Enhancing graduate employability skills through environmental consultancy experience

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Abstract
An environmental consultancy teaching programme was successfully piloted in collaboration with a number of regional employers. Employers and current students contributed to the design process via focus groups with academic staff. Subsequently, employers developed content for a test series of environmental consulting workshops attended by ~50 level 6+ students. Evaluation evidence has shaped a full consulting module now in process for first delivery in 2012/13. The module will capture the distinctive nature of consulting in a range of contributing businesses (multi-national, SME, independent) and students will have realistic exposure to the emphasis on commercial and soft skills in this sector.

Keywords: engineering, consulting, consultancy, employability, employer engagement

Background
Employers consistently report that Southampton graduates are notable for their ability to take theory and apply it confidently in practical circumstances. This project was a platform for those core graduate attributes to be further enhanced in the specific field of environmental consultancy, where we have a range of long-term employer links. As Arlett et al. (2010) discuss, it is well understood that developing existing connections is a productive route to increased employer engagement with the student experience. In a wider context, this project is in tune with the recognised need that ‘engineering degree programmes must keep pace with the changing requirements of industry’ (Graham, 2010, p. 1) but addresses explicitly the enhanced soft skills expectations of consultancies (Hecker, 1997). One advantage of focusing on consultancies is that the composition of these organisations makes it relatively easy to ‘present role models to exemplify the many positions open to technical graduates and the attractiveness of the work’ (Becker, 2010, p. 364).

Rationale
We sought a mechanism to increase our engagement with consulting companies and embed this into our curriculum. We aimed to enhance student experience across a very large Faculty by building on our experience from four previous small initiatives: an environmental management systems course with existing close links to regional clients, an acoustic consultancy pilot project focused on providing a professional consulting service to community/public bodies, a series of consultancy skills ad hoc seminars, and our Undergraduate Ambassadors scheme that offers an early taste of a profession (in this case, teaching).

This project offered multiple benefits. On one hand, we were aware that a number of employers were interested in closer links and even direct input to our curriculum. On the other, students who had been involved with our earlier projects reported that the experience had often been career-shaping. By providing a mechanism for these factors to connect, we would be investing in
enhanced student employability, the development of long-term employer relations and an employer resource base, improved understanding of drivers between the higher education institution (HEI) and engineering employers, and novel curriculum provision.

**The approach**

We began by expanding our knowledge of regional environmental consultancies, using a paid student internship to develop a database of employers and to map their engineering and related specialisms against our curriculum. We then invited a relevant selection of these employers to a staff/student/employer focus group to explore the specific issues relating to delivery of a consultancy-based course. The focus group included ten representatives from multi-nationals and SMEs with wide-ranging experience across the field of environmental engineering consultancy, from acoustics to ecology via traffic management and urban design. This diversity was deliberately representative not only of the consulting business environment, but also the range of specialisms of our students on the diverse range of engineering degree programmes within our faculty. Perhaps predictably, at this initial stage a number of independent consultants (generally sole-traders) also expressed interest but were less able or willing to invest their personal resources. As the pilot structure emerged this situation changed, and the independent sector was able to make specific time-limited contributions.

As Hecker discusses, there is expectation from consulting companies of well-rounded engineers with nascent client skills and at least an understanding of the importance of other soft skills. This will be true for other employers, but is more critical for consultancies. Our focus group confirmed this view independently. In summary, the consensus was that we needed to address two core issues: i) that consulting companies have distinctive ways of operating, and ii) that students should be exposed in a realistic fashion to the requisite commercial and soft skills as deployed in consultancies.

Employers also reported their common experience that using technical skills in the dynamic consulting environment definitely suits some graduates more than others. Thus, in terms of our curriculum offer, the strong view was that any module in this field should be optional rather than core.

After the focus group, we were able to scope a potential module outline with a view to delivering a pilot version. This pilot took the form of a series of weekly workshops facilitated by the HEI team but led by consultants and normally based around one or more case studies from their business operations. Topics were pre-agreed with the HEI team to cover a range of business models and operating fields and the HEI team acted as advisors on teaching and learning issues where appropriate. The HEI team provided a short brief covering suggestions for structure, content and informal assessment, but this was deliberately non-prescriptive as we wanted to encourage consultants to reflect their own organisations’ distinctive needs as much as possible (i.e. to address in their own contexts the core issues identified in the focus group). Notably, consultants put considerable effort into providing substantive real-life examples within the limits of commercial confidentiality. In practice, this meant that some (but not all) consultants asked directly for help with presentation strategies and options for inclusion of learning outcomes. This depended heavily on their previous experience in education and/or training contexts. Most of the original focus group businesses were represented in the pilot and independents were also keen to contribute at this latter stage. The only drop-outs between the focus group and delivery stages were due to timing and have since re-confirmed long-term interest in the project.

Topics in the pilot included:

- Highways engineering
- Sustainable development
- Ecological assessment
- Environmental consulting as an independent
- Large-scale power production site design
• Noise assessment and mitigation.

After the pilot, we reflected on feedback from both students and employers. This allowed a draft module description for full submission to our quality assurance process, based on the pilot framework of a series of flexible, facilitated workshops led by consultants managed by the HEI team within a conventional semester-long course structure. In order to move from the pilot to the full module, the HEI team will contribute framing sessions on general consulting issues and practice. We aim to deliver a consulting module available to all level 6 and 7 students in the academic year 2012/13.

Assessment

The pilot module was not formally assessed, but models of assessment for the longer-term were discussed by students, academic staff and the employers. We were particularly interested in how various models of employer-led student assessment might work in practice and, to this end, each consultant offered an element of informal assessment as part of their workshop. These included short presentations of web-based research, guided assessments of case studies, group resolution of real-life consulting dilemmas, estimates of time and costs and questionnaire-based exercises. The consensus from all three groups was as follows: a simulated consulting project should form the basis of substantive assessment, employers should contribute real-life projects to the simulation, students should be enabled in groups to take control of the tasks required to respond to the simulation and employers should be involved in the grading (although academic staff should set the scope and criteria of formal assessment).

Evaluation

We asked both students and employers to evaluate their experience of the pilot. In the case of employers, we were interested in:

• the experience of preparing and delivering their workshop, both personally and professionally
• the aspects/content that worked particularly well
• the level of resource commitment they would offer
• business motivation for being involved.

In summary, the responses confirmed that a case-study approach works best and, as we discuss below, a commitment of two to three days per year would be acceptable.

Greg Harris from Arup noted that ‘it is interesting to get another perspective on our work. We do it day in day out, and it is only when you sit back and think about explaining an element of it that you get the opportunity to review it and think about it objectively. I am enthusiastic about my subject and would like to think I can encourage students to consider it as an area they may wish to go into. Most useful.’

Another consultant commented: ‘Personally, it’s good to step outside the everyday world of projects and commercial management and share my experiences of the profession and what skills I think are of most importance. From the corporate point of view it promotes the work of the firm and raises awareness to potential future recruits or clients.’

Gill Smith from URS summarised the value of her involvement as follows: ‘I feel it is essential that big firms like ours support local universities to enable them to help produce students with the skills we need. […] Hopefully by getting involved in schemes such as this we can bring a real perspective to the courses and help students to understand the very latest market requirements. […] In essence I think the firms that benefit from the students’ education should support the lecturers and students with up to date information.’

Students clearly appreciated being able to engage with consultants in the semi-formal framework of the workshop series. The range of consultants (from large corporations such as URS to self-employed independents) was a valued feature. As well as asking them to evaluate individual
sessions, we asked them to reflect on how the pilot might map onto a “live” module and to highlight aspects that were important for development.

*The value of professional experience:* ‘Being taken through examples of real-life scenarios (an opportunity to think about it ourselves, but most importantly hearing what the consultant thinks from their own experience).’

*The flavour of real consulting:* ‘Very good delivery, authentic feel of consultancy work, even down to short deadline and deadline being moved forward!’

*The ability to work across disciplines:* ‘New experiences – I was interested in how the sustainable and the engineer students communicate together – this skill is vital to me.’

*Inspiration and confidence-building:* ‘Seeing how our skills can be integrated into our careers.’

In terms of career choices and the importance of role models, it was widely noted, particularly but not exclusively, by the female students that the equal number of workshops led by male and female consultants was refreshing.

90% of student attendees declared that they would select a module based on this pilot if it was offered as part of their degree.

Employers were clearly keen to be involved and their general motivations accorded with The Royal Academy of Engineering and Department for Business, Innovation and Skills’ observations that ‘without exception, businesses indicated that their activities were almost always highly focused on different audiences, and for very solid and articulated business reasons’ (Bhattachary et al., 2011, p.17). They wanted to engage with the process of understanding the different needs of education and business and were also motivated by the recruitment aim of gaining exposure to a new round of graduates. In addition, several employers reported that their involvement was part of their organisation’s objectives and obligations for wider community engagement.

There were two other motivations that were important for our particular employer group. Firstly, at a personal level, consultants reported that their contribution was seen positively in their professional contexts. Secondly, a number of the employers were Southampton alumni with a strong sense that they wanted to give something back to the institution.

**Discussion, summary**

It has been instructive to discover that we tend to underestimate the level of interest and willingness of regional employers to commit resources to higher education. Employers are prepared to work with us on curriculum design, delivery of educational content and shared assessment. In general, our contacts indicated that a direct curriculum-related commitment in the order of two or three days per annum was, in their view, a worthwhile investment, both in terms of HEI/employer relations and in term of access to potential employees from the student cohort. It was also noteworthy that some consultants took the even longer view that current students may be future clients as their careers develop in engineering.

The Faculty of Engineering and the Environment brings together a wide range of engineering disciplines, including acoustical, aerospace, biomedical, civil, computational, electro-mechanical, environmental, geotechnical and materials engineering, energy technologies, ship science and transportation. Although the pilot programme was billed as “environmental consulting”, students from across the many faculty disciplines signed up, reporting that they were able to map specialist points onto general consulting issues. Given our large and diverse student base, it was very important to us that any future module would be accessible to all engineering disciplines, and this does appear to be the case.

There is a short background podcast available at [www.soton.ac.uk/engineering/news/2012/02/06_expert_advice_for_students.page](http://www.soton.ac.uk/engineering/news/2012/02/06_expert_advice_for_students.page)
Further development

The project has led to the development of an optional, credit-bearing Consulting for Sustainable Development module available to level 6 and 7 students in Southampton’s Faculty of Engineering and the Environment. The advantage of a diverse pool of employers is that specific topics in any given year can be managed by the HEI team who retain control of the overview. At the time of writing (April 2012) it is in the QA process for provisional first delivery in Semester 2 of the academic year 2012/13.

References


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