

B6. Active learning in environmental and sustainability management through the embedding of 'live' consultancy projects within teaching programmes

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All organisations have impacts on the environment and society, through on-site activities, supply chain activities, and as a result of the products and services delivered by those organisations. Environmental management can contribute to sustainable development strategies by seeking to control, monitor and minimise negative impacts whilst enhancing positive impacts. Increasingly, environmental management practitioners are addressing the full range of direct and indirect impacts organisations may have on the environment and society, from local through to global levels.

Aims

This case study describes a consultancy exercise in which students work with businesses to improve aspects of the firms' environmental management whilst developing their own vocational and transferable skills. The aims are:

- For students to develop an understanding of the environmental and social impacts of a local medium sized business
- For students to visit that business, to observe on-site activities and to have the opportunity to interview staff (from the factory floor up to senior management)
- For students to negotiate a scope of work with the business organisation, which provides the business with practical support in relation to the development of an ISO14001 environmental management system
- For students to get hands-on experience of conducting a sustainability review of company activities (looking at impacts on environment and society), to review the legal and policy context for sustainable development for that organisation, and for the students to provide

recommendations in the form of objectives and targets to the organisation.

Rationale

The rationale for this is based on the benefits of placing students in an active learning environment, which in this case is a live business environment. Students can observe directly the activities of manufacturing environments and commercial activities, and they can talk directly with employees on industrial sites. Whilst in the first instance, the benefits accrue to the students, the businesses themselves also benefit, as they are keen to get a third party perspective on their own activities, and they welcome the findings and recommendations of the students.

Implementation

The first step is to identify a local business organisation which is seeking to develop an environmental management system such as ISO14001. An alternative choice of organisation would be one which in the first instance would like to identify and evaluate its environmental and social impacts, and then consider recommendations to improve performance. This can be a business from any industrial sector; the only requirement is that the company actually wants to address its environmental and social impacts, and that the management is content for students to visit the site and speak with staff.

The next stage is to confirm the scope of work which the students will address with the company, and get agreement that the outputs of the work are relevant to the company, and a visit by the students to the site. The company should also confirm that it is willing for the students to interview a selection of staff. These will normally include representatives from the factory floor through to the environmental management team and senior management representatives. One or more dates will need to be agreed for the site visit and staff interviews.

Next, students need to be briefed on the area(s) of interest of the company. Students should respond by preparing a brief which outlines their perspective on the required scope of work, specifying research methods, timing and outputs. The tutor will then need to arrange one or more dates for a site visit, and will need to make arrangements for transport of students to the site. Relevant risk assessments will also need to be completed.

Following the site visit and interviews, students require tutor support to analyse data, identify further data requirements, and to structure findings in the appropriate way. It may sometimes be necessary to forward further questions to the company, and for the students to work together as a team in collecting certain types of data.

Students will normally prepare results and recommendations in the form of written reports, and also deliver them as presentations. Wherever possible, representatives of the company should be invited to the presentations, completing the full active learning experience of project development and delivery.

Sustainability focus

Students achieve a learning experience where they have addressed the environmental and social aspects of sustainability. The economic dimension is addressed at the micro level, as students experience the commercial and financial relevance of the ISO14001 work to the company. At the macro level, students must also consider broader socio-economic impacts of commercial activities, including impacts on the workforce, the wider community, and impacts throughout the supply chain.

The participating company receives a range of advice in relation to how it can change its working practices or even the design and delivery of its products and services, to reduce environmental and social impacts.

Active learning

Active learning is embedded throughout the module. The programme of work enables links to be made between thinking, doing and reflection through a continuous focus on the needs and issues facing a commercial organisation. It is also innovative as a way of linking theory and practice by giving the students the opportunity to apply knowledge, skills and understanding to a live organisation, to a real site and to a real workforce.

The active involvement of external agencies is key to the success of this approach. In addition to the client organisation, guest speakers who are able to make further contributions to the students' learning are normally invited to contribute to the classes. Recent contributors include representatives of the Environment Agency, other local regulatory bodies (for example, the County Council), Envirowise and other environmental advisory bodies.

Feedback

Student evaluations focus on the positive outcomes of experiencing a real industrial environment, and being able to participate in a real live project. Students are also positive about the experience of conducting real environmental work whilst gaining a strong understanding of the commercial relevance of that work. Students are also keen to update their *curricula vitae* immediately, as the active learning activities provide immediate and vocationally relevant work experience.

Case study businesses have said that they value the third party perspective on their operations. Many businesses stay in touch with the University and provide progress reports, commenting on the ways in which they have implemented the recommendations suggested by students, and finally reporting back when they achieve certification to ISO14001. Companies are always keen to invite students back to follow-up projects and to explore new opportunities for improving environmental performance and sustainability whilst providing opportunities for students to apply their developing knowledge and skills.

Strengths and weaknesses

The main strength of the approach is its highly vocational focus which generates a positive active learning experience for students engaging with active learning. The participation of local businesses in the support of student learning is a benefit, and the companies in turn profit from the advice provided by students.

There are potential weaknesses but to date these have been avoided successfully. They include possible disruption to the project if company management changes suddenly; possible health and safety issues, although thorough risk assessment should minimise these; and occasional issues of confidentiality which can be difficult to manage with a student cohort.

Programmes

This approach has been used successfully at both undergraduate and postgraduate levels. *Environmental Management in Organisations* is an undergraduate module at Level 2 on the Environmental Management and Environmental Science programmes. Most of the students are under 25 with limited work experience. By contrast, *Environmental and Sustainability Management Systems* is a module at postgraduate level and most of the students are mature, most usually aged between 25 to 35. Most of these

latter students have a rich career history, and enjoy applying a range of previously acquired transferable skills into a new working environment.

Key words:

ISO14001; environmental management systems; corporate responsibility; active learning; knowledge transfer; sustainable development

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