

STUDY VISITS: THEIR INTEGRATION INTO THE CURRICULUM THROUGH ASSESSMENT AND INCREASED STUDENT LEARNING.

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Introduction

Recently, there appears to have been a general decrease in the number, length and intensity of study visits in built environment courses. This has been due to a number of factors, such as increasingly onerous health and safety issues, increasing student numbers, financial costs and the increased workload of staff.

This paper will look at an example of a study visit undertaken each year by staff and civil and structural engineering students in modules in Architectural Design at Heriot Watt University, and relate the specific issues to general lessons which could be applied by others.

It will describe the integration of the visit into the curriculum, assessment methods, approaches to teaching and learning including peer group learning and collaborative teaching, its benefits and drawbacks, and the practical aspects of organising a study visit.

Other staff and trainers can use study visits to increase the level of interest and participation in a built environment course, and can use the value of the example of this particular, collaborative, type of visit to examine how they might come together with related disciplines to make joint visits.

Description of the course and the relationship of the visit to the course

The visit is a stated component of a course in Architectural Design for final year BEng and 4th year MEng civil and structural engineering students. It builds on earlier courses introducing architectural design, to bring architectural awareness and knowledge to students who will be chartered engineers and in many cases working collaboratively with architects in their professional lives. The aim of the architectural design courses is to fully integrate the two subjects – architecture and engineering. These courses are described fully in T. M. Chrisp, L. Wilson, J. Cairns (July 2002).

It is resourced primarily by an architect tutor with support from and interaction with a structural engineer tutor. It includes lectures on the development of 20th and 21st century architecture and engineering, a study project and a design

project with group tutorials based round these topics, and a written examination in which the students write essays on two topics out of six issued earlier, and again discussed in class through seminars. These essays, and the preparation for them, provide a balance in a course which is mainly assessed through drawn, numeric and report format submissions.

The visit itself

In the Department of Civil and Offshore Engineering, the six day November study visit to Barcelona has taken place for 6 years with civil and structural engineering students and engineering tutors, and for the last two years with tutors from two disciplines – architecture and engineering. Students from other related courses who would find the visit valuable are also able to join the group.

The city becomes a learning resource for the course. The group travels together and stays in the same hotel which is centrally located and has facilities for group discussions and meetings. Five days of the tour are taken up with organised visits to particular structures and buildings, selected for their value as learning vehicles for both structural engineering and architectural design. A day at the end of the tour is given to the students to revisit any of the structures or buildings, or to visit others which they feel appropriate to their studies. On the second last evening, staff hold group tutorials with the students, to go over their notes and sketchbooks and to pick up on any outstanding issues they should address on the last day, before going home.

The learning from the visit is assessed by a project undertaken during the visit and completed during the same module. However, learning from the visit is expected to be demonstrated throughout the students work in this course.

Students pay for the visit themselves, supported by a small contribution from the University. Staff are supported financially for all expenses and travel and accommodation costs.

Preparation for the visit

The students are already aware that there is a study tour in the fourth year but they are told about the visit formally at the end of the previous term and the visit is booked about three months in advance. Because the tutors have many years' experience of participating in and organising visits both in the UK and Europe, they are able to understand any potential problems associated with it and prepare accordingly. Anyone who feels that they cannot undertake visits because of their inexperience can accompany other more experienced staff on their visits to understand what is involved and then bring that to their own

preparations. Accompanying a tour led by an experienced tutor, if necessary from another institution, allows novices to observe the practices of the leader and to assess what is good practice and what is not, and to reflect on what other practices might be appropriate for their own needs. They might also bring new ideas to the established leaders' visit. This is how the authors gained their initial experience.

We are required to complete a risk assessment form for the institution and this in itself is a valuable preparation tool. In addition to basic information, it covers aspects such as personal safety and physical hazards and their risk rating, together with intended arrangements to minimise these. A study visit such as described here does not pose high risks especially if students and staff are together most of the time. The structures visited are all within the public domain. The only issue which is stressed as being of an increased level of risk is that Barcelona is a much bigger city than Edinburgh. Consequently students are recommended to become familiar with the layout of the city and the location of the hotel, be able to use its maps and its transport network. In addition, personal safety is stressed e.g. avoid carrying large amounts of cash; avoid openly carrying cameras; avoid dark streets late at night. Also, the students know that staff are available each early evening in the hotel for advice or discussion of any problems. A register of student medical conditions, e.g. allergies, is kept by the tour leader for reference in an emergency. In addition all members of staff on the tour have medical insurance cards for staff and students.

The students are issued with a handout giving practical information (addresses and contact numbers, travel itinerary), guidelines about student behaviour from the tour company, and other details of the visit such as the general format for each day. At a short session before the visit, the students are given a talk about the aims of the visit and what they will be expected to do and not do. They are also given a brief illustrated talk about some of the buildings and structures they will visit. For study visits in the built environment, there are differing opinions about how much information should be given to students about the buildings to be visited. The authors have accompanied visits where comprehensive guides and information are given for every building. However, our opinion is that too much information puts the students into a passive mode and we believe that it is better to give less information, to encourage the students to be more proactive in their observation, analysis and recording. This is all reinforced by a 'dummy run' visit in Edinburgh for one half day, to address observation, recording and drawing/sketching skills.

Because the visit is made to the same city each year, the staff are able to be well prepared with information about the place and can adapt the format and the list

of buildings each year, to better address the issues to be covered in the course, as it in itself develops.

The timing of the visit

The timing of the visit within the academic year is important. Going away too soon, without a basic understanding of the subject matter does not give the students enough skills and information to bring to it. Going away late in the year does not allow the students to bring the learning from it into their own, later, work. They need time to reflect. This is why we take the visit in about week seven of the course, which is also week seven of the academic year. It also gives us the remainder of the academic year to refer to particular buildings, structures, details and ideas experienced on the visit, to reinforce particular points in other projects, lectures, tutorials and seminars.

Benefits of the visit

Although participation in the tour is not compulsory, it is made clear to students that their learning on the course will be greatly increased and that the value to them will be well worth the costs. It is explained that the visit provides the students with an intensive learning experience of visiting, studying and recording excellent examples of buildings and structures and this experience then underlines their studies in the course.

The benefits of the visit far outweigh any problems associated with its organisation, time intensity and cost.

The fact that tutors and students travel, lodge and study together, and visit many buildings and structures together, creates a group dynamic which increases the level of participation, enthusiasm and learning for both students and tutors. The students witness the already existing passion of the tutors for their subject and experience actual interaction and discussion between the two different disciplines. This increases the students' own curiosity and reinforces the aim of the course to integrate the two disciplines. They also see how the tutors themselves respond to being confronted with new problems, through sketching, discussion and argument. In this situation, the students see the tutors as learners as well as teachers and the tutors then provide role models for the students in their own learning processes.

The visit is made to Barcelona as it is renowned for the quality of its modern and older architectural and engineering. This, and the different general culture, gives the students a different perspective from what can be seen as a rather cautious architectural environment in the UK. It is also a city with good public transport to

allow visits to be made with ease, low cost, and without too much time being spent on travelling.

Interdisciplinary learning and collaborative teaching

Most of the students are studying civil or structural engineering but students from other courses within the university, for example mechanical engineering, often join the group visit. This mix of student disciplines, together with the two tutor disciplines, allows all participants, staff and students alike, to observe the various approaches to studying and learning made by different but related disciplines. For example, engineering students can understand from architect tutors that cultural, economic and political issues have shaped a structure as much as practical and functional issues. In addition, it allows all of them to gain some knowledge of other subjects which are relevant to their own and which often form some part of their own course. This is all in a way which is enjoyable and 'easy'- it does not involve close reading and study but is achieved by steady assimilation.

Peer group learning

The benefits of peer group learning are more apparent in a study visit than in more usual forms of learning. The students observe the different approaches to learning and enquiry by their peers in a much more intense way than normal especially given that there are few facilities within the university for them to work together. As well as discussion with tutors, they have discussions, even arguments, amongst themselves when in the large group and later in smaller self-selected social groups, and exchange ideas and learn from the differing points of view. Students come from different cultural, social and educational backgrounds, and have different skills, which they bring to these interactions, thus propagating wider discussion.

Particular relevance to subjects in the built environment

Rather than through texts and illustrations, students can see real examples in the flesh when the reality of a building, structure or place can be quite different. Students can see actual materials, how the surfaces have weathered (most photographs in textbooks have been shot when the building was first erected), details at close quarters, how people use the building or place, its context (often omitted in textbooks), and local tradition which may have informed the design or materials of a building. In architectural terms, they can experience the qualitative aspects of actual spaces by moving through them, in varying lighting and climatic conditions. In engineering terms, they can more easily analyse a whole structure

because they can see it all and the relationship of the parts to the whole, and they can move round it to help them understand these relationships.

A study visit provides really the only environment for sketching and recording existing buildings and structures. We believe that this process is vital to the understanding of our subjects. Using one's eyes and then drawing, fixes information for good and enables discovery. This can be backed up by the use of a camera but relying solely on this makes the students too passive in their observations, the lens sets up a screen between the observer and the object. Sketching also allows particular points to be drawn out, whereas the camera records everything equally.

It is remarkable to see how much the students' interest, participation and work rate increases from day to day during the visit. They are immersed in the subject, as shown in direct conversations with, and overheard conversations between, students. The drive for this seems to be that the students are dealing with and discussing real structures within their immediate built environment. They can 'see, feel and smell' it - it's real! This contrasts strongly with the classroom environment in which they are remote from this first hand experience. However the effect of the learning experience does seem to last and extend beyond that gained from the study visit itself. Often, months later in the course, students will refer to an example or experience gained during the study tour. Independently, lecturers from other subjects have also commented on the improved levels of commitment and enthusiasm shown by students following the study tour. So its effect seems to be broader than that of the 6 days, and whilst still difficult to estimate the contribution of the study tour in terms of standard university module equivalents, we would estimate that its impact was well in excess of that gained from one full taught module.

The possible drawbacks and pitfalls

Staff commitment

One of the main perceived drawbacks of study visits is the staff time involved. To get the best value out of it, staff must be very committed to the visit - if they are not, then it is not worth doing. They must see the value of it, not just for the students but also for themselves. They will learn more about their own subject, they will have students who are better informed and more cooperative, and, because students see staff as committed and hardworking, students will also have such characteristics. This makes teaching more enjoyable and, in our experience, produces work of a higher quality from the students.

Of course, staff must give up much of their own time, both to preparation and during the visit itself. But certainly the time spent on the visit is enjoyable, stimulating and valuable learning for our own subject, and these advantages more than compensate for the time spent on them.

Apart from the week away, the staff involved in the tour need to undertake preparation work and also post-visit marking of submitted coursework. As with most courses the bulk of the preparation time is expended the first time the study tour is operated. Time is needed to prepare initial course material. It may even be appropriate to spend time visiting the place of study before the study tour in order to carry out detailed reconnaissance. Overall this would be estimated as one-person week's preparation for the first time the study tour is run. Thereafter preparation is limited to about 1 person-day. Marking of coursework is estimated as taking 0.5 person-day.

Whilst we would suggest that tutors are fully prepared with respect to the administrative and organisation aspects of the tour, including definition of the learning outcomes, we would strongly advise against tutors being over prepared with respect to the learning environment. Students are used to seeing their tutors operating in the lecture environment, where the tutors have expertise and are operating within their comfort zone. Although some teachers may find it uncomfortable, one of the main benefits of the study tour is that the students get a chance to see how tutors operate outside of their comfort zone and are required to 'think on their feet'. They see how an expert thinks through the issues before making a considered judgement. This is a highly valuable learning experience for the students.

Institutional commitment

The institution must understand and be very committed to the value of visits. It must support staff in their preparations. If it is not committed perhaps it is because those who make the relevant decisions do not understand the value of visits. Then it is up to staff to convince them of this by persuading them of the value it will bring to the institution and not just to the students, and by citing examples of successes in other institutions.

Our institution recognises the value of this study visit and fully supports it. We often invite different staff to attend the visit to provide an independent view of the course and to demonstrate its value, and this has contributed to the institution's understanding of its worth.

The organiser of the visit must make sure that the students' timetable for other classes is rearranged so that they do not miss out on essential aspects of their

course. This of course takes up further staff time but is necessary, to eliminate any anxiety in the students and to avoid a negative impact on their studies. The institution must support this rearrangement, to avoid negative reaction from other staff. Again, this requires the value of the visit to be transmitted to, and understood by, other staff not participating in the visit itself.

Cost

Another perceived drawback is the cost to the student, and the thought that insufficient students will participate. It is important that the great majority of the class participate to avoid divisiveness within the group and to allow the study to be seen as a valuable part of the course. Even though we cannot compel the students to participate in the visit, each year there has never been more than one student who has not. This is because enthusiasm for the visit and the value of it are transmitted from cohort to cohort in the department. (Students who do not go on the visit are required to carry out equivalent study in another city, usually Glasgow, but of course do not receive the benefit of the length of time of the study, the intensity of it, nor study with staff and other students.) The timing of the visit is then crucial, for students in earlier years to be aware of the visit and to listen to the experiences of the participants. It is obviously important to keep the cost of the visit within reasonable bounds. It takes extra staff time to obtain various quotes, to get best value, but this cannot be avoided if high participation is to be achieved. Typical costs for a tour are between £250.00 and £350.00 per student depending on time and starting point of travel (2001 costs). This covers air travel to Barcelona and bed and breakfast accommodation in a centrally located tourist class hotel. The students are required to provide this funding although staff do try to secure grants and sponsorship from other sources to subsidise this amount. In addition students must take money for additional meals, local travel, museum and gallery admission, and entertainment. Typically this is an additional £100.00. Some tour operators operate free places for tutors depending upon the number of students travelling.

Assessment

A project based on the visit is assessed as 15% of the double module and contributes to the students' degree grade.

The students are already aware of this through handouts about the whole course. The project is issued beforehand and is in two parts – one looks at purely engineering issues (the core of the students overall course) and one examines the relationship between engineering and architecture. During the visit, the students use sketchbooks to record notes and make sketches about the

buildings and structures they visit, and they use these as the basis for their project. They work on their final submissions when they return to the UK and are given until the end of term, about four weeks, to complete the project. They include their sketchbooks with the final submission.

This project is assessed by both engineering and architect tutors who accompanied the students on the visit. This allows assessors to understand not just the product but also the process the students went through to achieve the submission, and they can then credit the process with some accurate value as part of the assessment.

It is evident from later projects in the course that the learning from the visit continues to inform the students' work. They often, in their design projects and study projects and in the final examination, explicitly and implicitly, refer to the examples visited and demonstrate their learning. So it could be said that the assessment of the learning from the visit also continues through the assessment of further work.

Feedback

After the visit, quantitative and qualitative anecdotal evidence was collected together with feedback from questionnaires specifically addressing the visit and its aims and learning outcomes. Evidence of success was also demonstrated through the quality of the study visit project submissions. This was also shown later in the course through the quality of further submissions. Feedback shows that the visit was very successful in achieving its stated aims, together with broader benefits such as promoting enthusiasm for the subject and engendering class cohesion. Students have commented on how the tour has changed their attitude to the overall course, providing an increased impetus for study.

Because the visit is a fundamental part of the course, it could be said that course feedback, which continues for many years after the completion of a student's studies at the university, is also feedback on the visit. In a recent lecture he gave about the relationship between architecture and engineering, a former student who is now successful in professional engineering design, paid tribute to the value of this course and the study visit in particular, also the tutors' input in giving him a valuable grounding in, and an enthusiasm for, the subject.

Conclusions

We firmly believe that the time and commitment involved in organising and participating in a study visit is fully justified by the benefits which arise from it. The equivalent quantity of learning by both students and tutors is far greater than

the actual time involved. The particular quality of the learning is very high and cannot be replicated in the classroom or lecture room. This is demonstrated in the students' increased enthusiasm and commitment to the course and its subjects, and in the quality of the subsequent projects and examinations. We feel that the benefits of a study visit are especially shown in subjects in the built environment where observing and understanding 'the real thing' is particularly valuable. Collaborative visits and teaching bring an added dimension to the core subject, increasing the students', and the tutors', appreciation of its wider potential. If individual tutors and their institutions can appreciate this, then a commitment to the value of study visits can be made. In some cases, this may be a re-commitment after abandoning visits because of other staff pressures and the perceived problems with health and safety issues, costs and general inconvenience.

References

T. M. Chrisp, L. Wilson, J. Cairns. (under review July 2002) Developing an Architectural Awareness in Structural Engineers, Journal IstructE.