

Embedding Sustainable Development in the Higher Education Economics Curriculum

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Introduction

Shall I walk or drive to the grocery store? Shall I buy the apples flown in or the ones from up the road? Is a fairly-traded product better than an organic one? Should I have gone to the farmers' market instead? Who made the clothes I wear to the store? Do I know the people I pass on my way to the store? Do I ask any of the elderly people in the neighbourhood if they need anything while I'm there? Where do I work? What do I produce? How was it produced? Do I even know the answer to that question? Do the answers to these questions about sustainability have anything to do with the type of education I received?

The government of the United Kingdom has answered in the affirmative. Its Department for Education and Skills "has lead responsibility ... for learning about sustainable development." While encouraging universities to "adopt sustainable practices", the department also sees "[c]urriculum development [as] an important aspect in higher education with the opportunity to create informed graduates who are knowledgeable about sustainability and can influence others".

To this end, the Higher Education Funding Council of England (HEFCE) gave the Higher Education Academy £1.1 million "to address a number of specific priorities, one of which is developing a programme for identifying, sharing and augmenting good practice in learning about sustainable development".

The Higher Education Academy (HEA) created an Education for Sustainable Development (ESD) Planning Group and this body, in conjunction with Forum for the Future, developed a ten-year strategic plan to embed ESD into the activity of the Academy and its subject centres. A short-term operational plan was also devised, in accordance with this strategy, the first phase of which was a pilot programme recently completed this past academic year. One strand of activity was the funding of individual subject centre projects, aiming to:

- build awareness and understanding of the principles of sustainable development (SD) in the context of each discipline,
- research current ESD practice ,
- unearth existing and/or develop new learning and teaching resources, and
- identify opportunities for further development and propose outline work programmes for 2005/06 and beyond.

The Economics Network (EN) was one of the 18 participating subject centres. To initiate the process of achieving the above aims, the EN undertook several steps, including approaching a large number of potentially interested lecturers, and by conducting interviews and focus groups on the question of embedding SD in the curriculum. This

paper reports on the initial findings from the research. The paper first describes the steps taken in research by the EN. It then reports some of the key data generated by that research. The paper reports that economists felt that their subject could and should be heavily involved in the ESD project. Several concepts from economics, which were considered key to its usefulness in ESD, were identified. However, there was not full agreement on what those key concepts should be. Furthermore, several barriers to the embedding of ESD in economics curricula were revealed. Some of the most important barriers are shown to be those resulting from working in an interdisciplinary way.

The research project

The EN took a series of steps in gathering information. First, primarily using university websites¹, lecturers with teaching and/or research interests in environmental, development and/or growth economics were identified and invited (by e-mail) to join the project². The e-mail informed invitees about the project and about ways in which they could participate. The e-mail attempted to appeal directly to the recipients' concern about the environment. Five hundred invitations yielded 133 participants: a response rate of 26.6%. This can be considered a good rate of response. Of those 133, 25 respondents to a survey, eight regional focus groups and three phone calls, totalling input by 42 participants at this initial phase. In addition, other respondents were asked whether they already include ESD in their curricula. In total, 61 lecturers expressed their opinions on the state of ESD in economics, reflected on the barriers to it, and made suggestions for overcoming them. A further 72 lecturers are interested in the initiative but have not yet contributed to it. The total number of UK departments represented is 62. The respondents have a wide range of backgrounds, being located in both 'old' and 'new' universities, having research interests in a range of areas, and being favourably disposed to varying degrees to the dominant theoretical body in economics.

The survey comprised a questionnaire completed online. The definitions of SD included in the survey were compiled by Gerald Dawe and Rolf Jucker, research consultants employed by the Academy. It is not the purpose of this paper to consider the results of that survey in detail, although the results will be used to assist the project at Coventry University (see below). However, the questionnaire showed that economics finds the issue of definitions highly contentious. There is no consensus. There may be general agreement that introducing Brundtland's and the UK government's definitions are useful for contextualizing the issue within government policymaking and the wider community, but views on whether these definitions accurately define SD range from no (too vague) to no (too narrow).

¹ Selection on the basis of a specific reason would technically be known as 'theoretical sampling'. It is well established that theoretical sampling is not wholly representative; however. In this case, the sample is thought to capture a large proportion of the population. In addition, a number of lecturers were contacted on the recommendation of others. This is known as 'snowball sampling'; this further reduces the representativeness of the sample.

² See Appendix A for a copy of the invitational e-mail.

The second major element to the data gathering process was a series of focus groups for economics lecturers and other interested academics that were held regionally in Bristol, London, Glamorgan, Newcastle, Manchester, Huddersfield, and Portsmouth. The main purpose of the focus groups was not to discuss definitions of sustainability; rather, the sessions attempted to ascertain what the barriers embedding ESD into the curriculum are; and to explore in what ways the EN and the HEA can help lecturers overcome those barriers.

According to survey respondents and focus group participants, economics offers a way of: thinking about the world, modelling difficult concepts, understanding how international systems work, and adding to the understanding of policy instruments, such as Environmental Impact Assessments. Participants identified a wide range of key concepts from economics, which were considered essential to SD: market failure (externalities); inter/intra-generational issues (particularly equity); utility; discounting; value theory, and methods of valuation; non-use value; trade offs; renewable and non-renewable resources; resource endowment; circular flow models; interconnectedness; dematerialization issues; substitutability; scarcity; trade; long term equilibrium; steady state; growth; weak versus strong sustainability; natural capital; marginality; and the general concept of limits, whether this applies to growth, or to economics itself. A general point of note is that, like the definition of sustainability, there was no consensus on what the key concepts were; indeed, there was considerable disagreement on several issues, for example on the notion of political economy; and specifically, on the usefulness of cost benefit analysis.

The barriers and proposed solutions

Through the focus groups in particular, respondents revealed several barriers to embedding sustainable development in the higher education economics curriculum. These included: the lack of staff awareness and expertise, and the associated need to acquire new knowledge; a lack of time to update courses; the lack of relevant course examples; misunderstanding or lack of academic rigour; problems of internal accreditation and systems of validation, including benchmarks; a lack of institutional drive and commitment; perceived irrelevance by students, perhaps manifested in a lack of student demand; and the financial restrictions which might be placed on any ESD project, particularly if it is a new initiative. This section outlines the main barriers; and the ways in which the EN is currently addressing each one.

1. **Colleagues in academic departments are not convinced of the relevance in embedding SD in the curriculum.** Evidence of employability seemed the most likely route, and the idea was greeted with much enthusiasm by all participants. In any case, given the recent focus on achieving employability in higher education, the embedding of SD must not conflict with the employability of students. The EN is funding a mini-project based at the London School of Economics, titled Skills for Enterprise. Through this (and perhaps other projects like it) issues of marrying ESD with employability may be explored. There are several ways in

which this could occur. The most likely are through the encouragement of social entrepreneurship, perhaps via the development of sustainable products and markets, and/or through social marketing. This project is at present in its early stages.

2. **Lecturers willing to embed SD are not sure what the appropriate SD concepts are – and then also have no model for how to go about embedding them.** The EN is funding a mini-project at Coventry University to address this issue. The project begins by determining which concepts should be included, followed by a survey of economics students at the beginning of the term to see what they already know, then a survey at the end of the term to see what they were taught. Concepts not being taught will then be embedded into the curriculum for the following academic year. It is likely that such an incremental approach could have several benefits. It allows for trial and error development of curricula. Also it provides a framework for implementation of ESD, yet is not too prescriptive, allowing individual departments/programmes to develop along their own lines, permitting a diversity of material to develop. This final point may be crucial given the lack of consensus on key concepts which prevails, as discussed above.
3. **If the problem of SD involves multiple disciplines, its solution should be multi-disciplinary, if not interdisciplinary.** The Higher Education Academy supports this view, which was somewhat reflected in the focus group and survey results, as well as through several private conversations with lecturers from outside economics. Discussions of this issue revealed several barriers to interdisciplinary work for economists. Three of the most significant are³:-
 - a. Other disciplines have a sense that economics as a discipline is not welcoming to other disciplines.
 - b. Similarly, some economics lecturers believe that economics has no limitations when answering questions of sustainable development. This attitude strikes lecturers from other disciplines as 'hegemonic' or 'imperialistic'.
 - c. Some economics lecturers felt insufficiently 'trained' in speaking with other disciplines.

These issues are not easily tractable. They suggest problems over the perception of disciplinary boundaries and what 'right' various stakeholders have to step outside those boundaries. Also, there is a clear perception of problems with communicating across disciplines. To address the above problems, The Higher Education Academy's Interdisciplinary Group, of which I am a member, has agreed to hold an 'interdisciplinary event' in December 2005 (see Appendix C for a full text of the proposal). The format of the proposal was based on another, to which my attention was drawn⁴. The event follows from the 'experiment' discussed in the paper, but with more outcomes. The draft proposal

³ Several other problems of working within an interdisciplinary context were identified. These included: institutional financial barriers and a sense of alienation for economists working within other departments.

⁴ See http://www.cdf.org.uk/SITE/UPLOAD/DOCUMENT/EIDAS_Final_Report1.pdf.

is to hold a day-long experiential Problem-Based Learning (PBL) workshop to which one lecturer from each of the disciplines represented in the subject centres would be invited. The attendees would be divided into groups of 6-8 people. Each group would be given the same 'problem'. Given its topicality, and given the welter of literature on the economic and social effects of so-called sporting 'mega-events', one possibility is to discuss the London Olympics; viz., to identify factors which would make the London Olympic project sustainable. Sustainable development, of course, entails to some extent the resolution of the trades-off between economic growth and ecological well-being. The London Olympic project embodies this clash well. It is also a concrete policy case under current discussion. This topic is ideal because the object of study is a complex, multi-faceted event with a multiplicity of economic, social and environmental effects, such as economic growth, transport infrastructure issues, social change and displacement, and the creation of pollution and other possible degradations of the London environment. Equally though, the Olympic project provides opportunities to design a sustainable event.

It is intended that the event will have several desirable outcomes. Principally, it is hoped that each subject centre will learn how other disciplines approach the same problem, how they relay their approach to each other and what the barriers are to communication. This would guide further research into how disciplines speak to each other. In addition, lecturers would experience how PBL might work in a classroom setting (a teaching method much touted by those involved in ESD). Further, subject centres can publish the results in various formats, focusing on particular aspects, including a discussion paper on how to approach the actual problem being discussed.

Of particular interest to the Economics Network, of course, will be any barriers the economist participating faces in dialoguing with other disciplines and how other disciplines respond to what the economist contributes. It is from this study that further work will be designed to assist lecturers in confidently participating in interdisciplinary work in the future.

Conclusion

HEFCE recently published a document outlining its approach to sustainable development in higher education. http://www.hefce.ac.uk/pubs/hefce/2005/05_28/

Our view is that the greatest contribution higher education has to make to sustainable development is through the skills and knowledge that its graduates learn and put into practice. Ironically this is the one area where good practice seems to be weakest. This points to an urgent need for HEFCE to support the development of curricula and pedagogy.

We are providing £1.1 million to the Higher Education Academy to address a number of specific priorities, one of which is developing a programme for identifying, sharing and augmenting good practice in learning about sustainable development. We will be asking the Higher Education Academy to ensure that its programme can be applied to HE delivered in further education colleges. More

information is available on the academy's web-site, www.heacademy.ac.uk under Thematic work/Curriculum.

Clearly, the Higher Education Academy will continue to play a pivotal role in helping lecturers embed sustainable development in the curriculum. In particular, the Academy will support financially interdisciplinary events and workshops, such as the one planned for December. This means that the Economics Network can continue working on the above measures to support the higher education economics community in making a substantial contribution to graduates becoming global citizens.

Appendices

Appendix A: Copy of E-mail inviting lecturers to be involved in the project

Dear [name],

I'm writing from the Economics Network of the Higher Education Academy. As you probably know, we support university teachers of economics in the UK.

According to your web page, you have a teaching and/or research interest in environmental economics, which is why I thought you might like to know about (and participate in!) our Education for Sustainable Development initiative.

You may be like me in that you care deeply about the ecological 'forecast' for the planet and find it frustrating to translate that concern into anything tangible (besides recycling, etc). More importantly, actually embedding sustainable development into the economics curriculum seems daunting and, for some people, it's impossible to know where to begin. Fortunately, at least regarding the area of economics education, we are now able to help you. :)

We've just received funding from the Higher Education Academy to do the following:

- *compile a list of all UK lecturers in environmental, development and growth economics
- *contact each of the above to find out if they are including SD in their teaching, and, if so, how they define SD
- *compile a list of UK lecturers whose research interests are in the area of SD and/or environmental, development, and growth economics
- *combine the above lists and invite those listed to join a mailing list to disseminate good practice, ideas, understandings, and to participate in workshops on ESD in economics

So, to this end, I'd like to find out your interests in this project. Please mark the sentences that apply to you. (You can do this by hitting reply to me, marking the sentences, then sending it back to me. Alternatively, you can delete the sentences that do **not** apply to you and send it back to me.)

I would like to be on a mailing list for economics lecturers interested in exploring sustainable development, and its role, in the curriculum. This would include discussing definitions and sharing ideas and information.

I would like to participate in one of the initial focus groups that would discuss the above (definitions, sharing).

I would like to be on a mailing list for those who teach environmental and/or natural resource economics.

I would like to be on a mailing list for those who teach development economics.

I would like to be on a mailing list for those who teach growth economics.

I would like to be on a mailing list for those whose research interests are in the area of sustainable development.

I would like to be on a mailing list for those whose research interests are in the area of environmental and/or natural resources economics.

I would like to be on a mailing list for those whose research interests are in the area of development economics.

I would like to be on a mailing list for those whose research interests are in the area of growth economics.

Some of these areas may overlap, of course. And if you are interested in being a part of a network of economists in your field, but *not necessarily interested in sustainable development*, please make a note of that, as we do realize that networking the areas has intrinsic value as well.

Please feel free to add any comments here.

Also, I'll be contacting [names of colleagues] from your university, but if you think I've left out anyone, please feel free to give me their names and e-mail addresses, or forward this message on to them.

Thanks for your time, your work and your concern.

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Appendix B: Survey on sustainable development

***Sustainable Development
Survey on Definitions***

DEADLINE: 16 MARCH

Privacy Note: Although we ask for your name and affiliation, this information is not disclosed to anyone outside the Education for Sustainable Development project team. Your words may be used in survey results reporting, but will in no way identify you or your institution.

Name _____

Institution _____

If your field is not economics, please state it here: _____

(If your field is not economics, please feel free to skip the questions regarding the 'economics context')

Before we show you some popular definitions of sustainability, we'd like to find out about your pre-conceptions about understanding sustainability.

- 1. When you hear or see the word "sustainability" what comes to mind? How do you define it? What feelings or questions or beliefs does it elicit from you?**

Use our resources wisely leaving some for our future generation

We will now show you a representative sampling of some of the myriad definitions of sustainability to get your reaction to them.

- 2. The most widely used definition of Sustainable Development (SD) is the one developed in the Brundtland report *Our Common Future*:**

SD is 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (*Our Common Future*, 1987, 43).

- a. What is your general reaction to this definition?**
- b. How useful would it be in the context of economics education? Please explain.**

This definition stresses the concept of *intergenerational* justice. We have no right to degrade our planet to prevent future generations from living as well as we do.

c. Is this what you get from the definition? Why or why not?

d. How useful is the concept of intergenerationality to economics education? Please explain.

3. The UK government's SD definition is as follows:

- Social progress which recognizes the needs of everyone.
- Effective protection of the environment.
- Prudent use of natural resources.
- Maintenance of high and stable levels of economic growth and employment.

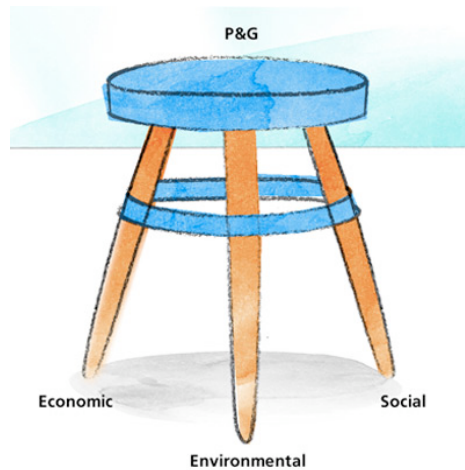
a. What is your general reaction to this definition?

b. How useful would it be in the context of economics? Please explain.

This definition has been criticised widely because it is ultimately not possible to reconcile high levels of economic growth with the scientific fact that we are living in a materially non-growing, closed system of which the economy is just a subsystem.

c. Do you agree with this criticism? Why or why not?

4. In the last few years, another definition has gained currency, especially in the business world. It is usually called the three-legged stool definition:

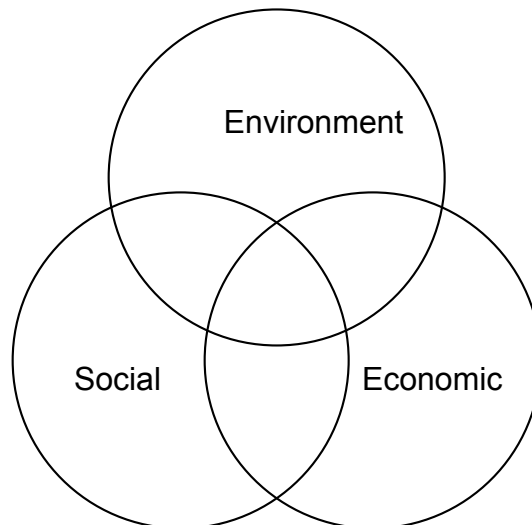


It stresses the interdependence of the three elements. If you take one leg away, the stool collapses.

a. What is your general reaction to this definition?

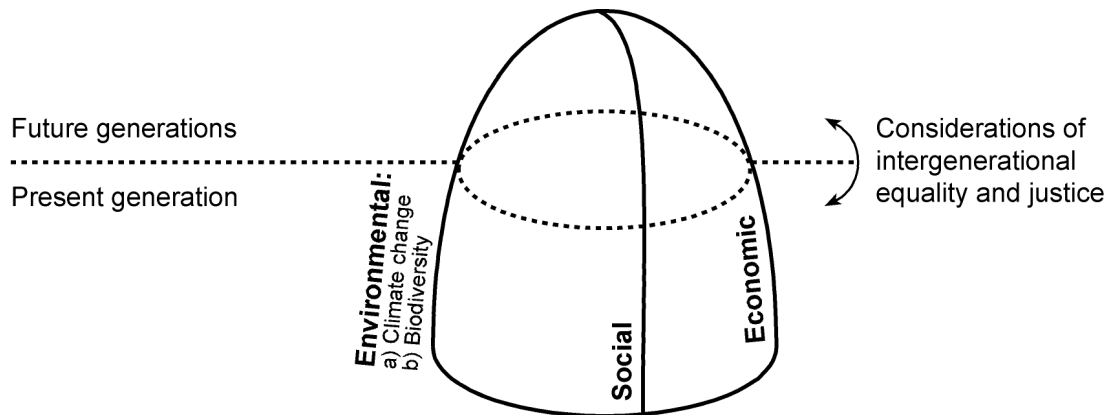
b. How useful would it be in the context of economics? Please explain.

The problem with this reductionist definition (which is often present as seen below), is that it, factually wrongly, assumes that all three elements are equally important and interact on the same level.



c. Do you agree with this? Why or why not?

5. An interesting further development of the three-legged stool definition is represented by the following figure. Even though it still doesn't give any notion of the relative dependence of different spheres from each other, it at least re-introduces the dimension of intergenerational equity from the Brundtland definition:

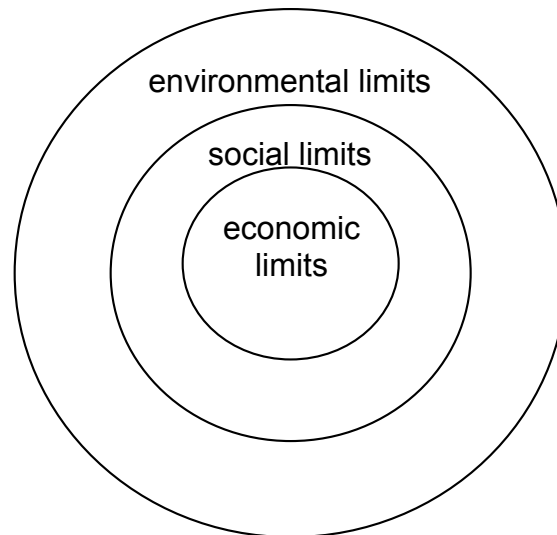


It also includes specific environmental concerns relating to various international conventions.

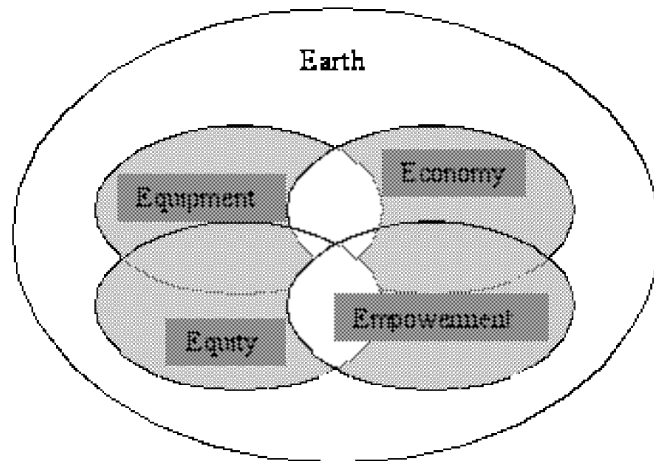
- a. **What is your general reaction to this definition?**

- b. **How useful would it be in the context of economics education? Please explain.**

6. The so-called 'Russian doll' definition address this problem by showing the hierarchical relations between the three elements. There is simply no life at all without the environment (planet earth), and the economy is also a subsystem of the social sphere.



- a. **What is your general reaction to this definition?**
- b. **How useful would it be in the context of economics education? Please explain.**
7. The following model again stresses the fact that all other elements are sub-systems of the ecosphere, but it tries to emphasise the interdependence of the subsystems. It also attempts to make more visible two other important subsystems (empowerment: the political system; and equipment: science and technology), which are crucial drivers for (un)sustainability:

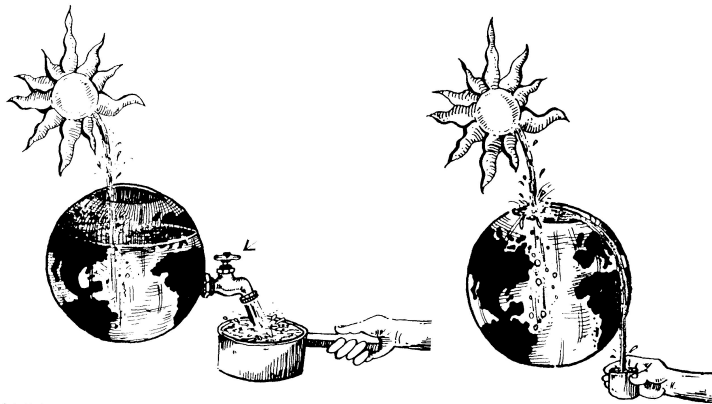


(The words inside say: Equipment, Economy, Equity, Empowerment.)

a. What is your general reaction to this definition?

b. How useful would it be in the context of economics education? Please explain.

8. The following figure illustrates very sharply the fact that we are living within a materially non-growing, closed system which is only open to energy inflow from the sun. The tap on the left-hand side symbolises technology, which is accelerating overuse of resources beyond sustainable limits.



This figure is a visualisation of the scientific laws underlying the so-called four system conditions developed by The Natural Step:

- *System Condition 1:* Substances extracted from the Earth's crust must not systematically increase in nature. This means that, in a sustainable society, fossil fuels, metals and other materials are not extracted at a faster pace than their slow redeposit into the Earth's crust or their absorption by nature.
- *System Condition 2:* Substances produced by society must not systematically increase in nature. This means that, in a sustainable society, substances are not produced at a faster pace than they can be broken down and reintegrated by nature or re-deposited into the Earth's crust.
- *System Condition 3:* The physical basis for the productivity and the diversity of nature must not be systematically diminished. This means that, in a sustainable society, the productive surfaces of nature are not diminished in quality or quantity, and we must not harvest more from nature than can be recreated.
- *System Condition 4:* We must be fair and efficient in meeting basic human needs. This means that, in a sustainable society, basic human needs must be met with the most resource-efficient methods possible, including a just resource distribution. (The Natural Step 1999).

a. **What is your general reaction to this definition?**

b. **How useful would it be in the context of economics education? Please explain.**

9. The last model, increasingly used in the UK, is the Five Capital Model. It also implies a hierarchy, because a capital which is lower down the list is dependent on the capitals listed previously:
- **Natural capital** is any stock or flow of energy and material that produces goods and services. It includes:
 - resources* – renewable and non-renewable materials
 - sinks* – that absorb, neutralize or recycle wastes
 - processes* – climate regulation.
 Natural capital is the basis not only of production but of life itself.
 - **Human capital** consists of people's health, knowledge, skills and motivation. All these things are needed for productive work. Enhancing human capital through education and training is central to a flourishing economy.
 - **Social capital** consists of the institutions that help us maintain and develop human capital in partnership with others, for example families, communities, businesses, trade unions, schools and voluntary organizations.
 - **Manufactured capital** consists of material goods or fixed assets which contribute to the production process rather than being the output itself, for example tools, machines and buildings.

- **Financial capital** plays an important role in our economy, enabling the other types of capital to be owned and traded. But unlike the other types, it has no real value itself but is representative of natural, human, social or manufactured capital, for example shares, bonds or banknotes.

Sustainable development is the best way to manage these capital assets in the long term. (developed by the Forum for the Future [www.forumforthefuture.org.uk]).

- What is your general reaction to this definition?**
 - How useful would it be in the context of economics education? Please explain.**
- 10. Do you know of any definitions of sustainability that you prefer over the ones you've seen here?** If so, you can write them here, or give us a general reference to them, or say that you'll get back to us via e-mail with the information.
- 11. Lastly: Assuming an adequate definition was used in the curriculum, what do you think the barriers would be to embedding sustainability principles in the curriculum?** (You may indicate as many as you like.)

- Lack of staff expertise
- Perceived irrelevance by staff
- Perceived irrelevance by students
- Insufficient time to update courses
- Perceived lack of academic rigour
- Financial restrictions
- Institutional structure
- Confusion over what needs to be taught
- Benchmarking requirements of the existing course
- Lack of inspiring examples which might be adopted
- Other:

Before we let you go, please answer the following, as it will direct us for the next survey.

***Do you now or have you ever included principles of sustainable development (however defined) in any of your courses?**

***Thank you for your time and experience in helping us with this.**
The answers given in this survey will be compiled and then used for*

the focus groups. After the focus groups, you will then be shown the results and asked for feedback.

Appendix C: Proposal for Interdisciplinary Event

This is a direct copy of the proposal.

TITLE OF EVENT: "Disciplines in Dialogue"

INVITATION

One lecturer from each discipline will attend. Invitations can go out by mass e-mail or by selection.

- (1) experiential Problem-Based Learning (PBL) workshop to demonstrate how PBL could work in your classroom
- (2) exercise in how disciplines speak to each other and what the barriers to this happening effectively are
- (3) a (seminar) on how a particular sustainable development project is approached in a multidisciplinary way

The day will be tape recorded for the purposes of (2) above.

FORMAT

1. Tell the participants what the format of the day will be.
This will include the time that lunch will be delivered. It will be up to them if they eat and work at the same time or take a break or whatever.
2. Ask participants to write down their thoughts on interdisciplinary/multidisciplinary work (good/bad/confusing aspects). Collect these.
3. The question is given. (See section below on QUESTION.)
4. They then have ten minutes to brainstorm on a piece of paper about what they consider the most interesting aspects of the problem are and what the most problematic features are.
The carbon copy of this paper is collected.

Then they are asked to define the problem on a piece of paper. (time limit?)
The carbon copy of this paper is collected.
5. Then they are asked: What steps would you take to answer the questions and deal with the issues? What resources would you need? Who would you need to talk to?
The carbon copy of this paper is collected.

Now the dialogue begins.

6. How did you define the problem?
Go around the room and have people say what they think.

See if there is a consensus or can be a consensus about how the problem is defined.

7. After this exercise, a short questionnaire will be handed out, allowing participants to reflect on that exercise. What was enjoyable? Where were the problems and frustrations?

8. Go around the room to find out what each person's action plan would be. Look for overlap and places where work could be done collaboratively, or where it feeds each others'.

9. Ask them to come up with something written that they could present to whomever (the Olympic Committee) about what needs to be done.

10. After this exercise, a short questionnaire will be handed out, allowing participants to reflect on that exercise. What was enjoyable? Where were the problems and frustrations?

(I would assume 6, 8, and 9 would take quite a while.)

11. Jenny could then facilitate discussion on how the whole thing went and do her slides about using this method in the classroom.

QUESTION

]I am not sure how this should be worded.]

You have been hired as a consultant from your discipline to help answer the following question:

What needs to be considered for London to host *sustainable* Olympic games?

(We could include a two-page case study based on the actual proposal. And we could also include the government's current definition of sustainable development.)

Outcomes:

1. We learn how each discipline approaches the same problem, how they relay their approach to each other and what the barriers are. This would guide further research into how disciplines speak to each other.
2. Lecturers experience how problem-based learning might work in a classroom setting.
3. Subject centres can publish the results in various formats, focusing on particular aspects, including a discussion paper on how to approach the actual problem being discussed.