Making progress towards sustainable higher education: design of an implementation model with guiding principles

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Abstract – The purpose of sustainable higher education is to prepare today’s students – or tomorrow’s decision makers – to the complex challenges of the future. The visions on how this process should be realised are very diverse, going from simply ‘adding the theme’ to the curriculum to a complete transition of higher education. This paper focuses on the realisation of sustainable higher education within the framework of an individual institution of higher education, because this is regarded as a first, feasible step in the process of complete transition towards sustainable higher education. Within the Leuven University College (KHLeuven) the possibility of defining a model with implementation strategies and guiding principles for the realisation of sustainable higher education, was the subject of a research project between 2005 and 2008. The model is not a universally applicable blueprint, but it offers generic values for other institutions of higher education. A concise description of the model will be given, with particular attention to the topics of education, research and operations.

1. Introduction: conceptual problems in sustainable higher education

It is becoming clear that institutions in higher education are facing the challenge of sustainable development (Corcoran & Wals 2004). One of the most fundamental criticisms towards sustainable higher education is, that the concept is almost impossible to realise in a society which is not sustainable in itself. Or as David Orr in his article Walking north on a southbound train illustrates: “The train of economic globalization is barrelling south. We, the advocates of sustainability in higher education, are taking significant steps to create a more humane, just and sustainable path for globalisation. But as we walk north, we are still passengers of this accelerating train moving in the opposite direction.” (Orr 2003 quoted in Corcoran & Wals 2004). Also Sterling (2004) says it is impossible to create a more sustainable education if one doesn’t question the system itself. On the other hand, implementing strategies in current settings may just be the next step towards a more sustainable educational system, thus facilitating a sustainable society in the long term.

In redefining the mission of higher education towards sustainability, a second fundamental problem is encountered: the concepts of “sustainable development” (SD), “education for sustainable development” (ESD) and “sustainable higher education” (SHE) often create confusion. For example, education for sustainable development is often defined as the integration of sustainable development or even environmental care into the curricula (this is education about sustainable development). Although this is a substantial element of sustainable higher education, it is in itself too limited (Corcoran & Wals 2004). Within the research at the KHLeuven, education for

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sustainable development (ESD) is considered an important element in realising sustainable higher education: its implementation in education supports formal learning for sustainable development. The implementation of ESD in research, outreach and operations is seen as a type of non-formal or informal learning for sustainable development.

2. Research method

The implementation of ESD in higher education has led towards a large number of descriptive case studies but little research has been performed on the realisation of a thorough implementation theory (Shriberg & Tallent 2003). Still, it is possible to deduce a general (theoretical) implementation model from diverse, already existing, manuals and exemplary practices (e.g. Velazquez et al. 2006, Clugston and Calder 1999 & 2003).

Within the KHLeuven the possibility of defining a model with implementation strategies and guiding principles for the realisation of sustainable higher education, was the subject of a research project between 2005 and 2008. The implementation model was drafted using the following steps:

- Document analysis: analysis of relevant policy documents with regards to the definition of aspects and critical success factors for sustainable higher education
- Literature study: international literature was analysed with regards to exemplary practices
- Inventory of sustainability initiatives at the KHLeuven: an internal inventory was made to define good practices with their factors for success and failure.

By doing so, the implementation model is lifted above the level of individual and random case studies, and theoretical concepts from literature are compared to the practice of diverse initiatives and experiences on the KHLeuven-level.

3. Implementation model with guiding principles

The implementation model contains guiding principles for policy planning, education, research and outreach and operations. It can be used as a practical guide to realise sustainable higher education within the existing framework. At the set-up of the model, two fundamental choices were made:

- A choice with regards to form: the KHLeuven implementation model consists of 7 steps. Although the model shows a linear approach, this is not strictly necessary. The model can also be applied in a cyclic and more dynamic manner (Newman 2005). For example, initiatives in education and research (step 4) can inspire management decisions or an audit (step 5) can be the basis for a process in vision development. Hence, the model is not a blue print for all institutions of higher education, but requires a personal translation towards the identity of the proper institution (Corcoran & Wals 2004).
- A choice with regards to target group: the model should be seen as a management tool to implement sustainable development based on already existing initiatives. Then the linear set-up is a sound choice to keep an overview and to guarantee optimal connection of top-down and bottom-up initiatives. Overall, the model is a policy guideline and a checklist with a number of guiding principles.

The seven steps of the KHLeuven implementation model:

1. Vision
2. Mission statement
3. Steering committee
4. Implementation in each domain:
   4.1. General implementation strategies
   4.2. Implementation strategies for education
   4.3. Implementation strategies for research & outreach
   4.4. Implementation strategies for operations
5. Evaluation
6. Reporting
7. Certification and accreditation
Step 1. Vision – developing a shared vision on sustainable development is important to structurally embed sustainable development into higher education. This process doesn’t have to be imposed by management (top down) though. On the contrary, in reality the initiative often comes from some people at the other end of the line, so bottom up (Velazquez et al. 2006). It is important to lift such initiatives to a higher level, in order to make a structural integration possible. Developing a vision on sustainable development should run along two lines (Shriberg 2002b):

- Horizontal – integration of sustainable development into the general vision of the institution;
- Vertical – defining an institutional vision on sustainable development and sustainable higher education.

Step 2. Mission statement – to ensure efficient integration of ESD in an institution, it is essential to integrate sustainable development into the mission statement. This can be done in two ways: by signing an (international) charter or declaration, such as the COPERNICUS Charter, or by drafting an institutional mission statement which becomes the basis for the transition towards a sustainable institution (Pittman 2004). Because signing an engagement hasn’t always led to action in the past (Wright 2004), explicitly integrating SD into the mission statement is preferred.

Step 3. Steering Committee – The purpose of appointing a steering committee for sustainable development is to prepare policy decisions in this matter. This group coordinates the implementation in policy documents and is responsible for the dissemination of initiatives and information within the whole of the institution. It preferably exists of representatives of all stakeholders of the institution (Velazquez et al. 2006).

Step 4. Implementation in each domain

Step 4.1. General implementation strategies

Policy planning – the framework used to aim the daily activities of an institution of higher education towards sustainable development should be based upon the vision and mission statement of the institution. During the nineties, focus lay upon the addition of sustainability as an extra topic (Corcoran & Wals 2004). In the following years, consensus was reached that the concept had to be integrated in all four pillars of an institution: education, research, operations and societal role (Roorda 2007). It is moreover crucial to take into account the interaction and influence between the different pillars. For example; internal environmental care is not only important in the daily management but it can also be a topic in education.

Communication – good communication is essential to support the integration strategies for SD and it offers possibilities to influence behaviour of personnel and students, in such facilitating the awareness process. It also improves insight into the concept of sustainable development and dialogue between the institution and its stakeholders or amongst the stakeholders themselves (Forum for the Future & HEPS 2004). It is therefore advisable to communicate the efforts toward implementation of sustainable development to internal and external stakeholders (Behrens & Müller-Christ 2005). Also the communication process in itself can be evaluated. A two-sided dialogue and respect for sender, receiver and message are essential to make the communication process more sustainable (Forum for the Future & HEPS 2004a).

Networking – In the COPERNICUS Charter (1993), institutions of higher education are encouraged to take part in interdisciplinary networks at a local, national and international level and to establish partnerships with other societal actors. This is characteristic for the current networking society (Bachus and Franchois 2007). The possibilities are often also determined by the individual and local situation. For instance, a local network may not always exist and engagement in an international network may not always have an added value.
Step 4.2. Education

**Competences for sustainable development** – Sustainable higher education is supposed to bring competences to the students that will help them to cope with changing situations and complex challenges in our society (Forum for the Future 2004b). The Dutch foundation DHO Nederland, a knowledge and networking organisation striving for sustainable higher education, has drafted a number of general professional competences for sustainable development, grouped under the following central concepts: Responsibility, Emotional Intelligence, Systems Thinking, Future Thinking, Personal commitment and Ability to take action. They are completed by disciplinary competences that vary according to the discipline (DHO Nederland 2007). Within the KHLeuven, all competence matrices were screened. It became clear that there are several strategies to implement competences for sustainable development into the matrices, as illustrated in table 1.

**Table 1. Strategies for the integration of competences for sustainable development**

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
<th>Strength</th>
<th>Weakness</th>
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<tbody>
<tr>
<td>Vertical integration</td>
<td>Elements of sustainable development are mentioned in one competence which is explicitly aimed at sustainable development</td>
<td>Sustainable development is explicitly mentioned in the competence matrix, thus encouraging integration into the curriculum</td>
<td>SD is considered an ‘extra’ topic that is added to the matrix and is clearly separated from other competences.</td>
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<tr>
<td>Horizontal integration</td>
<td>Elements of SD are integrated implicitly in all competences</td>
<td>SD is included in all competences and can function as a larger framework for the matrix</td>
<td>Implicit integration of SD can make it into an ‘optional’ element; integration in the curriculum is not guaranteed</td>
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<tr>
<td>Combined integration</td>
<td>Implicit integration of SD in all competences and an explicit focus in one “competence for SD”</td>
<td>Horizontal (implicit) and vertical (explicit) integration assure a framework to formulate competences for sustainable development</td>
<td>Risk of overkill</td>
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</table>

**Methodological orientation of education** – To exercise and assess competences for sustainable development, traditional teaching practice, based on lectures, is insufficient. A dynamic teaching process is necessary (Pittman 2004). The following characteristics were distinguished through research (Steiner & Posch 2006): Multi- and interdisciplinarity, Transdisciplinarity, Self-regulated learning, Problem-based education, Project-based education.

**Methods** – The methods to acquire, exercise and assess competences for sustainable development are not new. They aim at supporting an interdisciplinary approach, information- and research competences, problem-based thinking, student participation, and on the long term, at a change in behaviour and attitude (Scoullos & Malotidi 2004). Within the KHLeuven implementation model, these methods were determined, with the following typology as a result:

- Interactive and participative methods: e.g. group discussion, panel conversation, role play, learning diary, brainstorm ...
- Action-oriented methods: e.g. internships, fieldwork, participating in local problems ...
- Research-based methods: e.g. bibliographical research, problem analysis, case studies, value clarification...
Assessment and evaluation – the holistic definition of competences being based on knowledge, skills and attitudes requires forms of assessment in which all aspects are evaluated. Too often still, assessment is only based on the knowledge component, hence causing a distorted image because acquiring competences can by no means be compared to pure knowledge acquisition (Sleurs 2008). Moreover, competences are context-specific so they just can’t be evaluated through non-recurrent and isolated achievements (Rychen & Salganik 2003). In reality, self evaluation, reflection on own actions and peer assessment are good examples of making an evaluation process more sustainable (Sluijsmans 2008).

Step 4.3. Research and outreach

It is clear that, next to education, also research and outreach play an important role in realising sustainable higher education (Mulder & Jansen 2005). To determine the ways in which research can contribute to SD, it is important to define a number of criteria to which this research has to comply (e.g. RMNO 2000, Waas & Verbruggen 2008). Within the KHLeeuven, a typology of available criteria for research for SD was drafted. Two categories can be distinguished: content criteria and methodological criteria.

Content criteria

- Thematical approach: Fien (2002) points out that many research projects don’t succeed in approaching the dimensions of SD in a holistic manner. This is certainly explained by the fact that SD is purely a container concept (Waas et al. 2007), and by the disciplinary approach of research. Rather than performing specialized research on one specific topic, research should be aimed at a cohesion of social, economical and ecological aspects, and explicit focus on north-south aspects (RMNO 2000).

- Orientation towards sustainable development: it is also possible to frame research projects that don’t have SD as a primary focus within the concept of sustainability. Therefore, each project could be asked to explain its contribution to SD (Jansen et al. 2005). In doing so, one can analyse in how far each research project succeeds in effectively reducing economical, social and political barriers which hinder the establishment of a sustainable society (Kennedy 2002, quoted in Waas & Verbruggen 2008). Also the criteria ‘long term thinking’ and ‘coping with uncertainties’ could encourage the orientation of research towards SD (RMNO 2000).

Methodological criteria

- Criteria concerning cooperation:
  - Multi-, inter- and transdisciplinarity: Multi- and interdisciplinary research reduces competitiveness between the different research disciplines. Transdisciplinarity has the advantage that it creates a clear link and cooperation with the working field (RMNO 2000).
  - Stakeholder participation: The amount in which stakeholders are involved depends upon the nature of the research project and the importance of the influence of the concerned stakeholders. This involvement can occur in many forms: informing, consulting, discussing, and participating (Van den Berghe et al. 2002). In practise based research for example, as performed at KHLeeuven, the interaction with the working field and society is very intense, since they contribute actively to the research projects.
  - International cooperation: international cooperation often is an important issue in research for SD because some sustainable problems require an international, or even a world-wide approach (RMNO 2000). This doesn’t imply though that international cooperation has to be included in every research project. The added value for each one has to be examined first.
  - Different normative visions: dealing with a variety of visions is very important in research for SD. “Variation of (normative) starting points concerning SD leads to divergent definitions of the problems and to a variety of proposed solutions, and hence to a wide range of disciplinary and multidisciplinary knowledge requirements” (RMNO 2000).
- Knowledge transfer, societal relevancy and evaluation: institutions of higher education are a driving force in achieving a sustainable society by executing innovative research projects and spreading their knowledge to decision makers, companies and society (Weaver & Jansen 2004).

- Criteria concerning the research process:
  - Problem-based approach: research for sustainable development departs from a problem-based approach to search answers and solutions to the needs and problems of our society (Roland & Wright 2003)
  - Action oriented and proactive focus: action oriented research aims at practical application and implementation and wants to realise a change (Waas et al. 2007, Saunders et al. 2004). In view of the societal role of higher education, it is important to perform pro-active research as a relevant and innovative contribution to realising a sustainable society (Roland and Wright 2003).
  - Transparency, independence and continuity: scientific research contributes to the realisation of a more sustainable society. But research can also have unexpected and negative consequences, making its results (involuntarily) unsustainable. To avoid this, the current research culture should be re-oriented towards transparency, independence and continuity of research (Mulder and Jansen 2005).

**Step 4.4. Operations and management**

The development of sustainable higher education requires not only an orientation shift in education and research, but also a switch of company management towards sustainability. Although there is a clear difference in ‘product’ and ‘production process’ between companies and institutions of higher education, the latter also use a large amount of energy and raw materials and, consequently, contribute to the social and ecological impact that comes with it. So making their own operations more sustainable is not only desirable but also necessary in view of their exemplary role towards society – in other words "walk your talk“ (Viebahn 2002).

It seems efficient to group the diversity of elements attributed to corporate social responsibility according to the triple P-principle (e.g. Shriberg 2002b). At the KHLUevelen, for every aspect of operations, some key elements were distinguished that can encourage, start or accompany a more sustainable approach of management processes. Some of the aspects are illustrated below in a non-exhaustive overview. Since corporate social responsibility is a form of informal learning, the term education for sustainable development also applies here.

**Economical aspects** – For years, the advocates of corporate social responsibility have tried to depict it as a ‘win-win concept’, also bringing economical profit to the company. Research of the correlation between societal and financial achievements of companies has not yielded a clear image though, making the connection of corporate social responsibility with economical advantage a rather forced one. So it is better to speak in terms of ‘win-lose’ (Kolk 2004), because the implementation model doesn’t initially assume economical profit for the institution. Key elements for the economical aspects are the integration of long term thinking and the shift from ‘end-of-pipe-thinking’ towards an integrated whole chain approach (Rossy & Le Roy 2007).

**Social aspects** – The European Commission Greenbook on Corporate Social Responsibility (2001) summarizes a number of measures that help companies to attract suitable personnel and prevent employees from leaving the company prematurely. In the context of higher education, increased work load plays an important role, just as the way in which management tackles changes and divides tasks (Bamps 2004). Following topics can be distinguished to make the people-pillar of corporate social responsibility more concrete:

1. Professionalisation and improved information towards employees – enable personnel to follow in-service training in their professional area and beyond;
2. A better balance between work, family life and leisure;

3. Diversity policy – giving attention to diversity on the work floor offers a number of advantages for the employer as well as for the employee;

4. Competence management – as in education, an optimal development of competences of employees should be aimed for;

5. Participation and communication – to ensure transparency of policy it is very important to involve employees in this and communicate purposefully with them.

Ecological aspects – In relevant literature (e.g. Savely et al. 2006, Viebahn 2002) the total lack of internal environmental management systems in institutions of higher education around the world is often pointed out. This statement has to be differentiated though since it would not be correct to state that higher education doesn’t deliver any effort toward environmental care. Savely et al. (2006) illustrate that many American institutions of higher education incorporate many elements of internal environmental management into their regular operations without necessarily incorporating a complete environmental management system.

The lack of integrated internal care for the environment in higher education can be explained by the fact that management systems such as ISO 14001 or the GRI sustainability report are developed for industrial companies in the light of top-down decisions within the organisation. Such a top-down approach is doomed to fail in the ‘heterarchical’ context of higher education (Viebahn 2002). Attempts to adapt systems and models to the context of higher education were realised in individual institutions (e.g. Savely et al. 2006) and have led to some general implementation models such as the Osnabruck-model (Viebahn 2002) but they haven’t led towards development of an internationally accepted model for environmental care in higher education yet.

Step 5, 6 and 7 Evaluation, reporting, certification and accreditation

Sustainability audits can be a powerful instrument for organisational change in higher education. Institutions of higher education need to evaluate their efforts in trying to realise sustainable higher education for various reasons. These can be clustered in three main groups:

Policy reasons – the diversity of charters and policy declarations, signed by a large number of institutions of higher education across the world, motivate management to work toward the realisation of sustainable higher education. Audit instruments are very useful to accompany and steer this implementation process (Shriberg 2004). They not only allow evaluation of ESD-activities and their results, but they can also assist in readjustments if necessary. As in the industrial sector, policy makers in educational context also need qualitative and quantitative information on the state of ESD in their institution (Roorda 2007).

Mainstreaming ESD – At the start, implementation of ESD in an institution is often regarded as an ‘extra’ element, to be added to the curriculum. It is only in later phases that ESD becomes an integrated part of activities, policy and vision of an institution. Audits can help mainstreaming ESD because they cause a process of awareness with management, employees and students. (Siemer et al. 2006).

Transparency, benchmarking and certification – these criteria have a communicative nature, since firstly, thorough reports of an audit increase transparency towards diverse stakeholders of the institution. Secondly, a certification system can push institutions of higher education towards implementing ESD. The future still has to point out which role sustainable higher education can play in accreditation and benchmarking, which both play an important role in implementing ESD (Orr 2000, quoted in Shriberg 2004). There is no consensus yet on the feasibility and desirability of such benchmarking and ranking (Shriberg 2004).
4. Conclusions

The research on implementation strategies showed that there is a wide variety of expectations with regards to sustainable higher education. Opinions range from adding an extra subject on sustainable development to the curriculum ("education about SD") to a complete conversion of current education, research, outreach and operations. Such a transition demands a paradigm shift by all layers of society though and consequently has to be a common transition in education, policymaking, business, society.

Developing an implementation model for ESD in higher education was one of the primary goals of the three-year research project at the KHLeeuwen since it had been noted that current research on ESD seldom surpasses the level of good practices and case studies. The KHLeeuwen-implementation model is composed out of a number of steps necessary for structural embedment of ESD in policy, education, research, and operations. Each step describes a number of guiding principles that can be regarded as key success factors concerning the realisation of sustainable higher education. At the stakeholder consultation, organised during the research project, the implementation model was received positively especially because of the concrete and practise based analysis of ESD. The model wants to implement the concept of ESD in the current context and framework of higher education, so it shouldn't be regarded as a final goal but as a step in the transition process towards sustainable higher education.

5. References


