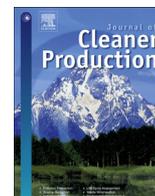


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Sustainability in higher education in the context of the UN DESD: a review of learning and institutionalization processes

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ABSTRACT

This contribution is grounded empirically in a review of UN's Decade of Education for Sustainable Development (UN DESD) which the author was commissioned to carry out by UNESCO. The review's section on the learning processes taking place in the higher education arena forms the basis of this article. Particular attention is paid to the role of UNESCO ESD Chairs in advancing sustainability-oriented learning and competences in higher education.

The main conclusion that can be drawn is that Higher Education Institutions are beginning to make more systemic changes towards sustainability by re-orienting their education, research, operations and community outreach activities all simultaneously or, which is more often the case, a subset thereof. They are doing so amidst educational reforms towards efficiency, accountability, privatization, management and control that are not always conducive for such a re-orientation. Some universities see in sustainability a new way of organizing and profiling themselves. The UNESCO ESD Chairs mainly play a role in conceptualizing learning, competence and systems change.

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1. Introduction – monitoring the UN DESD

At its 57th session in December 2002, the United Nations General Assembly adopted Resolution 57/254 which declared the time period between 2005 and 2014 as the United Nations Decade of Education for Sustainable Development (DESD) in order to emphasize the critical role of education in moving towards a more sustainable world. The DESD seeks to provide an opportunity to promote a vision of a more sustainable and just global community through different forms of education, public awareness and training activities. During the mid-DESD conference held in Bonn, Germany (UNESCO, 2009), attended by 900 participants from almost 150 countries, including almost 50 ministers and vice-ministers, these goals as well as UNESCO's role in supporting their achievement, were re-iterated. The Bonn Declaration also provided an action plan for ESD and provided concrete steps for implementing the remainder of the Decade.

Early on during the DESD, UNESCO's ESD-section established a team of experts to create a Global Monitoring and Evaluation Framework (GMEF) to monitor and evaluate the DESD's progress

(Tilbury, 2009). Phase I of the review, completed at the mid-DESD point focussed on structures, provisions and policies that have been put in place during the first half of the DESD to support the development of ESD around the globe (UNESCO, 2007; Wals, 2009). This article is based on the report that is the outcome of phase II, which focussed on processes and learning in ESD (Wals, 2012). *Processes* here refers to engagement opportunities, pedagogical approaches or teaching and learning styles adopted to implement ESD at different educational levels and in varied educational settings. *Learning* for ESD refers to the learning experienced by all those engaged in ESD, including learners themselves, facilitators, coordinators and funders. This article presents and discusses some of the key outcomes as documented in the report's section on higher education.

One of the challenges of generating a 'global' report is striking a balance between what might be called the universal (attempts to generate general guidelines that can be used in contexts other than the ones in which they were generated) and the contextual (attempts to do justice to local realities, histories and political contexts). The latter also recognizes that the various countries and sub-regions around the world each have their own unique challenges, perspectives and histories that all affect the way ESD is perceived and implemented. To complicate things further there are big differences within countries themselves as well. As the focus of the Phase II review was on the actual learning that takes place in

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schools, universities, communities and workplaces, as well as on the processes that are used to engage multiple-stakeholders in supporting ESD, a number of data sources were used to get a rich picture of what is happening on the ground. The sources used include (Wals, 2012):

1.1. Literature review

In 2010 UNESCO commissioned an expert review on processes and learning for Education for Sustainable Development. The resulting report (Tilbury, 2011) identifies which commonly accepted learning processes are aligned with ESD and can be promoted through ESD-related programmes and activities.

1.2. Global monitoring & evaluation survey (GMES)

An on-line survey was created to get a better sense of the various types of learning that are employed and/or are emerging under the umbrella of ESD in the various educational sectors. In total 216 representatives from 102 countries participated in the survey.

1.3. Learning-based case studies (LBCS)

All five UNESCO Regions provided learning-based case studies. A template was used to generate the case-studies to capture breadth of ESD on local, national and international levels the case studies looked at learning and processes currently used in ESD programs as well as the changes that have taken place in the last five years.

1.4. Internal review of the contributions to ESD by the various UN agencies (IRESD)

UN Agencies involved in ESD which are connected through the UN's Inter Agency Committee (UNEP, UNICEF, UN Habitat, UNESCO, UNCCD and UNU) completed an ESD survey on their contribution to ESD. In a focus-group discussion with some of the agencies including UNICEF, FAO, UNEP, UNU, UNECE and UN Habitat) these responses were re-articulated and shared in conversation.

1.5. Key informant survey (KIS)

Key ESD informants from around the world representing a range of local, regional, national and trans-national organizations active in ESD. The key informants selected to receive questionnaire from UNESCO included organizations and individuals that are active in ESD and have a relationship with UNESCO.

1.6. Reports from UNESCO ESD-Chairs

Two consultations took place among the UNESCO ESD Chairs: one consisted of an informal online questionnaire initiated by the global report coordinator and one more formal online questionnaire commissioned by UNESCO's ESD section.

Selected quotes from the various data sources have been woven into this contribution as illustration of some of the patterns observed in the evolution of ESD within higher education. The acronyms used above (GMES, LBCS, IRESD and KIS) will be used to show the data source of the quotes used.

2. Limitations of the DESD's global monitoring and evaluation process

The Global Monitoring and Evaluation Framework (GMEF) is the guiding factor of the DESD monitoring and evaluation process. It is

important, however, to acknowledge the following limitations of the GMEF (Wals, 2009, 2012):

1. The GMEF has been developed to assess implementation of the DESD. In reality, it is more likely to capture the changes occurring during the ten-year period marked by the DESD and not just initiatives developed under the label of the DESD. It will prove difficult to discern which processes and learning activities were developed specifically for the DESD and which have gained or gathered momentum because of the existence of the DESD.
2. The lack of resources and time constraints limited the depth and reach of the review. Particularly the involvement of local, regional and global NGO's in (E)SD, which are considered key players, has been underreported, also because most of the data come from UN related sources, particularly from UNESCO.
3. Using a universal template and questionnaire has advantages not only in creating uniformity in reporting, but also in making sure that all respondents report on the same ESD components and issues. From the data provided, however, it is clear that not all concepts included in the template are understood in the same way even though a glossary of key terms is provided. Even within the same country, organizations or officials will have different understandings of concepts such as "problem-based learning" or "multi-stakeholder engagement".
4. In some cases an interactive process involving multiple people knowledgeable of specific ESD areas were involved thereby strengthening the validity of those responses. However, there are also cases where the data entered in the survey's used were not validated by multiple sources to see whether answers provided were valid in the sense that others also supported the responses provided.

Generating a report focussing on education and learning in the context of sustainable development (SD) and involving a range of stakeholders (policy-makers, practitioners, administrators, researchers, etc.) at different levels (local, regional and global) across all UN regions (Asia-Pacific, Africa, Europe, Arab Region, Latin and North America) is no easy task. First of all, it is methodologically complex: how does one generate high-quality data allowing for valid and reliable conclusions transcending the contexts in which they were created? Secondly, it is highly sensitive: people from varying backgrounds will be looking for different things that may help advance their own interests, possibly at the expense of others' interests. Also, the sources used for generating the report are culturally 'nested', hence the meaning attached to a phenomenon or finding in one cultural setting might be quite different in another. Put differently, the lenses used to interpret the many sources of data are culturally embedded and may not match the cultural contexts in which the sources operated. Therefore the emphasis of the UNESCO DESD reporting lies on encouraging a monitoring and evaluation (M&E) process that emphasizes critical reflection and reciprocal learning, not with the purpose of ranking or labelling regions, countries or practices, but rather to stimulate future learning and innovation (Wals, 2012).

3. The evolution of ESD in higher education

An analysis of the *International Journal of Sustainability in Higher Education (IJSHE)*, reveals that during the first nine years of its existence (2001–2010) by far the most articles focus on things like: environmental management, university greening and reducing a university's ecological footprint (Table 1). In more recent volumes articles on pedagogy, learning, instruction, community outreach and partnerships appear on the rise.

Table 1

Thematic focus of articles published in the first nine volumes of IJHE (Wals and Blewitt, 2010).

Area	N. articles	%
Environmental management/ecological footprint/ campus greening	44	25
Integrating sustainability in existing disciplines	31	17
Pedagogy, learning & instruction	31	17
Philosophy/principles/concepts	19	11
Community outreach/partnerships	15	8
Policy/organizational learning/institutional commitment	15	8
Course development/curriculum	7	4
Auditing, assessment, quality assurance	10	6
Research	3	2
Competencies, professional development	3	2
Total:	178	100

Today there are still many examples of universities that seek to reduce their own environmental or ecological footprint by 'greening the campus' initiatives often led by students. Wright and Wilton (2012) found that the environmental sustainability component of sustainability in HE still resonates best with university employees. However, within curricula the so-called 'bolt-on' (adding new courses and modules that have elements of ESD) and 'built-in' (integrating sustainability in existing study and research programs as well as in staff development) approaches can be found as well (see also: Lidgren et al., 2006; Waas et al., 2010; Barth and Rieckmann, 2012).

At the University of Guyana (UG), teaching, research and outreach activities support ESD. Specifically, the School of Earth and Environmental Sciences (SEES) offers specialised programmes, such as their BSc in Environmental Studies, which offer a wide knowledge and skills base. The programme also includes a course specifically dedicated to environmental education: Introduction to Environmental Education. SEES also is actively engaged in awareness raising and educational activities among the University population as well as the general public through the organisation and hosting of events such as seminars, field trips and activities in recognition of international environmental days (e.g., International Biodiversity Day, International Ozone Day, etc.), and the formation of a student environmental club

Source: GMES, Therese Ferguson, University of Guyana, Guyana.

In many places too narrow a concept is taken and emphasis is placed solely on environmental or technical aspects. Thus, chemical engineers may rebrand their classes on pinch technology as ESD without considering the wider societal implications. The future emphasis must be on embracing the wider field of global societal responsibility, preferably in an interdisciplinary manner.

Source: GMES, Bland Tomkinson, Honorary Adviser on Pedagogic Development, University of Manchester, United Kingdom.

Since the mid-DESD conference held in Bonn in 2009, it appears that more universities are engaging in the more fundamental challenge of re-orienting teaching, learning and research in a way that will lead to new mental models, competencies and innovations that can contribute to sustainable living (See also: Ferrer-Balas et al., 2009, 2010; Segalas et al., 2009). Such engagement is also leading to alternative views of science itself and of the role of the university in society (Peters and Wals, 2013). It is argued that empirical analytical and reductionist ways of understanding the

world need to be complemented with more integrative and holistic ways of understanding the world and methodologies and methods that are better suited to cope with complexity, uncertainty and contested knowledge. Along with such a re-orientation new forms of learning are emerging as well, including: trans- and interdisciplinary learning, social learning, project-based learning, gaming, computer simulations, distance learning, backcasting, case-studies, policy-laboratories, problem-based learning, bootstrapping, values education, ecological footprint analysis, experiential approaches, reflective journal writing (See also: Steiner and Posch, 2006; Wals and Blewitt, 2010).

The most important change is the fact that ESD is now taken up in a transversal and transdisciplinary way in institutions. It fosters increased interest at all levels within higher education institutions (Hilligje van't Land, International Association of Universities)

Source: KIS, IAU.

...in retrospect, it is highly recommended that the normative framework for a more integrated approach for delivery of sustainable development be enhanced. This will ensure a holistic and integrated approach to reorienting higher education to address sustainability in practice. Starting points may include the formulation of Sustainable Development Goals to harmonize social, environmental and economic objectives... It may be more fruitful to adopt a *triple helix approach* [to SD] as opposed to a three pillar approach

Source: IRES, UNEP

Along with such a re-orientation the idea of the university as an ivory tower and science as a commodity is eroding and being replaced by the idea of a university that serves the community of which it is part. This is not to say that this shift is widespread across the globe as the majority of universities sees public financial support disappearing and feels the need to become more efficient and business-like in order to survive.

In Africa, the MESA partnership programme has been established with the aim of creating a mechanism and a supportive structure for universities to respond to environment, sustainable development and climate change challenges confronting the region. MESA emphasizes that African Universities have been engaged in a long and complex struggle to establish themselves as knowledge generators and disseminators, as partners to the state and their communities, and as critical voices of and in society MESA refers to Mamdani and other African intellectuals who suggest that to continue with this project, does not simply involve an 'adoption' of institutional rhetoric on sustainable development, or development of new structures and projects in universities, but a deeper engagement with the remaining institutional legacies of colonialism (and neo-colonialism) in Africa. This includes an examination of the current institutional form of the university itself, and contemporary trends to marketise and privatise university services in society. It, therefore, involves a broader post-colonial intellectual project of re-conceptualising African universities, their relationship to democracy and the societies, cultures and environments in which they are embedded

Source: IRES, UNEP, 2008.

Despite the early signs of a transition in some parts of the academic community, sustainability by and large is still largely external to the student, academic faculty member and administrator within higher education. Often 'sustainable development' is

just another course or research project as expendable as anything else if it does not pay its way. Some respondents also refer to the current financial crisis that affects many regions of the world which also influences university operations.

In the UK, pressure from the Higher Education Funding Council for England, and equivalent Scottish and Welsh funding authorities, has secured some traction in most institutions. There is, however, still a lot of 'greenwash', and too many institutions that promote themselves as having sustainable credentials when in reality they are promoting small and insignificant elements of activity.

Source: GMES, Carolyn Roberts, Environmental Sustainability Knowledge Transfer Network (ESKTN), University of Oxford, England, United Kingdom

[The] financial situation [is] forcing attention to financial sustainability – the context of HE will be particularly unstable as we charge students higher fees. Continued focus on the environmental issues at the expense of the wider ESD considerations. Lack of sharing between institutions as increase on competitive mode of operation increases. Also, even within ESD, some key champions have been competitive and self-serving – building their own areas rather than more inclusive approaches e.g. sharing, supporting and disseminating

Source: KIS, Chris Shiel, Director Centre for Global Perspectives, Bournemouth University, United Kingdom

Again many respondents from various regions of the world point out how difficult it is to reshape deeply entrenched routines, structures and practices. Nonetheless, there are examples of universities that are beginning to do this, often-times in partnership with other universities and the local community (e.g. Mochizuki and Fadeeva, 2008; Zilaly and Huisingsh, 2009).

Innovative strategies and approaches have emerged. In this regard, some participating institutions have reported to have established, or to be in the process of working with other local stakeholders to establish *Regional Centres of Expertise in Education for Sustainable Development*, using the framework provided by the United Nations University introduced during the MESA training. It was noted that this strategy provides an innovative mechanism for forging education and research community partnerships and linkages, and strengthens educational networking at a local level, and helps to identify ESD priorities at a local level

Source: IRES, UNEP.

Besides the public universities, there are 52 private universities in Costa Rica and also a substantial number of para-universities. A group of them have created a *Network of Sustainable Institutions of Higher Education (REDIES)*. The goal of REDIES is to achieve a commitment on the part of the educational institutions to achieve sustainability in their campuses and neighbouring communities, by establishing strategic alliances in the field of sustainability for the exchange of experiences and technical expertise

Source: IRES, Costa Rica.

At the level of higher education, a consortium was formed among six universities... to implement the 'sustainable campus' initiative. This process will involve the installation and evaluation of management and sustainable 'clean production' models and the development of education methodologies for sustainability that can be applied to undergraduate and graduate

programs, particularly for teacher training and professionals linked to sustainability sciences

Source: IRES, Chile.

3.1. Sustainability rankings and treaties

Some respondents observe that most of the universities that engage in sustainability are universities that have a focus on education rather than on research. Strong research universities tend to pay less attention to both ESD and sustainability in general, although some of the research programs, influenced by national (e.g. The National Science Foundation in the United States) and transnational organizations (e.g. the WorldBank and the European Union) are focussing more on sustainability-related topics such as climate change, food security and the bio-based economy.

The more research-intensive universities are less interested in curriculum change, in my experience. The UK's 'People and Planet' Green League Table has had a major impact, and those institutions scoring highly (like Gloucestershire University, where I worked until recently) have been approached for support by other institutions in the same cohort of Universities

Source: GMES, Carolyn Roberts, Environmental Sustainability Knowledge Transfer Network (ESKTN), University of Oxford, England, United Kingdom.

An interesting phenomenon in HEI, referred to in the above quote, is the emergence of rankings and tables to benchmark and measure performance. Indexes like the Times Higher Education Index, the QS-index and the Shanghai Index tend to focus on indicators like 'research output', 'internationalisation', 'student evaluations' and 'external research funding' but pay no attention to sustainability. The Green League Table in the United Kingdom tries to this by measuring a universities performance by using a range of sustainability indicators which yields quite different results for some universities. The University of Cambridge, for instance, is ranked number 1 in the world according to the 2011/12 OS World University rankings but it ranks only 68th in the United Kingdom in the ranking of the Green League Table compiled by People and Planet (P&P) (www.peopleandplanet.org), a coalition of UK students dedicated to holding universities to account on environmental and ethical issues.¹ According to P&P green university rankings are growing in prominence, as both students and universities place more importance on environmental responsibility.

Over 200 universities have signed the UN DESD-endorsed Earth Charter as an ethical framework for guiding education and research. The Earth Charter deviates from other sustainability-oriented manifests signed by universities in that it considers ethical and more bio-centric and eco-centric perspectives essential in moving towards a more sustainable world (Clugston, 2010). Several guiding frameworks for teaching with the Earth Charter have been developed and a number of case-studies of schools and universities using the Earth Charter as a backdrop for education are available through the Earth Charter website (www.earthcharterinaction.org). More recently a group of over 30 agencies, organizations and associations came together in 2012 to influence Rio+20 dialogues. These stakeholders are rooted in different regions of the globe and actively engaged in sustainable development at the higher education level. The partnership, led by COPERNICUS Alliance with the support of UNU IAS and the

¹ For the 2011/12 Green League Table go to: <http://www.topuniversities.com/student-survival/student-life/green-universities-higher-education-and-environmental-sustainability>.

International Association of Universities has generated a Higher Education Treaty for Rio+20. The Treaty, one of a series of People's Treaties developed to influence Rio+20, has transformation as its key concept and "to be transformative, higher education must transform itself" as its most important principle. Whereas the ranking mechanism tends to use competition as a key driver of progress, the treaties tend to focus more on collaboration and networked learning.

4. The role of UNESCO Chairs

The promotion of education for sustainable development (ESD) in higher education is considered crucial to building a sustainable

future and to placing young people at the centre of development. At UNESCO, one of the flagship programmes seeking to promote ESD in higher education is the UNITWIN/UNESCO Chairs Programme. The programme was conceived as a way to advance research, training and programme development in higher education by building university networks and encouraging inter-University cooperation through the transfer of knowledge across borders. Since its creation in 1992, the programme has established 626 UNESCO Chairs and 60 UNITWIN Networks, involving over 740 institutions in 125 countries. There are currently eight UNESCO Chairs and one UNITWIN Network focussing specifically on Education for Sustainable Development (Table 2). There are also other Chairs and Networks that focus on educational, cultural or scientific issues relevant to sustainable development (e.g. environmental education, water resources, desertification, habitats and cities).

From the DESD monitoring and evaluation process so far it can be concluded that the UNESCO ESD Chairs each occupy niches and co-ordinate networks within those niches, some more nationally, others more internationally, some working more as individual chairs, some more as a community of practice. As such they contribute to the advancement of the conceptualization, research, practice, and, indeed, critique of ESD and the systems in which ESD is to evolve.

Learning for sustainable development enables everyone to get back into complex and changing society by appropriating the mechanisms of thought and action, allowing it to understand the interactions between the local and the global perspective of the consumerist approach, based on our materialistic society and to envisage a lifestyle grounded on ethical conduct involving equality and solidarity.

UNESCO ESD Chair, Michel Ricard, France

A particular niche that resonates well with those seeking to make education in general more competence-based is the work done by UNESCO Chairs and UN-bodies such as UNECE on sustainability competence. This work supports HEIs who are seeking to understand and develop such competence (Table 3) in all both within and outside the higher education community through their courses, professional development programmes, community outreach activities, and post-initial education and training in both the public and private sector. Some initiatives can be observed where universities are providing resources for members of the wider university community who can be considered SD-change agents and for those who wish to pursue careers in ESD within or outside the university structure.

With respect to the use of the concept of ESD competence the latest UNECE evaluation of the implementation of the ESD Strategy

Table 2

Examples of UNESCO ESD Chairs.

<p>UNESCO Chair in Reorienting Teacher Education towards Sustainability Established 1999, York University (Canada)</p> <p>Objectives:</p> <ul style="list-style-type: none"> ■ to take leadership in developing an international pilot network among existing teacher training institutions around the world, and facilitating and coordinating its work. ■ to reorient teacher education towards sustainability, using an agreed upon common framework allowing for comparison of results; and ■ to gain practical experience and insights that can be articulated in the form of guidelines to reorient teacher education towards sustainability.
<p>UNESCO Chair in Higher Education for Sustainable Development Established 2005, University of Lüneburg (Germany)</p> <p>Objectives:</p> <ul style="list-style-type: none"> ■ to promote an integrated system of research, training, information and documentation in the fields of sustainability for university education and its implementation in research and education; ■ to help facilitate collaboration between high-level, internationally recognized researchers and teaching staff of the University and other institutions in Germany and elsewhere in Europe, and in other regions of the world; ■ to help bring forward the concepts of inter/transdisciplinary education and research, to counterbalance disciplinary approaches which are equally needed to achieve sustainability; and ■ to stimulate international debate about the meaning of sustainability as a paradigm for higher education institutions.
<p>UNESCO Chair in Research and Education for Sustainable Development Established 2007, Okayama University (Japan)</p> <p>Objectives:</p> <ul style="list-style-type: none"> ■ to develop the human resources needed for the creation of a sustainable society, through research and education for sustainable development. ■ to foster the training and development of experts who will work to realize a sustainable society at the local level, as well as experts who will work in the international arena and contribute to the creation of a sustainable society at the global level. ■ to reorient the curriculum of Okayama University so as to contribute the creation of a sustainable society locally, nationally, regionally and globally; and, ■ to transfer technology and knowledge on environmental conservation to developing countries through inter-university cooperation.
<p>UNESCO Chair on Community Based Research & Social Responsibility in Higher Education Established 2012, PRIA, India & University of Victoria, Canada</p> <ul style="list-style-type: none"> ■ Provide a space for encounter of these multiple experiences and practices in the context of CBR&SR across institutions and actors. ■ Amplify the voices of practitioners of community based research and social responsibility for policy dialogues, development and reforms. ■ Support multiplication and scaling-up of capacity enhancement of actors inside and outside the institutions of higher education.
<p>UNESCO Chair on Education for Sustainable Development and the Earth Charter Established 2012, Earth Charter Centre on ESD and University of Peace, Costa Rica</p> <ul style="list-style-type: none"> ■ To promote transformative education experiences that cultivate the fundamental values and ethical vision necessary to move towards a more sustainable world

Table 3

Generic Sustainability Competences' based on the German ideas of Gestaltungskompetenz (Based on work by the German UNESCO Chair of ESD in Higher Education, Michelsen and Adomssent, 2007).

Generic Sustainability Competence:

- Competence to think in a forward-looking manner, to deal with uncertainty, and with predictions, expectations and plans for the future.
- Competence to work in an interdisciplinary manner.
- Competence to see interconnections, interdependencies and relationships.
- Competence to achieve open-minded perception, trans-cultural understanding and cooperation.
- Participatory competence.
- Planning and implementation competence.
- Ability to feel empathy, sympathy and solidarity.
- Competence to motivate oneself and others.
- Competence to reflect in a distanced manner on individual and cultural concepts.

Table 4
UNECE competences in ESD for educators.

	Holistic approach	Envisioning change	Achieving transformation
The educator understands...	The basics of systems thinking	The root causes of unsustainable development	Why there is a need to transform the education systems that support learning
The educator is able to...	Work with different perspectives on dilemmas, issues, tensions and conflicts	Facilitate the evaluation of potential consequences of different decisions and actions	Assess learning outcomes in terms of changes and achievement in relation to SD
The educator works with others in ways that...	Actively engage different groups across generations, cultures, places and disciplines	Encourages notions of alternative futures	Help learners clarify their own and others' worldviews through dialogue and recognize that alternative frameworks exist
The educator is someone who...	Is inclusive of different disciplines, cultures and perspectives, including indigenous knowledge and worldviews.	Is motivated to make a positive contribution to other people and their social and natural environment, locally and globally	Is a crucially reflective practitioner

Source: UNECE, 2011a,b

signed by the UNECE member states notes that a distinction needs to be made between ESD competence and SD competence.

Despite the focus on the development of ESD competence, tools and materials in the education section, various countries indicate that they are facing difficulties in realizing this objective. There is a need for distinction between SD competence (e.g. citizen's capacities to contribute to sustainable living both professionally and personally) and ESD-competence (e.g. an educator's capacity to help people develop SD-competence through a range of innovative teaching and learning practices). Better articulation of such competences is likely to help in designing and supporting professional development strategies that could strengthen such competences. The work of the UNECE expert group on ESD competence could prove to be quite crucial in this respect. ESD related teacher training programs should take advantage of the new insights obtained in relation to ESD competence.

Source: UNECE, 2011a.

The distinction between SD competence and ESD competence is an important one as they tend to be used interchangeably in ESD policy-documents (e.g. UNESCO, 2009; 2011) and in ESD research papers (e.g. Mochizuki and Fadeeva, 2010; Tschapka, 2012). Oftentimes the competences described are competences learners should develop when engaged in ESD (e.g. to be able to see connections, to be able to take on a different perspective, to be able to think in terms of past, present and future, etc.) and not the competences those who facilitate ESD should develop in order to be successful in building SD competence: ESD competence. UNECE tries to bridge SD and ESD competence in a publication called *Learning for the future: Competences in Education for Sustainable Development* (UNECE, 2011b), which offers policy-makers recommendations on professional development spanning all sectors: teachers and educators, managers and leaders, governing and managing institutions, curriculum development and monitoring and assessment. It identifies a framework of core ESD competences for educators assembled into three categories: the holistic approach, envisioning change and achieving transformation (Table 4). The model has its roots in *Learning: the treasure within* (Delors, 1996) but has also been informed by UNESCO Chairs who have done work on ESD Competence.

Many of the ESD-related UNESCO Chairs are part of the Global University Network for Innovation (GUNi), created by UNESCO, the United Nations University and Polytechnical University of Catalonia, Spain. This network has over the last 10 years researched, compiled and shared a wealth of innovations in higher education born out of an increasing concern about sustainability issues. The

GUNi Series on the social commitment of universities spans four expansive volumes outlining and detailing transitions in higher education towards sustainability which combined provide a rich body of evidence of genuine engagement by universities and colleges from around the world in sustainability. The most recent volume provides regional perspectives visions for transformation that highlight hybrid forms of learning, the utilization of diversity, the transformative power of sustainability, knowledge co-creation and a re-configuration of university-community-private sector relationships (GUNi, 2012).

Finally, in 2012 a new UNESCO Chair on Education for Sustainable Development and the Earth Charter has been established through the Earth Charter Center on Education for Sustainable Development (ESD) and the University for Peace (UPEACE) in Costa Rica. The new Chair is recognition of importance of the UN DESD-endorsed Earth Charter as an ethical framework for guiding education and research which has been signed by over 200 universities. The Earth Charter deviates from other sustainability-oriented manifests signed by universities in that it considers ethical and more bio-centric and eco-centric perspectives as essential to moving towards a more sustainable world. Several guiding frameworks for teaching with the Earth Charter have been developed and a number of case studies of schools and universities using the Earth Charter as a backdrop for education.

5. Conclusions

There are signs of HEIs developing and introducing new forms of learning that can help people understand and engage in sustainable development. Among these new forms of learning there are many that require multi-stakeholder interaction, meaning making, negotiation, dealing with competing claims, handling diversity of perspectives (cultural, disciplinary, socio-economic, etc.) and the resolving of real issues as they emerge in everyday life at home, in the university itself, in the community or in the work-place. Forms of learning that have been identified in Phase II of the DESD global monitoring and evaluation include, but are not limited to: trans- and interdisciplinary learning, problem-based learning (Stapp and Wals, 1994), values-based learning, experiential learning and social learning (Wals et al., 2009). The inevitably ill-defined nature of sustainability and sustainable development requires that its meaning needs to be one of the outcomes of the learning itself, hence the need for multi-stakeholder interaction, negotiation of meaning and so on.

Introducing and developing new forms of learning that can handle ill-definedness in an ever changing world is an important component of re-orienting HE towards sustainability but, arguably,

is not enough (Wals and Corcoran, 2012). To integrate sustainability-oriented learning in an entire system has already shown to be quite a challenge in many schools, universities and companies alike, to re-design an entire system even more so. In part this is difficult because they have to do so amidst concurrent educational reforms towards efficiency, accountability, privatization, management and control that are not always conducive for such a re-orientation. Nonetheless, from the data generated in the second phase of the DESD monitoring and evaluation process it can be concluded that, using terminology introduced by Stephen Sterling (Sterling, 2004), the ‘built-in’ (“this seems important enough to integrate it in our current system”) and ‘system redesign’ (“this is fundamental and we cannot deal with it with our existing ways of doing things, we need to create a new system based on different principles”) responses are heavily favoured by ESD proponents. The initial “denial” and “bolt-on” responses are becoming extinct it seems.

At the same time it can be concluded that in practice learning processes and multi-stakeholder interactions that engage in such profound change, oftentimes involving the development of alternative values, are still scarce around the globe. Still there are strong indications that people within and outside of ESD are drawn to such profound changes requiring new forms of learning, professional development, competencies, and monitoring, evaluation and assessment. The “Shaping the Education of the Future” (Wals, 2012) report that informs this contribution refers to the work of Austrian ESD scholar Clemens Mader who has developed a heuristic for understanding the required dynamics and transitions towards more integral approaches and systemic changes in HE (Mader, 2012).

What have the UNESCO ESD Chairs been able to contribute to creating a new dynamic that can result into a more systemic change in our educational institutions? There is no conclusive of straightforward answer to this question, in part because not all Chairs have the same mission, objectives and ways of working. Nonetheless it can be concluded that they tend to operate at the forefront of educational innovation and whole system approaches by introducing the new forms of learning highlighted in this contribution. In the 2008 Gothenburg Declaration (Holmberg et al., 2008) it was expressed that Higher Education Institutions need to become open ESD centres and hubs. It was argued that universities should be active at interface between the local and the global community: addressing local sustainability issues but also using its global tentacles and networks to take advantage of perspectives and expertise grounded in contexts elsewhere. The narratives coming out of the GMES, LBCS and the KIS, if not confirm that this trend this is a trend in HE, at least allude to the beginnings of a new phenomenon. This is where the UNESCO ESD Chairs and associated UNITWIN networks can play a key role: bridging formal learning with community-based learning and bridging the local with the regional and the global. The UNESCO ESD Chairs would probably be more effective in playing this role when they would work more closely together. It is not until recently that UNESCOs DESD section has begun emphasizing the collaboration between UNESCO ESD Chairs.

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