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HIGHER EDUCATION FOR SUSTAINABILITY: A GLOBAL OVERVIEW OF COMMITMENT AND PROGRESS

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PREAMBLE

Higher education (HE) is uniquely placed to play a leading role in the attainment of sustainable development (SD). This catalyst potential needs grounding, however, in a context where universities and colleges are currently seen as contributing to the sustainability crisis.

Sustainability challenges the current paradigms and structures as well as predominant practices in HE. This is a consistent message found throughout the literature. Universities and colleges are facing this reality as they seek to meaningfully contribute to sustainability. The paper argues that this requires going beyond the integration of key ideas in existing curricula, the commissioning of a new sustainable building or supporting the sustainability action projects which often occur at the fringes of the institution. Instead, the sustainability journey engages universities and colleges in a quest for interdisciplinarity, participatory pedagogies, ‘real world’ research and the opening of institutional boundaries so that the notion of sustainable communities is extended beyond university and college walls. The paper proposes that a systemic or connected view of sustainability across institutions is required to transform the educational experience of students and lead social change for sustainability.

Through mapping the international declarations and frameworks for HE, this paper confirms the, in principle, commitment of universities and colleges to transform the HE experience towards sustainability. The paper then contrasts these public intentions with a review of global and regional progress in the areas of leadership and strategy; modelling practice; education and learning; partnerships and outreach for sustainability in HE. It suggests that achievements have been random and mostly disconnected from the core business of HE. The paper concludes that if the HE sector is to be transformative, it needs to transform itself. This will be a lengthy and ambitious process, which will require strong leadership but also time.

INTRODUCTION

A history of HE reveals that universities and colleges have been at the forefront of creating as well as deconstructing paradigms. They have led social change through scientific breakthroughs but also through the education of intellectuals, leaders and future-makers (Cortese, 2003; Elton, 2003; Lozano, 2006; Tilbury et al., 2005b). Professor Lord Stern of Brentford, an opinion leader in climate change, connects these important roles to addressing sustainability challenges of our day. Higher education, he argues, can change the world through training and expanding young minds; researching answers to challenges and informing public policy; showing its own understanding and commitment through careful campus management; and by being a responsible employer and active member of the business and local communities (Stern, 2010). In an era of globalization, universities and colleges also have an impact through their global procurement and offshore partnerships as well as through the education of national and international students. Their potential influence not only on economic development and poverty alleviation but also on health and community building should not be overlooked (Boks and Diehl, 2006; Galang, 2010; Lotz-Sisitka, 2011).

This catalyst potential needs grounding, however, in a context where universities and colleges are currently seen as contributing to the sustainability crisis and reproducing the paradigms that underpin our exploitative relationships with people and environment (Huisingh and Mebratu, 2000; Barab and Luehmann, 2003; Mochizuki and Fadeeva, 2008; Sanusi and Khelgat-Doost, 2008).

The literature argues that sustainability challenges the current paradigms, structures as well as predominant practices, across social sectors including HE (Sterling, 1996; Calder and Clugston, 2003; Lozano, 2007). It is therefore not surprising to discover that universities and colleges that have committed to sustainability are struggling to meaning-

fully contribute to it (Lozano et al., 2010; Su and Chang, 2010; Huisingsh and Mebratu, 2000).

In practice, it is relatively simple to initiate projects that address key sustainability issues but these tend to engage minority groups, failing to reach the core of staff, students and stakeholders or indeed influence the culture of the institutions. Equally the commissioning of a new sustainable building or development of a specialist course in the area is providing some opportunity to shape minds and practices but attempts to mainstream this agenda across HE have so far failed to have impact. To make sense of this challenge, one needs to appreciate that sustainability is more a journey than a checklist as worldviews pervading thinking and practice need to be questioned. It engages universities and colleges in a quest for interdisciplinarity, participatory pedagogies and ‘real world’ research as well as the opening of institutional boundaries so that the notion of sustainable communities is extended beyond university and college walls. The difficulty is that these need to occur in a connected way. The systemic complexity of this agenda challenges university silos, corridors of power as well as the criteria and processes of decision-making. Furthermore, sustainability is underpinned by democratic and participatory processes of change and by cross-departmental (and faculty) teaching and research, as well as by a redefinition of teacher–student, leader–employee and academia–community relationships. In other words, the transformation of a university towards SD requires a realignment of all its activities with a critically reflective paradigm that also supports the construction of more sustainable futures.

SUSTAINABILITY MOVEMENTS AND MILESTONES IN HIGHER EDUCATION

A review of the sustainability movements and milestones in HE is needed to understand the current expectations on, and challenges to, HE. The journey began in the early 1970s with the Stockholm Conference on the Human Environment (1972) being the first to formally identify the role of HE in progressing sustainable development at the international level. This was followed by the Belgrade Charter (1975), the Tbilisi Declaration (1977) and the United Nations Conference on Environment and Development (1992) all acknowledging the importance of education and higher education in progressing this agenda. More significant, however, were the signing of international declarations by university leaders, higher education associations and government ministers committing to

a step change towards sustainability. These documents call for universities and colleges to operate ethically and be more accountable to their stakeholders. They argue for better environmental and carbon management on campuses; the training of employees; the reorientation of the curriculum towards education for sustainable development (ESD); and a greater contribution to social agendas through research and public engagement. The details and significance of these declarations are mapped in Table I.2.1.

While these international declarations provide visible commitment to encourage progress, they are not sufficient to change institutional and disciplinary practices in HE (Bekessy et al., 2007). The review below indicates that it is government support combined with the reach of international partnerships (such as the International Association of Universities, the Global Higher Education for Sustainability Partnerships, the Pacific Network of Island Universities, the Copernicus Alliance and Global University Network for Innovation) that are playing a critical role in promoting the innovation needed to reorient HE towards sustainability.

STEPS FORWARD

It has been twenty years since the HE sector first committed to innovating for sustainability. The key question now becomes: what progress has there been and how can it be evidenced? This section of the paper reviews international and regional progress in the areas of leadership and strategy; modelling practice; education and learning; partnerships and outreach for sustainability in HE in an attempt to begin to address this question.

MODELLING PRACTICE ACROSS CAMPUSES

The majority of the universities engaged with sustainability are preoccupied with the greening of the campus. The evidence for this can be found within research papers published in HE journals but also across institutional webpages which document extensive sustainability efforts to minimize waste and energy consumption; develop low carbon buildings; protect biodiversity and natural space; source sustainable goods and services; and model sustainability to influence behaviours of staff, students and local communities.

The *Greening the Campus* movement can be traced back to North America where HE has taken green strides in demonstrating sustainability in practice within the management and administration of university sites (see Wright and Elliott, 2011). US and

TABLE I.2.1 Key international declarations				
Year	Declaration/Charter	Partners(s) Involved	Scope	Key Words
1990	Talloires Declaration	University Leaders for a Sustainable Future	Global	Unprecedented scale and speed of pollution and degradation Major roles: education, research, policy, information exchange Reverse the trends
1991	Halifax Declaration	Consortium of Canadian Institutions; IAU; UNU	Global	Responsibility to shape their present and future development; Ethical obligation; Overcome root causes
1993	Kyoto Declaration on Sustainable Development	IAU	Global	Better communication of the what and why of SD; Teaching and research capacity; Operations to reflect best SD practice
1993	Swansea Declaration	Association of Australian Government Universities	Global	Educational, research and public service roles; Major attitudinal and policy changes
1994	COPERNICUS University Charter for Sustainable Development	Association of European Universities	Regional (Europe)	Institutional commitment; Environmental ethics and attitudes; Education of university employees; Programmes in environmental education; Interdisciplinarity; Dissemination of knowledge; Networking; Partnerships; Continuing education programmes; Technology transfer
2001	Lüneburg Declaration	Global Higher Education for Sustainability Partnership	Global	Indispensable role; Catalyst for SD building a learning society; Generate new knowledge to train leaders and teachers of tomorrow; Disseminate SD knowledge; State of the art knowledge; Continually review and update curricula; Serve teachers; Lifelong learners
2002	Unbuntu Declaration	UNU, UNESCO, IAU, Third World Academy of Science, African Academy of Sciences and the Science Council of Asia, COPERNICUS-CAMPUS, Global Higher Education for Sustainability Partnership and University Leaders for Sustainable Future	Global	Called for the creation of a global learning environment for education in SD; To produce an action-oriented tool kit for universities designed to move from commitment to action; To indicate strategies for taking SD; To suggest strategies for reform, particularly in such areas as teaching, research, operations and outreach; To make an inventory of best practice and case studies
2005	Graz Declaration on Committing Universities to Sustainable Development, Austria	COPERNICUS CAMPUS, Karl-Franzens University Graz, Technical University Graz, Oikos International, UNESCO	Global	Called on Universities to give status to SD in their strategies and activities. It also called for Universities to use SD as a framework for the enhancement of the social dimension of European higher education
2005	Bergen	European education ministers, European Commission and other consultative members	Regional (Europe)	For the first time since 1999, made a strong reference that the Bologna Process for establishing a European Higher Education Area by 2010 and promoting the European system of higher education worldwide should be based on the principle of sustainable development
2006	American College and University Presidents' Climate Commitment	AASHE	National (USA)	Called for an Emissions inventory; Within two years, universities are to set a date for becoming 'climate neutral'; Integrating sustainability into the curriculum and make it part of the educational experience; make action plan, inventory and progress reports publicly available
2008	Declaration of the Regional Conference on Higher Education in Latin America and the Caribbean – CRES 2008	UNESCO	Regional (Caribbean and Latin American)	Emphasis on SD for social progress; Cultural identities; Social cohesion; Poverty; Climate Change; Energy Crisis; Culture of Peace; Need contributes to democratic relations and tolerance; Solidarity and cooperation; Critical and rigorous intellectual ability
2008	Sapporo Sustainability Declaration	G8 University Network	Global	Universities should work closely with policymakers; Universities' leadership role is becoming increasingly critical; Educating; Disseminating information; Training leaders; Interdisciplinary perspective
2009	World Conference on Higher Education	UNESCO	Global	Advance understanding of multifaceted issues and our ability to respond; Increase interdisciplinary focus; Promote critical thinking; Active citizenship; Peace, well-being, human rights; Contribute to education of committed ethical citizens
2009	Turin Declaration on Education and Research for Sustainable and Responsible Development, Italy	G8 University Network	Global	It called for new models of social and economic development consistent with sustainability principles; Ethical approaches to SD; New approaches to energy policy; Focus on sustainable ecosystems

Canadian university networks have played a key role in catalysing efforts across the globe. Leaps forward in this area can be partly attributed to the 2008 US Higher Education Sustainability Act (HESA), which legislated for the ‘University Sustainability Grants Program’. In 2010 the programme had a budget of \$50 million to support the implementation of major sustainability initiatives on campus. The US is the only country in the world to offer this type of incentive and support. More recently in the UK, the Salix loan grant has supported institutional initiatives mostly associated with estate refurbishment or development.

Examples of good practice in campus management for sustainability have been documented in Europe and the US but also in Africa, Asia and particularly Latin America. The ISCN Sustainable Campus Excellence Awards capture and celebrate the diversity of responses to challenges in this field. Interesting examples often not celebrated through high-profile awards include: the University of Hong Kong’s systematic efforts to reduce environmental impact and conserve natural environments; the University Autónoma of Madrid eco-campus which creates innovative and effective opportunities for engaging staff and students in sustainability activities; Mabada University in Lebanon which recycles its water and generates its own electricity (Salame, 2010). Equally, the Universidad Autónoma del Estado de Morelos (UAEM) in Mexico provides an exemplary case study of how to progress campus change for sustainability through internal and external partnerships.

Schemes such as the ISO 14001 or Eco-campus have played a role in catalysing efforts in this area. These activities, mostly driven by estates directors and their teams rarely make an impact on students’ formal learning opportunities. The Mirvac School of Sustainable Development at Bond University, Australia provides an outstanding example of how sustainable buildings can contribute to minimizing ecological footprints but also become a source of inspiration for curriculum work. Examples of campus activities extending their influence on core university provision are rare.

The recent swell of interest in carbon may well reverse this trend in northern universities. In the UK, for example, the government’s Carbon Reduction Commitment (CRC) Energy Efficiency Scheme introduced in April 2010 is a mandatory carbon emissions reporting and pricing scheme aimed at non-energy intensive sectors in the UK economy, including higher education. HE institutions affected by the legislation (that is, using more than 6000 MWh electricity per year) are required to measure and report their carbon

emissions annually, using specific measurement rules. From 2012, they will be required to purchase allowances (at £12/tonne in the first year) to cover their emissions from the previous year. Parallel to this, the Higher Education Funding Council for England published its Carbon Strategy in 2010, committing the university sector to the achievement of the UK government’s carbon reduction targets (set out in the Climate Change Act 2008). The Strategy also expects universities to promote carbon reduction through teaching, research and public communications. The increasing interest in curriculum activities from professional associations such as ASSHE (US), EAUC (UK), ACTS (Australia) and ISCN (which bring together HE practitioners with an interest in sustainability) signals a movement towards greater alignment between what is preached in classrooms and practised on campuses.

RESEARCH FOR SUSTAINABILITY IN HIGHER EDUCATION

It is widely acknowledged that sustainability requires forms of research activity that challenge boundaries at several interfaces, not least between academic disciplines and research paradigms, across professional roles and in relation to professional values (Marie Curie IIF, 2011). However, it has only been in the last ten years that movements towards these more complex forms of research activity are evident in sustainability research arenas. These are summarized in Table I.2.2.

Shifts from	To be more inclusive of
Research that is discipline focused	Research that is inter- and multidisciplinary
Research that has academic impacts	Research that has social impact
Research that informs	Research that transforms
Research on technological and behaviour change	Research that focuses on social and structural change
Researcher as expert	Researcher as partner
Research on people	Research with people

INTERDISCIPLINARY RESEARCH

Research councils and funding agencies, such as the European Union, are increasingly recognizing the need to uncover new conceptual and practical spaces for research. In recent years, they have directed resources and attention to interdisciplinarity and recognize it as a new source of insight to advance human understand-

ings of the sustainability challenge (Tilbury, 2011b). These funding sources are encouraging academics to go beyond their discipline boundaries and seek partnerships with colleagues who have similar interests but differing methodologies and/or perspectives. The result is an emergent research landscape with potential for alternative academic frameworks and new sustainability pathways in the areas such as sustainable consumption; wildlife and water conservation; reducing poverty; community development; transition towns; sustainable business development; ecological resilience; sustainable food and change management for sustainability. The regional papers featured in this publication provide examples of such initiatives and record a growth in research meetings and centres that take this interdisciplinary stance.

RESEARCH WITH IMPACT

There has also been a push towards research that has impact in a social as well as in an academic sense. The Research Excellence Frameworks (HEFCE), Research Quality Framework (DEEWP) and Performance Based Research (TEC) and similar systems used for assessing the quality of research in higher education institutions (HEIs) are still key for academics seeking promotion, funding and/or external recognition for their research. Criteria that acknowledge the impact of the research on thinking and policy as well as communities of practice are slowly making their way into these high-profile assessment systems. This is beginning to influence the type of sustainability research to which institutions and researchers are turning their attention, with an emphasis on more practical and concrete projects that can create changes as well as make an academic contribution.

In the context of HE itself, and in this context of research impact, there has been a notable investment in research that can change strategies for sustainability in universities and colleges. In Australia, for example, the Australian Teaching and Learning Council has invested in research-informed resource development (ALTC, 2011). Similarly, in Africa, Mainstreaming Environment and Sustainability in African Universities (MESA) has received funding to support situated inquiry that seeks to influence institutional thinking and practice. In Asia, Japan's Education for Sustainable Development Research Centre and China's Tongji Institute of Environment and Sustainable Development are progressing, following similar lines of inquiry with government and UNEP funding.

FROM INFORMING TO TRANSFORMING

Although there is still significant investment in exploratory research, particularly in the areas of science and technology for sustainability, there has also been increasing attention attached to transforming research practice itself (El Zoghbi, 2011). This new wave of research seeks to go beyond problem-solving or technological developments and instead questions the role of research in reproducing exploitative relationships with people and environment. Underpinning this movement is an explicit challenge to dominant research paradigms and the professional practice of the researcher.

This trend is characterized by the phrase 'research as social change' (Schratz and Walker, 1995) and promotes forms of research that are conscious and explicit about the power, politics and participatory relations underpinning research practice. They challenge the dominant role of the researcher as an expert and encourage participatory inquiry techniques so that research is undertaken 'with people' rather than 'on people'. The movement is driven by a series of 'critical' questions captured in Table I.2.3.

TABLE I.2.3 Questioning research practice
Key questions driving changes in research practice:
Q. How can different disciplines combine to present new insights in the sustainability challenge?
Q. Who commissions the research?
Q. Whose interests does the research serve?
Q. What is the relationship between the researcher and the researched?
Q. Is the research 'on' or 'with' people?
Q. Who can access the research and how?
Q. How can the research transform and not just inform practice?
Q. How is complexity embraced within the research?
Q. How do researchers engage with, and recognize, systems within the research?
Q. Is there congruence between the 'what' and the 'how' of research?

PARTNERSHIPS AND OUTREACH: SUSTAINABILITY BEYOND THE UNIVERSITY WALLS

Initial reports of sustainability in HE would suggest that the issues and solutions for progressing sustainability lie with universities and the sector itself. However, through experience and over time, the sector has learned that it must reach beyond the university walls to address sustainability within the communities of practice that they serve (Ryan et al., 2010; Mochizuki and Fadeeva, 2008; Lozano, 2007; Lotz-Sisitka, 2011). The past ten years have therefore seen a stepping up of activity relating to partnerships and outreach for sustainability.

The University of Western Sydney is an example where sustainability efforts have been constructed through an approach situated within their locality and with a focus on supporting the communities closely linked to the university. The partnership is particularly active in issues of watershed management. The journey of transforming the institution towards sustainability has been shared particularly with community and government stakeholders. In Saudi Arabia, the King Abdullah University of Science and Technology runs a community-wide recycling and compost scheme where problems and solutions to the waste issue are co-constructed with local stakeholders (Salame, 2011). In the Philippines, teacher education partnerships have redefined town and gown relationships (Galang, 2010). At the University of Gloucestershire in the UK, an edible garden had brought together local residents, students and staff as well as local government support and enforcement agencies in learning skills in permaculture design, food awareness and community building.

Worthy of attention are the United Nations University (UNU) accredited Regional Centres of Expertise (RCE) which focus on partnership learning and action for sustainability. Over the last six years the UNU has acknowledged 63 RCEs in Africa, Australia, the Asia-Pacific region, Europe, the Middle East, South America, the Caribbean, and North and Central America. RCEs seek to expand the span of local partnership work as well as link people and activities across wider regions in order to link urban and rural development issues, to understand dynamics that cut across local boundaries, and to connect local and national activities.

In the US, Partnership for Education for Sustainable Development, established in 2003, has brought together schools, science and research, faith organizations, NGOs, government agencies and youth advocacy groups to support implementation of sustainability initiatives.

Partnership platforms that bring together universities committed to this agenda continue to be important. For example, the Copernicus Alliance; Pacific Network of Island Universities; the Japanese Higher Education for Sustainable Development Network; the Australasian Campuses Towards Sustainability network; Association for the Advancement of Sustainability in Higher Education (US); the Mexican Consortium University for Sustainable Development (COMPLEXUS) and Mainstreaming Environment and Sustainability in African Universities (MESA) Partnership have all experienced significant increases in their membership numbers recently. Their annual meetings confirm that universities increasingly recognize the need to work together to share common issues but also learn from

best practice and combining scarce resources to address the sustainability imperative.

Parallel to this key trend is a greater accountability of higher education to the communities that it serves, particularly in Western nations currently in economic decline. As national debt increases, governments are forced to rethink their investment strategies. They are asking questions regarding the value and impact of university activity on economic as well as social development. Universities are being held to account and, through various funding mechanisms, encouraged to establish stronger links with their local–regional communities to support the recovery. The result is a reorientation of university activity to provide this greater accountability in terms of outreach. It has led to an array of studies such as that undertaken by the New Economics Foundation which found that the social impact of universities in the UK is worth over £1.31 billion. It opens with the strapline ‘benefits are felt by everyone, not just those who go to university’. The study undertaken by the New Economics Foundation (Shaheen, 2011) documents how UK universities add value to UK society in the form of health, well-being, citizenship and political engagement.

Lotz-Sisitka (2011) reports a parallel trend in Africa, where universities are seeing sustainability as an opportunity to redefine university–community relationships. She presents evidence that institutions are making tangible contributions to local communities through addressing issues of peace, security, conflict resolution and HIV/AIDS. She cites Uganda Martyrs University and its improving livelihoods initiative which has resulted in improved income, food security, water conservation and sustainable livelihoods as well as better relationships between the university and its neighbouring communities.

EDUCATION AND LEARNING FOR SUSTAINABILITY

Education has always been seen as key to improving quality of life, not just of individuals but also collectively for humankind (Galang, 2010). The higher education declarations on sustainability (see Table I.2.1) explicitly acknowledge this and confirm the importance of learning, communication and capacity building for sustainability.

Paradoxically, David Orr (2004) reminds us that the global issues facing us cannot be attributed to a lack of higher education when he asks why it is:

that those who contribute to exploiting poor communities and the earth’s ecosystems are those who have BAs, MBAs, MSCs and PhDs and not the ‘ignorant’ poor from the South?

The paradigms deeply embedded in our higher education knowledge systems and relationships are contributing to unsustainable development. The ‘UN Decade in Education for Sustainable Development International Implementation Scheme’ echoes this perspective and calls for reorientation of education towards more sustainable forms of living (UNESCO, 2005). It acknowledges that it is not simply a matter of integrating new content into our education programmes or building sustainability literacy across all subject areas but that it requires the unpacking of social, economic, cultural and environmental assumptions which serve the status quo and which are reproduced by our education systems (UNESCO, 2002). As Galang (2010) remind us, centuries of teaching resource extraction need to be questioned and learning efforts redesigned so that professionals understand the responsibility and implications of sustainability for their area of influence.

There is evidence to suggest that HE does not understand the true nature of the challenge (Verbitskaya et al., 2002; Abdul-Wahab et al., 2003; Cortese, 2003; Thomas, 2004; Moore, 2005; Park, 2008; Cotton and Winter, 2010; Ferreira and Tilbury, 2011; Nomura and Abe, 2011). The focus has been on developing new specialist courses on SD (for example University of Philippines; TERI India; Dalhousie University), which are improving the sustainability literacy and capabilities of those interested in pursuing careers in this area. However, teachers, architects, accountants, doctors and business managers are still being schooled into social assumptions and practices that serve to exploit people and planet. Curriculum and pedagogy, which are at the core of HE experiences, need to be transformed if universities and colleges are to make a meaningful contribution to sustainable development (UNECE, 2011).

Ryan et al. (2010) present evidence which suggests that the Asia Pacific region has played an important role in directing attention to pedagogy and learning for sustainability across education, including HE, and shows a stronger overall trajectory in this respect. The UN Decade in Education for Sustainable Development originated in the region with the proposal from the Japanese government and NGOs at the World Summit for Sustainable Development (Nomura and Abe, 2009). The Asia Pacific Regional Bureau of Education has provided much strategic guidance and

practical tools in ESD (see for example UNESCO, 2005; Elias, 2006; Tilbury et al., 2007; Elias and Sachathep, 2009).

Arguably the most ambitious initiatives in these areas have been driven by the Australian Research Institute in Education for Sustainability and through its business education (see Mah et al., 2006; Martin and Steele, 2010; Thomas and Benn, 2009; Tilbury et al., 2005a) and teacher education (see Steele, 2010; Ferreira et al., 2009; Ferreira et al., 2007a and b) projects. The ARIES work has challenged dominant assumptions within existing programmes; developed inter and intra-university partnerships to support systemic change; built staffs’ confidence and expertise in sustainability; addressed the professional capacities as well as responsibilities of the students; and also embraced the dual challenge of pedagogical and curriculum development for sustainability. This has been evidenced through independent evaluations commissioned by the Australian federal government, which funds this work.

A UK HEFCE funded project ‘Leading Curriculum Change for Sustainability’ seeks to embed education for sustainability into university quality assurance and enhancement systems and is another example of ambitious curriculum change in HE being incentivized by a government agency (HEFCE, 2011). In a similar vein, Swedish, UK, Australian, Canadian, Japanese and Dutch aid agencies have played an important role in funding curriculum development for sustainability in Africa and Asia as well the Pacific Islands (for example SIDA, 2011; MedIES, 2010; AusAid, 2010). Case studies of HE change triggered or supported by such funding are documented across various journals such as *Journal of Education for Sustainable Development*; *Australian Journal of Environmental Education*; *South African Journal of Environmental Education* and *Environmental Education Research* journal which all evidence learning transitions towards education for sustainability.

There is also evidence from Latin America and parts of South East Asia that university education programmes are being challenged to reorient themselves towards sustainability by school and community education initiatives whose influences are slowly making their way in HE curricula (Galang, 2010).

When studied closely, the initiatives identified above reveal learning transitions towards ESD. These shifts are summarized in Table I.2.4.

TABLE 1.2.4 Learning transitions towards ESD (Tilbury and Cooke, 2005)	
Shifting from:	Moving Towards:
Bolt-on additions to existing curricula	Innovation within existing curricula
Passing on knowledge and raising awareness of issues	Questioning and getting to the root of issues
Teaching about attitudes and values	Encouraging clarification of existing values
Seeing people as the problem	Seeing people as change agents
Sending messages about SD	Creating opportunities for reflection, negotiation and participation
Raising awareness and trying to change behaviour	Challenging the mental models that influence decisions and actions
More focus on the individual and personal change	More focus on professional and social change
Negative 'problem-solving' approaches	Constructive creation of alternative futures
Isolated changes/actions	Learning to change

LEADERSHIP AND STRATEGY FOR SUSTAINABILITY

The strategic implications of sustainability are that of innovation not integration of this agenda into mainstream institutional structures and practices (Bawden, 2004, p. 29; Corcoran and Wals, 2004, p. 4; Sterling, 2004; Tilbury et al., 2005a). In other words, translating signatures on international declarations into institutional responses requires adjustments to academic priorities, organizational structures, financial and audit systems (Bekessy et al., 2007; Sharp, 2002; Ryan et al., 2010). A recent project commissioned by the Australian Teaching and Learning Council recognises that these changes do not just happen they must be led (Scott et al., 2011). The *Turnaround Leadership for Sustainability in Higher Education Project* seeks to define the capabilities that make an educationally effective HE leader for sustainability and produce resources to develop and enhance these leadership capabilities. This international project involves researchers from Australia, UK and the US and seeks to make a step-change contribution to an area which has been deprived of attention and which forms an important piece of the transformation puzzle.

A review of journal articles accompanied by a web search reveals that there are several leadership for sustainability initiatives across the globe that essentially target senior managers from the corporate sector (see for example the *Cambridge Programme for Sustainability Leadership*). Universities do oper-

ate as businesses at one level but, at another level, academic change for sustainability requires a different model of leadership. This means that existing leadership programmes are of limited value to senior managers working within HE. The lack of leadership development opportunities for HE managers may go some way to explaining why progress towards sustainability in HE has been piecemeal (Lozano, 2007; Tilbury, 2011a).

Emerging practice may well change this scenario. For example, a recently established Sustainable Development Education Academy at York University is supporting Canadian teams engaged in teacher education to plan and implement academic and programme change for sustainability. At another level, the Salzburg Global Academy founded the Sustainable Futures Academy (SFA) in 2010 recognizing the criticality of leadership in the transition towards more sustainable universities and colleges. The SFA has the reorientation of academic offerings towards sustainability firmly in its sight and seeks to progress it through North–South partnerships that can embed sustainability into the core business of universities and colleges (Sharp, Scott and Tilbury, 2010).

FINAL REMARKS: INTEGRATING SUSTAINABILITY INTO THE CORE BUSINESS OF HIGHER EDUCATION

Sustainability is a multifaceted agenda for organizations, but when harnessed effectively, its integrative potential is substantial. Yet to achieve this level of engagement in academic institutions involves profound leadership challenges. Leading change for sustainability in universities requires more than knowledge of, or commitment to, the principles of sustainability. It requires a facility for bringing about change that deals with complexity, uncertainty and multiple stakeholders, as well as ambiguous terminology (Tilbury and Wortman, 2008). It is complex, confusing, time consuming and difficult to implement, which explains why, to date, only a handful of university leaders have taken on the challenge.

Evidence suggests, that despite this inertia, there are movements towards more sustainable planning and practice in HE. Government incentives, socioeconomic expectations, partnership platforms, student leadership and experimental practice, described in this paper, are all contributing to changes: although these may not be deep or systemic. University leaders now need to help join these dots of activity in ways that align mainstream

practices to sustainability innovation in their institutions. Senior management teams, at this moment, hold the key to transforming HE so that it can play its part in transforming social practices and contribute to more sustainable futures.

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