

Higher Education for Sustainability: An Inventory of a Higher National Diploma Curriculum, Ghana.

Abstract

Events such as worsening droughts, flooding, global warming, poverty and famine, civil unrest, humanitarian crisis, and human rights violations which now characterise human existence are proof enough that passivity is no longer an option, and certainly not an option for higher education; all must stand and be counted for their contributions towards a more sustainable world. Higher education has over the years been seen as an agent for addressing the problems of sustainability, and the curriculum is regarded as a critical tool for delivering related educational objectives. The research reported in this article is an attempt to determine the degree of attention to sustainability present in the curriculum of the Higher National Diploma (HND) Purchasing and Supply Management programme in Ghana, and also to ascertain the nature of sustainability issues addressed by the curriculum. Documentary research is the methodology used in conducting this study. Findings of the study suggest that sustainability has a low presence in the curriculum. A greater proportion of the sustainability sub-topics in the curriculum addressed issues of social justice, while economic sustainability issues featured the least. More deliberate and greater effort is recommended to integrate sustainability in the curriculum, and also sensitise and train all relevant stakeholders in issues of sustainability.

Keywords: Higher Education, Sustainability, Curriculum, Procurement, Higher National Diploma, Ghana

Introduction

The period spanning 2005-2014 was declared the United Nations Decade of Education for Sustainable Development (UNESCO, 2005). This declaration is a manifestation of the recognition of the critical importance of education as a means of promoting sustainable development in every sphere of human endeavour. Education for sustainable development (ESD) currently enjoys substantial momentum, and commands strong international attention. Kagawa's (2007) suggestion that ESD enjoys the political will and commitment internationally to integrate ESD at all levels of education is a notion that needs to be investigated because it appears that there is a disconnect between declarations in support of sustainability and the implementation of these declarations (Grindsted, 2011).

The term 'sustainability' in the context of this study adopts the Brundtland Commission's definition of sustainability as a concept that embraces environmental security, intra-generational and inter-generational equity, economic betterment, and social and environmental justice (AASHE, 2014). Global events such as natural disasters, civil strife and its attendant humanitarian crisis, epidemics, worsening poverty, and hunger are making it increasingly clear that passivity is not an option, and certainly not an option for the education sector. Agenda 21 of the United Nations stresses the importance of education as a vital factor in the promotion of sustainable development (Wals, & Kieft, 2010).

For education, including higher education to be able to play a vital role in promoting the sustainability agenda, the curriculum which is the basis of every educational experience (Alberta Education, 2012; De Coninck, 2008) must be developed for shaping a sustainable world. Unfortunately, the curricula of many higher educational institutions have not been developed with sustainability in mind (Association for the Advancement of Sustainability in Higher Education (AASHE), 2010). Moreover, very little is being done, especially in Africa to draw attention to the deficiencies of the curricula relative to sustainability, and the need to make sustainability an integral part of the curricula. This study examines the curriculum of a Higher National Diploma (HND) programme of Polytechnics in Ghana to ascertain whether it is sustainability oriented or not. The research objectives of this study are:

1. To determine the presence of sustainability issues in the courses of the programme;
2. To ascertain the nature of the sustainability issues addressed by courses of the programme.

Sustainability and Higher Education

Higher education has over the years been seen as catalyst for transformation, and a solution to problems confronting humanity (Cortese, 2003; Tilbury et al., 2005). Over the past three decades, higher education has been actively involved in creating awareness and attempting to find solutions to the challenges of sustainability (Shephard, 2008; Grindsted, 2011). Some research findings have however revealed that efforts of higher educational institutions have been more about the signing of declarations and less about implementing the declarations' principles of sustainability (Grindsted, 2011). Though higher education has experienced challenges over the years in addressing problems of sustainability, institutions of higher learning continue to hold a unique and critical position in society to influence change towards a more sustainable development (Stephens et al., 2008; Chatterton, & Goddard, 2000). Higher education has the potential to change the world through training, research, practical sustainable initiatives, and effective incorporation of community participation (Tilbury, 2011).

Sustainability and Higher Education Curriculum

Curriculum has been defined by Alberta Education (2012) as the foundation of the teaching and learning process. Not only that, some have come to the perception that curriculum is of central importance to everyday life, and as such needs to be the responsibility of society as a whole (De Coninck, 2008). This underpins the critical importance of curriculum to the educational delivery process, including the delivery of education for sustainability in higher educational institutions.

The existing higher education curriculum has been recognised as being the fundamental problem that impedes education for sustainability (Association for the Advancement of Sustainability in Higher Education, 2010). Traditionally, the higher education curriculum has not been developed for shaping a sustainable world, but rather its focus has been on specific knowledge and skills employed in a given area (AASHE, 2010).

Curriculum for sustainability is rated by AASHE in terms of sustainability focused courses in the programme of study, and courses that incorporate modules or units on sustainability (AASHE, 2010). According to The Higher Education Academy (2014) the curriculum for sustainability should be guided by two main objectives: graduate outcomes, and the process of teaching, learning, and assessment. The graduate outcomes are about the knowledge and understanding of the students, their skills, and attributes relative to global citizenship; environmental stewardship; social justice; ethics and wellbeing; and future-thinking. The teaching, learning and assessment aspect of the curriculum should provide guidance on the types of teaching, learning and assessment that will enable the students to achieve the expected graduate outcomes relative to sustainability (Higher Education Academy, 2014). Sustainability courses have the potential to provide valuable grounding in the concepts and principles of sustainability, thereby helping students to develop a broad understanding of sustainability issues and preparing them to apply sustainability principles in their professional fields (AASHE, 2014).

Strategic Role of Procurement in Sustainable Development

Procurement has the potential to contribute significantly to the achievement of sustainable development. In recognition of this, the Dutch Government has prioritised sustainable procurement as one of the key strategies for addressing the problem of sustainable development, and has also developed a sustainable public procurement programme for this same purpose (Melissen, & Reinders, 2012). Since the 2002 World Summit on sustainable development, environmental goals have become an integral part of procurement (Preuss, 2007; Walker, & Brammer, 2009). The Marrakech Task Force on Sustainable Public Procurement has also developed an approach for implementing sustainable public procurement (United Nations Environment Programme, 2013). Procurement is currently one of the major innovative means by which sustainable development is being promoted; issues of environmental management and corporate social responsibility are some of the strategies that are being deployed to promote sustainability.

The strategic role of procurement in promoting sustainability makes academic and professional programmes which educate and train students in procurement courses very vital to the sustainability agenda. That the curriculum for these programmes of study needs to be appropriate for providing the requisite knowledge, skills, and attitudes for the promotion of sustainable development cannot be overemphasised.

Higher Education and Sustainability in Africa

The African continent is currently faced with numerous sustainability challenges, and these pose a serious threat to both the natural environment and the socio-economic well-being of the people on the continent (Global University Network for Innovation, International Association of Universities, & Association of African Universities, 2011). Higher education has been identified as key to the promotion of sustainable development on the continent however there are few studies available to demonstrate what has been done by higher educational institutions on the continent to promote sustainability (Global University

Network for Innovation, International Association of Universities, & Association of African Universities, 2011). There is however evidence to demonstrate the commitment of African Higher educational institutions to addressing the challenges of sustainability faced by the continent. For example the theme for the 12th General Conference of Association of African Universities (AAU), 2009 was “role of higher education in promoting sustainable development in Africa”. Prior to the 2009 general conference, the 2006 and 2008 editions of the African Universities Day celebrations were all dedicated to the promotion of the continent’s sustainable development (Association of African Universities, 2015). The main problem now is how to translate the good intentions of the higher educational institutions into tangible results that address the challenges of sustainability.

Ghana’s situation relative to the role of higher education in addressing sustainability challenges is not different from the general situation of the rest of the African continent: policies, institutions, and programmes to drive the educational agenda are generally weak; higher education institutions lack the required vision, leadership, resources, and capacity to realise sustainable development and related objectives of science, technology and innovation (Jowi et al., 2013). Clearly, there is a lot more to be done if the objective of higher educational institutions in Ghana and the rest of Africa to serve as relevant and significant entities in addressing the challenges of sustainable development is ever to be realised.

Methodology

The documentary research method is the research approach used by this study. Bailey (1994) describes the documentary research method as the analysis of documents that contain information about the phenomenon that the research seeks to study. The focus of this study is to collect documentary information on the contents of a curriculum relative to sustainability, and one of the best methods to do this is to analyse the curriculum document. This method was chosen as the most suitable for this study, as well as being a respected scientific method, and is also cost effective (Mogalakwe, 2006). The curriculum, which is the main document analysed in this study met the quality control criteria for handling documentary sources, namely; authenticity, credibility, representativeness, and meaning, as advocated by Scott (1990).

The curriculum analysed in this study is the “curriculum for Higher National Diploma in Purchasing and Supply Management”. This is the curriculum provided by the “National Board for Professional and Technical Examinations (NABPTEX)”. The National Board for Professional and Technical Examinations is one of the three regulatory bodies for tertiary education in Ghana. It has oversight of non-university tertiary institutions especially the polytechnics, and professional bodies. The board is responsible for certification, assessment and evaluation, setting standards, and provision of curriculum and syllabus. The curriculum provided by NABPTEX is the document that guides the teaching and learning experiences for courses offered by institutions over which it has oversight responsibility including all Higher National Diploma (HND) courses in Ghana. The current curriculum for HND in Purchasing and Supply Management (also known as HND in Procurement and Supply Chain Management) was developed in 2010 (National Board for Professional and Technical

Examinations, 2010) and is the curriculum in use in all polytechnics in Ghana which offer the programme HND in Purchasing and Supply Management. The curriculum requires that students of HND Purchasing and Supply Management are offered a total of 43 taught courses, excluding project work and industrial attachment for the six semesters' duration of the programme (NABPTEX, 2010).

An inventory of the courses was made to determine whether a course was sustainability focused or sustainability related. Contents of the courses were examined to ascertain whether or not they dealt with sustainability issues. For the purpose of this study, the term 'sustainability issues' refers to issues concerning the economic wellbeing of society, environmental welfare, and social justice, in line with the Brundtland Commission's definition of sustainable development (AASHE, 2014). Sustainability focused courses refer to courses that provide in-depth knowledge in the concepts and principles of sustainability, and provide linkage between theory and practice relative to the different dimensions of sustainability. In addition, the courses are intended to equip students with requisite skills for addressing sustainability related problems in all their forms and complexities. Sustainability-related courses on the other hand provide knowledge about a component of sustainability, or have topics which deal with aspects of sustainability, or provide a general and broad understanding of sustainability issues (AASHE, 2010).

A summary table below provides an outline of the courses and the sustainability issues that they deal with. The courses are categorised as sustainability focused or sustainability related. The nature of sustainability issues addressed by the courses are described, and the percentage presence of sustainability in the course offerings is determined.

Table 1: Courses and Sustainability Issues Addressed

Course	Level	Sustainability Focused or Related	Sustainability issues of courses	Total No. of issues to be treated	Sustainability issues to be treated	%Presence of Sustainability
Introduction to Procurement Management I	100	Related	Corporate social responsibility, ethics and conflict of interest	63	1	1.59%
Procurement Context I	100	Related	The concept 'corporate social responsibility' (CRS); Importance of CRS; Impacts of regulations on procurement	26	3	11.53%

Table 1: Courses and Sustainability Issues Addressed (Continued)

Course	Level	Sustainability Focused or Related	Sustainability issues of courses	Total No. of issues to be treated	Sustainability issues to be treated	%Presence of Sustainability
Procurement Context II	100	Related	Regulatory framework for consumer protection; CSR and consumer confidence; Modes of transportation and regulations; Public private partnership and related concepts	37	4	10.81%
African Studies	100	Related	Gender and development; Culture; Democracy; Rule of law; Conflicts in Africa; Foreign direct investment; Effects of foreign aid; Disease control and prevention	18	8	44.44%
Understanding the Procurement Environment I	200	Related	Not-for-profit organisations (including charities); Public Private Partnerships; Culture; Local Practices; Ethics; Corporate Social Responsibility; Behaviour; Environmental Policy; Pollution; Depletion of rain forest; Contamination of rivers; Discharge of effluent; Environmentally friendly practices;	51	20	39.22%

Table 1: Courses and Sustainability Issues Addressed (Continued)

Course	Level	Sustainability Focused or Related	Sustainability issues of courses	Total No. of issues to be treated	Sustainability issues to be treated	%Presence of Sustainability
Understanding the Procurement Environment I	200		Reduction and disposal of waste in procurement function; Legislation on emissions; The Kyoto agreement and its impact on commercial operations; Trade sanctions; Employment law; Health and safety; Equal opportunities.			
Strategic Supply Chain Management II	300		Nature of supply chains in health and social care, defence, and transportation; Removal of waste; Ethical considerations in supply chains; Socio-economic goals pursued through supply chains.	34	4	11.76%
International Business Management I	300		Differences in Cultural, religious, political, economic and legal systems among countries; Problems of globalisation relative to cultures, businesses, and economies	45	2	4.44%
Organisational Behaviour I	300	Related	Ethics in the Procurement Function	56	1	1.79%
Analysing Risks in Procurement	300	Related	Key types of loss: environmental, health, safety and welfare	42	1	2.38%

Table 1: Courses and Sustainability Issues Addressed (Continued)

Course	Level	Sustainability Focused or Related	Sustainability issues of courses	Total No. of issues to be treated	Sustainability issues to be treated	%Presence of Sustainability
Procurement Ethics	300	Related	Ethics as a concept; Ethical standards; Procurement and business gifts and hospitality; Ethical trading; Responsibilities of stakeholders for ethical best practices; Foreign corrupt practices; Green procurement and sustainable procurement; Role of procurement in corporate social responsibility; Environmental pollution prevention and associated laws; Supplies-related fraud; Fraud and criminality; Laws of Ghana dealing with fraud and criminality; World Bank procurement guidelines on fraud and criminality.	20	13	65%

Source: Curriculum for HND in Purchasing and Supply, 2010.

Discussion of Findings

The findings of this study are discussed relative to the presence of sustainability issues in the learning experiences guided by the curriculum of HND Purchasing and Supply Management programme for Polytechnics in Ghana, and the nature of the sustainability issues addressed by the curriculum.

An examination and analysis of the curriculum (Table 1) reveals that apart from some of the academic courses which include issues of sustainability, no other learning experience is provided to create awareness and sensitise students on sustainability issues, and equip them

with relevant competencies and appropriate attitudes to contribute to addressing sustainability problems. This finding agrees with the notion that higher education curriculum traditionally has not been developed for shaping a sustainable world (AASHE, 2010). Apart from the courses of study, the curriculum can provide for outreach programmes that would develop students' interest in and capacity for finding solutions to sustainability problems. The curriculum could also facilitate students' and faculty's participation in sustainability projects, community service, inter-campus collaboration, and campus community partnership. All these initiatives could go a long way to bring sustainability issues to the fore; and thereby harness the efforts of students and other stakeholders in higher education to find solutions to sustainability problems.

The HND Purchasing and Supply Management programme curriculum directs that students be offered 43 taught courses for the six semesters' duration of the programme, as indicated above. Analyses of the courses revealed that none was sustainability focused. In other words, zero percent of the courses offered to students in HND Purchasing and Supply Management programme in Ghana is sustainability focused. The failure of the developers of the curriculum to create courses purposely for sustainability education constitutes a very serious deficiency for the curriculum, especially considering the fact that the curriculum was developed in 2010; making it a relatively recent document; and at a time when academic discourses globally are flooded with sustainability issues. The lack of sustainability focused courses for the programme suggests a general lack of appreciation for sustainability issues by the developers of the curriculum; and by those having oversight responsibility for the programme. With respect to sustainability related courses, 10 out of the 43 courses include some sub-topics which are related to sustainability. Considering the very low presence of sustainability issues topics in some of the courses, it would be misleading to use the 10 courses that contain issues about sustainability as a proportional representation of sustainability in the curriculum. For instance of 63 issues treated in the course "Introduction to Procurement Management 1", as shown in Table 1, only one of these issues was related to sustainability. So instead of using the number of courses in which sustainability issues appeared as the percentage presence of sustainability in the curriculum, this study uses the number of sub-topics in which sustainability features relative to the total number of sub-topics covered by all of the courses in the curriculum, to determine the percentage presence of sustainability in the curriculum. The total number of sub-topics treated by the 43 courses is 1643; only 57 of these sub-topics are related to sustainability. In percentage terms 3.5% of the sub-topics of the HND Purchasing and Supply Management courses contain coverage of issues relating to sustainability. In its rating of institutions for their sustainability efforts, AASHE awards a total of eight points for institutions where 20% or more of their courses are sustainability focused or sustainability related (AASHE, 2014). Therefore a 3.5% presence of sustainability issues in a curriculum would translate into a score of 1.4 points out of 8 points. This score represents a very low presence of sustainability in the curriculum.

The second objective of this study was to determine the nature of sustainability issues addressed by the courses offered to HND Purchasing and Supply Management students. Fifty seven sustainability related issues were referred to in these courses; some of the sub-topics

touched on the three-pronged sustainability issues of; social justice, economic security, and environmental welfare. The sub-topics of 'corporate social responsibility' provide an overview of all three issues of sustainability. Six of the sub-topics considered all the three aspects of sustainability; seven highlighted issues related to the promotion of economic wellbeing; 14 covered issues related to environmental responsibility; and 30 were about the promotion of social wellbeing, equality and diversity. In percentage terms, 10.5% of the sub-topics touched on all three issues of sustainability; 12.3% touched on issues of economic wellbeing; 24.6% covered issues related to environmental responsibility; and 52.6% concerned issues related to social justice. Issues related to social wellbeing were the dominant sustainability issues present in the HND Purchasing and Supply Management courses, and issues of economic sustainability were the least addressed in the courses.

Conclusion and Recommendations

In summary, this study reveals that sustainability focused courses are absent from the curriculum of the HND Purchasing and Supply Management programme. However, the sustainability related sub-topics constitute 3.5% of the total number of sub-topics of the curriculum. This percentage indicates a very low treatment of sustainability in the curriculum. The study also reveals that the curriculum touches on all three inter-related issues of sustainability. The majority of the issues of sustainability covered are about social justice, and the least represented are those concerning economic wellbeing.

Economies of African countries including Ghana's depend heavily on natural resources; and this has led to resource depletion, environmental degradation, and worsening economic conditions due to external shocks, thereby increasing poverty and reversing social development (World Bank, 2003). To address the economic woes of African countries the United Nations Economic Commission for Africa (2012) recommends that African countries adopt and implement sustainable development action plan, and ensure that all three dimensions of sustainability are given equal attention. Higher educational institutions can contribute significantly to sustainable economic development in Ghana and other African countries by ensuring that all aspects of sustainability are well represented in the teaching and learning experiences that are made available to students. Therefore educational policy makers in Africa and other relevant stakeholders in higher education must ensure that sustainability is made an integral part of the curriculum, and that all the dimensions of sustainability are well represented.

The Ministry of Education of Ghana; and other relevant agencies in the provision of Polytechnic education are urged to provide sensitization and training in sustainability for the curriculum developers of HND Purchasing and Supply Management, and other relevant stakeholders, so that these stakeholders may appreciate the seriousness of the sustainability problem, and how urgently solutions are needed to address it. The curriculum developers for HND Purchasing and Supply Management programme are also urged to create sustainability focused courses for the programme to emphasise the importance of sustainability issues, and how procurement can be used to address them. Since the procurement function is one of the identified key strategies for promoting sustainability worldwide, the HND Purchasing and

Supply Management programme should be used innovatively to provide students with sound competencies and develop appropriate attitudes towards promoting the sustainability agenda. Furthermore, the curriculum should provide students with other learning experiences apart from the course offerings. These initiatives could include; outreach programmes, sustainability projects, inter-campus collaboration, and campus- community partnership geared towards environmental responsibility, social equity, and economic empowerment. The recommendation for scholars is to conduct more research into other higher education programmes to ascertain the extent to which the sustainability agenda is being pursued in these programmes of study.

References

- Alberta Education. (2012). *Curriculum development processes*. Retrieved May 5, 2015, from http://www.education.alberta.ca/media/6809242/d_chapter1.pdf
- Association for the Advancement of Sustainability in Higher Education (AASHE). (2010). *Sustainability curriculum in higher education: a call to action*. Retrieved May 7, 2015, from http://www.aashe.org/files/A_Call_to_Action_final%282%29.pdf
- Association for the Advancement of Sustainability in Higher Education (AASHE). (2014). *Stars technical manual: version 2*. Retrieved May 4, 2015, from http://www.aashe.org/files/documents/STARS/2.0/stars_2.0_technical_manual_-_administrative_update_two.pdf
- Association of African Universities (AAU). (2015). *Promoting sustainable development (SD) and education for sustainable development (ESD): the role of higher education institutions in Africa*. Retrieved May 11, 2015, from <http://www.aau.org/page/psd-background>
- Bailey, K. (1994). *Methods of social research*. (4th edn.). New York: The Free Press
- Chatterton, P., & Goddard, J. (2000). The response of higher education institutions to regional needs. *European Journal of Education*, 35(4), 475-496
- Cortese, A. D. (2003). The critical role of higher education in creating a sustainable future. *Planning for Higher Education*, 31(3), 15-22.
- De Coninck, C. (2008). *Core affairs: Flanders, Belgium: case studies basic education in Europe*. Retrieved May 7, 2015, from http://www.slo.nl/downloads/Webversie_core_affairs_LR_Belgi___def.pdf/.
- Economic Commission for Africa. (2012). *Sustainable development report on Africa: managing land-based resources for sustainable development*. Retrieved June 3, 2015, from <http://www.uncsd2012.org/content/documents/SDRA1%20managing%20land-based%20resources.pdf>

- Global University Network for Innovation (GUNi), International Association of Universities (IAU), & Association of African Universities (AAU). (2011). *The promotion of sustainable development by higher education institutions in Sub-Saharan Africa*. Retrieved May 11, 2015, from http://www.aau.org/sites/default/files/esb/promotion_of_sd_by_HEIs_sub_saharan_africa.pdf
- Grindsted, T.S. (2011). Sustainable universities- from declarations on sustainability in higher education to national law. *Environmental Economics*, 2(2), 29-36. Retrieved April 14, 2015, from http://businessperspectives.org/journals_free/ee/2011/ee_2011_2_Grindsted.pdf
- Higher Education Academy. (2014). Education for sustainable development: guidance for UK higher education providers. Retrieved May 11, 2015, from <http://www.qaa.ac.uk/en/Publications/Documents/Education-sustainable-development-Guidance-June-14.pdf>
- Jowi, J.O., Obamba, M., Schoole, C., Barifaijo, M., Oanda, O., & Alabi, G. (2013). *Governance of higher education, research and innovation in Ghana, Kenya and Uganda*. Retrieved May 12, 2015, from <http://www.oecd.org/sti/Governance%20of%20higher%20education%20research%20and%20innovation%20in%20Ghana%20Kenya%20and%20Uganda.pdf>
- Kagawa, F. (2007). Dissonance in students' perceptions of sustainable development and sustainability: implications for curriculum change. *International Journal of Sustainability in Higher Education*, 8(3), 317-338.
- Melissen, F., & Reinders, H. (2012). A reflection on the Dutch sustainable public procurement programme. *Journal of Integrative Environmental Sciences*, 9(1), 27-36. DOI:10.1080/1943815X.2012.658815
- Mogalakwe, M. (2006). The use of documentary research methods in social research. *African Sociological Review*, 10(1), 221-230.
- National Board for Professional and Technical Examinations (NABPTEX). (2010). *Curriculum for higher national diploma in purchasing and supply*. Accra: NABPTEX.
- Preuss, L. (2007). Buying into our future: sustainability initiatives in local government procurement. *Business Strategy and the Environment*, 16, 354-365.
- Scott, J. (1990). *A matter of record, documentary sources in social research*. Cambridge: Polity Press.
- Shephard, K. (2008). Higher education for sustainability: seeking affective learning outcomes. *International Journal of Sustainability in Higher Education*, 9(1), 87-98. DOI 10.1108/14676370810842201

- Stephens, J.C., Hernandez, M.E., Roman, M., Graham, A.C., & Scholz, R.W. (2008). Higher education as a change agent for sustainability in different cultures and contexts. *International Journal of Sustainability in Higher Education*, 9(3), 317-338. DOI 10.1108/14676370810885916
- Tilbury, D. (2011). *Higher education for sustainability: a global overview of commitment and progress*. Retrieved May 4, 2015, from <http://insight.glos.ac.uk/sustainability/education/documents/guni%20he%20in%20the%20world%204%20he%27s%20committment%20to%20sus.pdf>
- Tilbury, D., Keogh, A., Leighton, A., & Kent, J. (2005). *A national review of environmental education and its contribution to sustainability in Australia: further and higher education*. Canberra: Australian Government Department of Environment and Heritage and Australian Research Institute in Education for Sustainability (ARIES).
- UNESCO. (2005). *UN decade of education for sustainable development 2005-2014*. ED/2005/PEQ/ESD/3. Retrieved April 14, 2015, from <http://unesdoc.unesco.org/images/0014/001416/141629e.pdf>
- United Nations Environment Programme (UNEP). (2013). *Sustainable public procurement: a global review*. Retrieved May 12, 2015, from http://www.unep.org/resourceefficiency/Portals/24147/SPP_Full_Report_Dec2013_v2%20NEW%20%282%29.pdf
- Walker, H., & Brammer, S. (2009). Sustainable procurement in the UK public sector. *Supply Chain Management: an International Journal*, 14(2), 127-138.
- Wals, A.E.J., & Kieft, G. (2010). *Education for sustainable development: research overview*. Sida Review 2010:13. Retrieved May 5, 2015, from <http://www.sida.se/contentassets/037cab007b80477ebaf8f992d75f4aef/education-for-sustainable-developmentresearch>
- World Bank. (2003). *Sustainable development in a dynamic world: transforming institutions, growth and quality of life*. Washington, D.C.: World Bank.