practices within a framework that is based on the belief that the component parts of a system can best be understood in the context of relationships with each other and with other systems. It also has different traditions, which revolve around whether people think of systems as ontological realties - they exist out there- or as epistemological devices – ways of representing the world we experience.

Systems thinking is not an alternative to the scientific approach, it is complementary to it. Systems thinking respects complexity, it doesn't pretend it's not there. Systems thinking makes complexity manageable by taking a broader perspective. It recognises and accommodates the histories and traditions of other disciplines (Chapman, 2002; Ison, 2017).

The next section attempts to apply these tenets of systems thinking to a potential theory of change, adapting an existing approach.

Towards a Theory of Change for Open Education and Sustainable Development

Positive social change requires power, and hence attention on the part of activists to politics and the institutions within which power and accountability is exercised (Stensaker & Harvey, 2011). A theory of change should contemplate both the context and the theory of action (how we intend to change the system). A theory of change should be a compass not a map, a dynamic process rather than a static document, and allow for assumptions to be regularly challenged and updated, encouraging a greater focus on learning. It requires both looking back to understand the histories and traditions which have shaped the system as is and understanding that change needs to be responsive to unforeseen events and the views of others and that messiness and uncertainty are to be expected and not feared. It also needs to reflect the different levels of change needed, ranging from the level of the individual to the level of the 'system of interest', and to take account of formal and informal traditions and activities.

Figure 1 is a 2 x 2 matrix that uses these two axes (individual-systemic and formal-informal) to indicate different domains of change that need to be addressed together. It was developed for work on women's rights and as noted by Green (2016):

> The authors of the framework find that activists typically neglect the left hand side – the informal world. By reminding us to look at a change in terms of all four quadrants, the framework stresses the need for work to happen at all levels (individual, community, formal politics, etc.) and it helps activists map who else is working on a given issue and identify gaps in the collective effort. (p. 241)

He goes on to say that:

> Whatever the issue we are thinking about and seeking to change, everyone involved will be linked by a subtle and pervasive force field of power. A good power analysis should identify the players (both individuals and organizations) how they relate to each other, who or what they are influenced by [..] and the different kinds of power in play [..]. (p. 243)

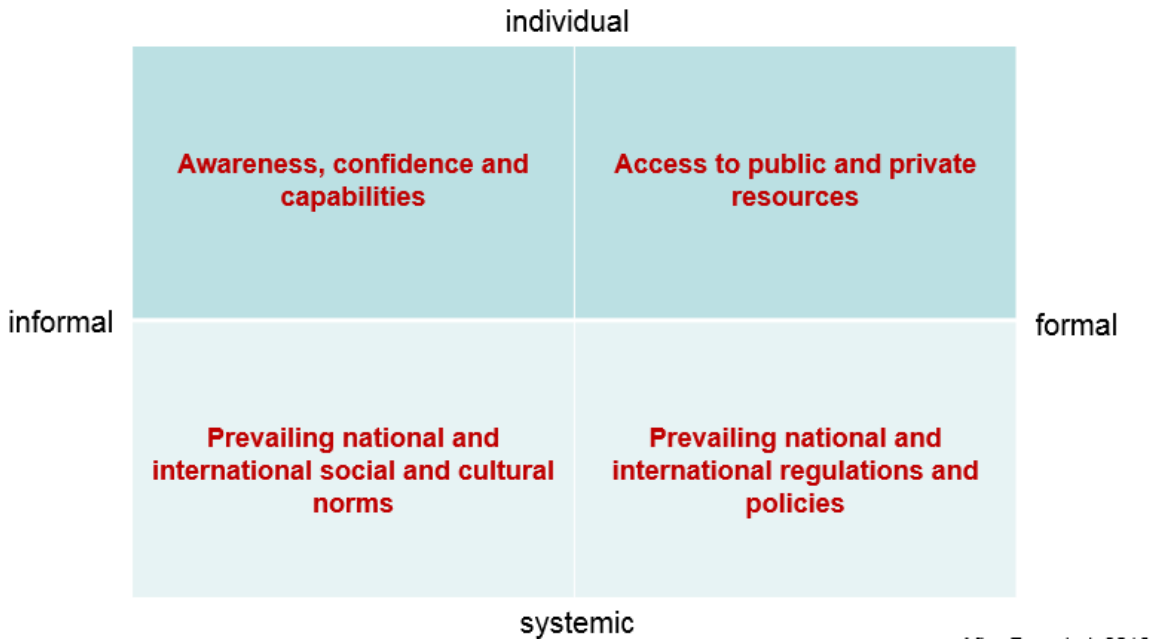

Figure 1: A potential theory of change model

(Adapted from Rao, Sadler, Kelleher, & Miller, 2016, as described in Green, 2016)

Figure 1 is a general model for a theory of change. I have attempted to use this to move towards a theory of change through the implementation of open education (Figure 2). This figure uses statements in each quadrant that are more explicitly about open education (which I take to encompass both the traditional open, distance and e-learning practised originally by 'open' universities, as well as the more recent open educational resources movement based on open licensing) and which I believe to be key areas requiring change from my involvement in open education projects and activities over 35 years and from my wider reading of the literature[xii].

To be successful in effecting change we need to consider interventions in all four quadrants of Figure 2 such as:

- How do we embed an understanding of the implications of open licensing within teachers used to dealing with copyrighted material and in students used to readily consuming 'free' content on line and within academic practices that frown on 'plagiarism'?
- Who provides training and equipment for people to engage in open educational practices when it may involve multiple media and ever changing technologies?
- What are Higher Education Institutions (HEIs), both individually and collectively, doing to acknowledge and promote the benefits of open education to their staff, students and the wider public?

- Which are the most important sector-based institutions dealing with tertiary education that need to change local, national, regional or international policies and strategies to encompass open education?

Having taken my argument this far you might now be saying, That is a fine idea in principle but will it work in practice? I cannot positively answer yes to that yet but I will next describe the scope of a new international development project as a case study on how systems thinking and power have been accommodated in the overarching conception and planning of the project.

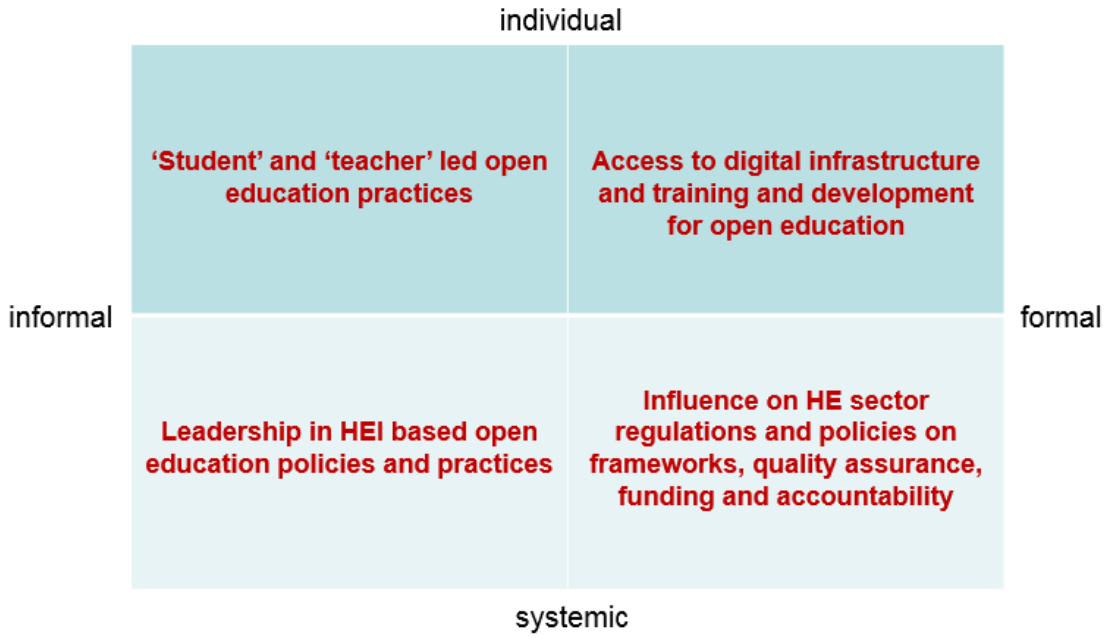

Figure 2: Towards a theory of change through open education

Case Study: The Transformation through Innovation in Distance Education (TIDE) Project

The Transformation through Innovation in Distance Education (TIDE) project is, at the time of writing, a recently approved project under a UK Aid funded programme called Strategic Partnerships for Higher Education Innovation and Reform (SPHEIR)[xiii], for which the Open University in the United Kingdom is the lead partner, involves several universities from both the UK and Myanmar. While we have not formally started what I can share here is the aims and main expected outcomes from this four-year project, as well as a systems diagram that explains the interrelationships between the different strands of work and how these equate to interventions in all four quadrants of my theory of change through open education shown in Figure 2.

TIDE aims to improve the quality of higher education in Myanmar at a critical time in the country's development. After years of low investment in the higher education system, there is now an increasing demand for skilled graduates to meet new employment needs, particularly in relation to the environmental management of Myanmar's natural resources to ensure sustainability over years of rapid development.

TIDE brings together universities in the UK and Myanmar to improve the quality of (open) educational resources and (open and) distance learning to result in more employable graduates. The partnership aims to strengthen the quality of the distance education system at institutional levels and in the design and delivery of learning using open educational resources and practices, focusing on environment related disciplines and making use of the rapidly emerging digital infrastructure. These activities are planned to benefit more than 500,000 students across Myanmar who currently access higher education through distance learning (60 per cent of all higher education students in Myanmar study through the two distance education universities).

The partnership wants to create links to the government of Myanmar and the Ministry of Education to connect TIDE to new higher education reforms.

In particular TIDE plans to develop:

- A competency framework and curriculum for Education for Environment and Sustainable Development (EfESD), and related OERs produced in collaboration with employers and the private sector
- Teaching approaches, media production skills, and digital and library support capacity for higher education courses, delivered through distance education
- Academic knowledge in environment related subject areas
- Plans for the institutional framework for open and distance education.

In addition, the partnership aims to build both strategy and leadership for the future of higher education in Myanmar, acting as a catalyst for further improvement in the sector by providing a practical example of how quality and relevance can be improved.

The systems diagram shown in Figure 3 was part of the original bid proposal and outlines, in graphical form, a set of system-wide interventions and activities that aim to work with and extend existing structures and practices within Myanmar, and that cover all four quadrants of the theory of change matrix.

The choice of Education for Environment and Sustainable Development as the subject focus, academic practice through developing new OERs for both undergraduate and postgraduate courses as the people and practice focus, and leadership development as the people and policy focus, means that these activities fall more into the informal and individual and systemic quadrants (although the latter more at an institutional level than a sector level). These form the people elements of the diagram.

The work on setting up locally relevant competency and skills frameworks that address academic practice, environmental professional practice and work-related curriculum for EfESD requirements for Myanmar (the programme elements of the diagram), not only specifically links and, as far as practicable, aligns these frameworks (Lane, 2017), but also adds to the two informal quadrants as well as move into the two formal quadrants, in particular that for individuals. Also note that through the use of OERs co-developed with Myanmar academics and by linking the curriculum skills framework to the SDGs themselves through this topic of EfESD, (at least some of) these educational materials will be of relevance to all students, whatever degree they are studying (not just environmental degrees), and to the wider citizenry who can self-study them for personal and/or professional development.

Further, this model of curriculum reform will provide a systemic approach that higher education leaders can adapt to improve the relevance and quality of higher education more widely by applying it to other subjects and so catalyse greater higher education reform.

Finally, the project also hopes to support ongoing changes to higher education policies and to the digital infrastructure within Myanmar, some of which will align with regional developments in Higher Education within the ASEAN[xiv] region and others may link to wider international standards to do with professional recognition.

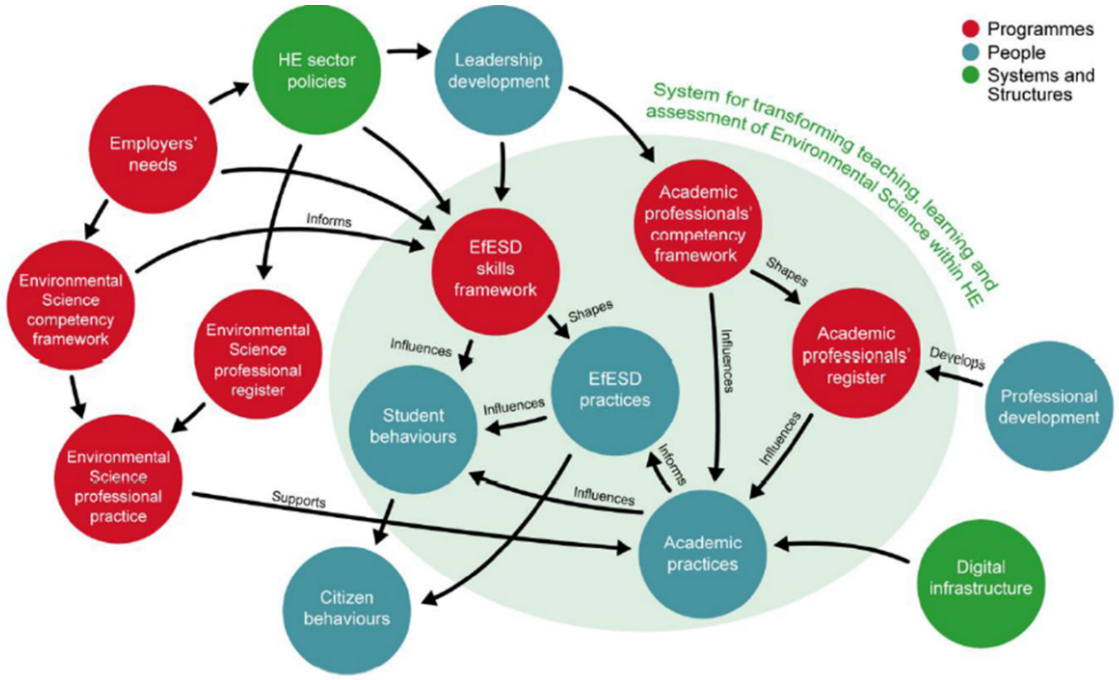

Figure 3: Influence diagram of factors affecting the system for transforming teaching, learning and assessment of Environmental Science within Higher Education

The project is both ambitious and yet conservative. It uses tried and trusted interventions and activities that can be found in higher education in many countries. Its ambition lies in trying to introduce a wide set of mutually supporting interventions and activities that aim to change how people behave. It is also starting at a time when there are significant political challenges in Myanmar that may change the power dynamics that are currently supportive of this type of sector wide reform. So the project can also be considered as a learning system (Ison, 2017) whereby we research and evaluate what works and what does not work and why, with the aim that this particular reform will be sustained but also that the broad theory of change through open education in Figure 2 and the more detailed theory of change we are finalising for the project itself can be fully tested and hopefully validated.

Concluding Remarks

This brief descriptive account has only begun to touch upon the conceptual underpinnings of my proposed theory of change through open education and also the scope and scale of the case study project. Figure 3, and the inter-related interventions and activities it encapsulates, is also just one representation of a system of interest aimed at making change happen in Myanmar's higher education sector. This representation will probably change during the project and hopefully after the project itself ends and the changes are sustained from within Myanmar. Others may have, and want to use, different representations, but hopefully they also will also try to cover the systemic and integrative elements of relationships, perspectives and boundaries needed to ensure the constructive alignment of multiple interventions (Lane, 2017). However we should heed the cautionary note of Russell and Ison (2017) describing their experiences with agricultural research and extension in Australia:

> If innovation as well as social and personal change could be achieved by "effective" communication and the ready availability of knowledge, the world operating under the current mind-set would be a great place to live. There would be ready at hand the vehicle, the wherewithal, to deliver on sound planning and intervention for the achievement of positive change. The desire for change and the belief in getting the communication "right," in order to achieve the nominated change, is pervasive in our society. (p. 486)

They go on to suggest that it is better to think of promoting a relational dynamic where actors are constantly explaining what they are trying to achieve to other actors and through those conversations are able to reach dynamic agreement on the similarities and differences and purposes of what they do and why they do it. Figure 3 is an attempt to show this dynamic visually in an influence diagram, where constructive alignment, where possible and desirable, is achieved through the conversations between the actors and in light of developments in real-world situations that may throw up new challenges that all involved have to adapt to. It is a device around which all involved in the TIDE project will be able to have conversations and understand the implication of interventions in one part of the system on practices within other parts of the system. However, this highlights another issue of how willing, how able and in what spaces the actors will undertake those conversations if some of those conversations appear to challenge their own positions of power and traditions of practice. Making change happen at scale is not easy or simple but with many advocating systems thinking as a solution that belief needs testing. TIDE will hopefully do that.

References

Blackmore, C., Ison, R., & Reynolds, M. (2014). Thinking differently about sustainability: Experiences from the UK Open University. In W. L. Filho, U. M. Azeiteiro, F. Alves & S. Caeiro (Eds.), *Integrating sustainability thinking in science and engineering curricula.* (pp. 613-630). Cham: Springer.

Chapman, J. (2002). *System failure: Why governments must learn to think differently*. Retrieved from http://www.demos.co.uk/files/systemfailure.pdf

Draper, S. (2016). *Systems thinking, unlocking the sustainable development goals*. Retrieved from http://www.businessgreen.com/bg/opinion/2472665/systems-thinking-unlocking-the-sustainable-development-goals

Gookol-Ramdoo, S., & Rumjaun, A. B. (2016). Education for sustainable development: Connecting the dots for sustainability. *Journal of Learning for Development*, *4*(1), 72-89.

Green, D. (2016). *How change happens*. London: Oxford University Press.

ICDE. (2016). Open Educational Resources. Retrieved from http://www.icde.org/open-education-resources

Ison, R. (2017). *Systems practice: How to act. In situations of uncertainty and complexity in a climate-change world.* (2nd ed.). London: Springer-Verlag.

Lane, A. (2017). The systemic implications of constructive alignment of higher education level learning outcomes and employer or professional body based competency frameworks. In *Proceedings of the Online, Open and Flexible Higher Education Conference: Higher Education for the Future; Accelerating and Strengthening Innovation*, 25-27 October 2017, Milton Keynes UK.

MacKinnon, T., Pasfield-Neofitou, S., Manns, H., & Grant, S. (2016). A meta-analysis of open educational communities of practice and sustainability in higher educational policy. *Apprentissage des Langues et Systèmes d'Information et de Communication*, *19*(1). Retrieved from https://alsic.revues.org/2908

OECD. (2013). *Education at a Glance 2013: OECD Indicators*. Paris: OECD Publishing. Retrieved from http://www.oecd.org/edu/skills-beyond-school/

OECD. (2017). *Education at a glance: OECD indicators*. Retrieved from http://dx.doi.org/10.1787/eag-2017-en

Rao, A., Sadler, J., Kelleher, D., & Miller, C. (2016). *Gender at work: Theory and practice for 21st century organisations*. Abingdon: Routledge.

Reynolds, M., Blackmore, C., Ison, R., Shah, R., & Wedlock, E. (2017). The role of systems thinking in the practice of implementing sustainable development goals. In Walter Leal Filho (Ed.), *Handbook of sustainability science and research*. London: Springer.

Stensaker, B., & Harvey, L. (2011). *Accountability in higher education: Global perspectives on trust and power*. New York: Routledge.

UNESCO. (2015). *Education 2030: Incheon Declaration and Framework for Action*. Retrieved from http://unesdoc.unesco.org/images/0024/002456/245656e.pdf

Uvalić-Trumbić, S., & Daniel, J. (2016). Sustainable development begins with education. *Journal of Learning for Development*, *3*(3), 3-8

Wals, A. E. J., & Jickling, B. (2002). Sustainability in higher education. *International Journal of Sustainability in Higher Education*, *3*(1), 221-232

Wright, C. R., Dhanarajan, G., & Reju, S. A. (2009). Recurring issues encountered by distance educators in developing and emerging nations. *International Review of Research in Open and Distance Learning*, *10*(1), 1-25.

Author:

Andy Lane is Professor Environmental Systems at the Faculty of Science, Technology, Engineering & Mathematics, School of Engineering & Innovation, The Open University, Milton Keynes, United Kingdom.
Email: andy.lane@open.ac.uk

[i] See http://www.oercongress.org/woerc-actionplan/
[ii] See http://www.un.org/sustainabledevelopment/sustainable-development-goals/
[iii] http://www.pwc.co.uk/services/sustainability-climate-change/systems-thinking-thinking-differently-together.html
[iv] http://www.nesta.org.uk/
[v] https://www.forumforthefuture.org/project/how-can-systems-thinking-enable-thebigshift/overview
[vi] http://www.adviceuk.org.uk/systems-thinking/
[vii] http://policy-practice.oxfam.org.uk/publications/systems-thinking-an-introduction-for-oxfam-programme-staff-579896
[viii] http://watersfoundation.org/systems-thinking/what/
[ix] http://www.systemicleadershipinstitute.org/systemic-leadership/theories/basic-principles-of-systems-thinking-as-applied-to-management-and-leadership-2/
[x] http://donellameadows.org/systems-thinking-resources/
[xi] https://www.ellenmacarthurfoundation.org/
[xii] My own 'intellectual' journey in this area can be seen through my wider set of publications listed (and many readily available to download) at http://oro.open.ac.uk/view/person/abl2.html
[xiii] https://www.spheir.org.uk/
[xiv] http://asean.org/