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# Using external live projects with final year undergraduates

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## Abstract

This paper examines a group project module on the final year of an Information Technology degree programme at St Martin's College, now the University of Cumbria. The paper outlines the nature and purpose of the module and then discusses a research project that has been scrutinising different aspects of the work. It offers some further reflections on how the module is implemented and managed. The paper provides an informal case study of a module that has a clear and explicit employability dimension. It also provides a case study of novice researchers becoming involved in the publication process through reflecting on an aspect of their teaching.

## Introduction

This paper is based on experience from several years' involvement in running a Group Project module in the final year of Information Technology (IT) related degrees. Currently, this module is offered on the Information Technology degree programme at St Martin's College, now the University of Cumbria. The author previously taught on a similar module at the University of Central Lancashire (UCLan).

Students form their own groups of three or four participants. Each group is responsible for finding an external project that satisfies some minimal criteria concerning the nature of the work, the group's relationship with the client, and the relevance of the project to the course. The work to be undertaken must be a project in the sense that it has a beginning and an end, with identifiable stages taking place in between. There must be a clearly identified client who initiates the project, monitors its progress, and receives the completed work at the end. Although some projects are purely exploratory in nature, they are generally expected to result in a usable product. The work is unpaid. Some years ago, most projects involved database development but latterly the tendency has been towards web site development.

The group project module is a 15 credit level 3 module at St Martin's College, now the University of Cumbria, and was of an equivalent size at UCLan. This dictates the scale of the project and the nature of the write-up. A group of four students will spend 4x150 hours on the module. This allows the project to become quite substantial. The project is written up in two documents, one document is a group report written for the attention of the client; the other is an individual report prepared by each student for the attention of the tutor. The individual report is assessed making direct use of institutional generic assessment criteria. The group report is more problematic as it is not primarily written for an academic audience. It does include a mandatory appendix setting out the rationale for the approach adopted and detailing the group's working methods, but the remainder of the document is assessed in terms of its fitness for its purpose.

## The research project

The module has been the subject of a series of research papers (Greenwood, Walter and Thwaites (1997); Walters, Greenwood and Thwaites (1999); Greenwood, Walters and Thwaites (2000); Greenwood and Walters (2002); Walters, Greenwood and Ritchie (2006)). These share a research framework which divides students' activities into three areas, managing the project, performing project activities, and developing an understanding of the problem area. These three areas are all observed from three points of view, the student, the client, and the academic. Thus there are nine 'cells' within which discussion can be focused. The research to date has concentrated on the student view of project management and project activity.

The research was motivated by a number of factors that emerge from running the module. There were initially two key issues. From the student point of view, there is a risk that the module does not sufficiently reward the effort they put in. Although it is important that students meet their client's needs, the happiness of the client is not a key factor in determining grades. In order to meet the assessment criteria, students have to reflectively demonstrate their growing knowledge and understanding of what they are doing. The differing perceptions of the project by clients and students provided one starting point for the research. The other key factor was a widely held view that the group project marks were disproportionately high compared with other marks on students' profiles. This was not borne out by evidence - other modules had a greater impact on profiles—but other related issues include the performance of weak students in strong groups and vice versa.

In previous research on the module, Greenwood et al (1997) related the students' project work to action research (Carr and Kemis, 1986) and to experiential learning cycles (Kolb, 1984). Walters et al (1999) continued this theme, going into more depth in certain areas and specifically addressing the use of the project to teach systems analysis. Greenwood et al (2000) considered the cross-cultural aspects of group project work. That study used the dimensions in Hofstede (1980) to locate issues that arise when comparing the working methods of groups from different cultural backgrounds and also within multicultural groups. The principal cultural factors in that study were ethnic and national; if the work were to be continued, it would be interesting to examine the impact of the urban/rural divide. Greenwood and Walters (2002) addressed the grading issue and found that the data was inconclusive. They also introduced early findings of the student survey work that formed the basis of Walters, Greenwood and Ritchie (2006). The student survey was undertaken in two stages. An initial group discussion (stage 1) was held to determine the topics to be included in a questionnaire (stage 2). The questionnaire consisted of a series of questions to be answered by indicating strength of agreement on a scale of 1 to 6. Attention was drawn in the paper to areas where students tended to agree with each other and other areas where the results were more equivocal.

In the questionnaire, students were offered statements about groups, clients, and tutors. For example, students tended to agree that a good group has members who were reliable for the client, and a good client has clear requirements. They were equivocal about whether a good client needs a good understanding of system design methodologies, and whether the client's view of students' individual effort is important in the setting of grades.

### **Practicalities**

Overall, the module is considered to be a success. However there are a number of practical issues that arise as the module progresses. The projects often become extremely engaging to all those involved. This is one reason that clients are excluded from the assessment process but it has also proved necessary to have the first marking of the projects undertaken by a tutor not otherwise engaged in the project. When the module was first introduced, the intention was to also have the second marking done at a distance, but experience suggests that this is in fact better done by the tutor who supervised the project. Where the first and second marker are both working 'cold', there is insufficient information about the project's history for marking to be undertaken fairly. Another issue with the engaging nature of the work is that it can grow beyond the scale expected for a 15 credit module. Staff and students must remain diligent to this risk.

A number of regulatory issues can arise with group project modules. For example, the group work aspect of the project is so central to the module that 50% of the grade is awarded for this. That can lead to questions about the wisdom, or even legality, of awarding such a significant mark on a group basis. The amount of work may suggest that the project should be a double module, but double modules can disadvantage students who fail the module where there are limits to the number of credits that can be condoned or compensated. An issue which is specific to the new Flexible Framework at the University of Cumbria, is the prescriptive nature of the employability curriculum. That would suggest that a work-based project module belongs in year 2, but this module would not work there because students do not have sufficient knowledge or experience at that stage in the course.

Other questions that are asked at conferences and validations concern the relationship of the group project to related areas of the curriculum. For example, there are similarities between the project and a dissertation. It could therefore be asked whether the project could take the place of a dissertation if the regulations required a dissertation. Alternatively, if students take a dissertation and a group project module, there is scope for the group project to provide data for the dissertation but this would have to be managed carefully in the light of concerns about gaining credit in two modules for the same work. Where students have undertaken a sandwich placement, as at UCLan, there is a question as to what the group project adds to the placement

experience. This is one reason for emphasising the group aspect of the work as placement work is not normally done by groups of students. Also, there is more emphasis on the project as a project. Although sandwich students are encouraged or expected to engage in project work, many placements in fact involve participation in ongoing activities so experience of finite well-defined projects cannot be guaranteed.

Students need to be adequately prepared to engage with this module. It is unusual in that it is based on a live project—it is not an academic exercise taking place under controlled conditions. It is also unusual in that it has a 50% group component in the assessment. At UCLan, this was not such a big issue as students had already completed a sandwich year. At the University of Cumbria, preparatory work is built into other modules. For example, several assignments involve reflecting on an activity that was done in a group. Other assignments involve students in identifying actual projects or ongoing developments within local organisations.

### Conclusions

The publications from this research all relate to the work done at UCLan. There is clearly scope to continue by comparing the work done in the two institutions and using the lessons learned from this to draw lessons of wider applicability. There are differences between the courses at each institution. At UCLan, the module was compulsory in the fourth year of a sandwich degree, whereas at the University of Cumbria it is currently optional and the course does not include a sandwich year. The UCLan course is offered in the Business School and has a strong business dimension to it, whereas the University of Cumbria course falls squarely within the QAA subject benchmarks for computing.

The module is well-received and has benefited from the research project. In addition to facilitating reflective practice, the research project has allowed novice researchers to commence publication. Where these involve presentations, the audience always appears interested in the work. Depending on the context, this interest can be in the project as a means of teaching IT, or the practicalities of running the module.

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