

1. Project Title

Working with Industry to Create Collaborative Research Opportunities

2. Keywords

Problem-based learning, industry, partnership, construction management, project management.

3. Summary

This project set out to pilot in 2007-08 a research-centred scheme in a second year UG module, namely U33529. A group of six students volunteered for the scheme which centered around a research project to determine whether refurbishment was more 'environmentally friendly' than new build. This pilot scheme, together with student feedback, is reported here. It determines whether the scheme should be rolled-out to the whole U33529 cohort in 2008-09.

4. Activities

Work-packages 1-4 and associated activities were undertaken from the start of the project in October'07 to date. They are outlined below:

4.1 *Work-package 1 (WP1): Map the match (Matrix)*

The main activities of WP1 were identifying staff expertise/skills and topical issues for staff, and determining students' knowledge and skills. In a similar vein, expertise and skills that were inherent in our Professional Liaison Group's (PLG) and in the companies' that provide placement opportunities for our students were to be identified, as well as issues topical for them. It was assumed at the proposal stage that these activities would yield one host company for the pilot scheme and the issue that the pilot scheme was to focus on.

For practical reasons, our bi-annual PLG meetings were used for developing the matrix which showed knowledge, expertise and skills of PLG members, staff and students. It was not possible to come up with a similar matrix for over fifty companies that offer placements to our students. In the event, this was not necessary as comparing refurbishment projects with new building projects in terms of their environmental friendliness emerged as a topic which interested one of our PLG members who was willing to host this pilot scheme, and one which was topical for the students.

I held one meeting with this PLG member in December'07 to decide the way forward. He was very enthusiastic and offered two of his company's refurbishment projects as case studies for the pilot scheme. I followed these discussions in early January'08 in order to make sure that this company was still on board.

4.2 *WP2: Re-design the U33529 module*

The above discussions ran parallel with WP2. A literature review on research-based learning for undergraduate students was undertaken. It yielded twelve methods of engaging students in research, including problem-based learning (PBL), assignments that involve elements of research and undergraduate publication. PBL, supported by assignments that involved elements of research, emerged as the most appropriate approach to adopt in this pilot scheme. The main reason behind this was the opportunity PBL provided to keep the pilot scheme and the activities that

the remainder of the cohort were undertaking similar. This also enabled the adoption of the same assessment strategy for the pilot scheme and the remainder of the module. As a result, it was possible to keep the learning outcomes broadly similar whilst introducing research-focussed assessment criteria for the pilot scheme.

4.3 WP3: Pilot the scheme

The scheme was introduced to the students at the beginning of a compulsory European Field-trip in late-January'08 by an outline brief of what would be expected of students who volunteered. Six students who came forward first were included in the group that was to conduct it. At this stage, it was assumed that the PLG member who had agreed to host the pilot scheme was still involved. This condition was to change during the first week of the semester. It resulted in the need to secure another host company which was in place by Week 4.

The students were asked to conduct a research project in order to determine whether refurbishment of existing buildings was a more 'environmentally friendly' approach to providing space than new buildings. It was suggested that their first step should be to determine the 'framework', which they would use to make this evaluation.

The students were supported by weekly lectures that focused on sustainability issues and weekly tutorials where they could discuss their progress with the module leader. Their progress was assessed with an Interim Presentation in Week 7 and a Final Presentation and Group Portfolio in Week 11.

4.4 WP4: Evaluate the pilot scheme

An open-ended questionnaire that was sent to the students at the end of the semester was the main means of data to evaluate the scheme. The low response rates meant that original questionnaires had to be followed up by at least one or sometimes two reminders. In the event, five out of the students responded to our requests for feedback.

All of the five respondents agreed that enhancing their research skills and the opportunity to apply the findings of their research in practice were among the factors that motivated them to get involved in the pilot scheme. All but one of the respondents agreed that enhancing their knowledge of the research process and anticipation of better dissertation performance influenced their decision to take part in this scheme. Interestingly, only one student agreed that their involvement would increase their employment prospects by a University while this number rose to three when they were asked whether they thought their involvement would increase their chances of employment in the industry.

It was motivating to see that four of the five the respondents felt they developed/enhanced their research skills upon undertaking the U33529 module. Students were also quite positive about the skills that they developed and/or enhanced. At least three of the five respondents agreed that they some skills that were required by the industry, including information search and retrieval, data collection, critical analysis of facts. Students identified improved research skills and gaining new knowledge as the main benefits from their involvement.

The main area of improvement that the students identified was the provision of more learning materials on the research process and undertaking research.

All students either agree or strongly agree that the scheme was 'very beneficial' and that it should be offered every year.

5. Outcomes

To be discussed in the final report.

6. Implications

The students found the pilot scheme very beneficial. They suggested it is offered every year and more companies are involved in this scheme. The need to find an alternative host company has put strain on the module leader. Finding companies who would be interested in the scheme and sustaining their interest are the main challenges to the module leader. However, I am willing to identify ways of overcoming these barriers. I am working towards starting discussions with London Borough of Newham, where last year the rest of the cohort undertook a project, and with members of our PLG to see whether they would be willing to 'host' the rolled out scheme.

7. Resources

To be discussed in the final report.

8. References

To be provided with the Final Report.

9. Contact details

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10. Supplementary information

N/A at this interim report stage.