

The Introduction of an Academically Accredited Industrial Experience Unit into an Existing Undergraduate Course

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Abstract

The Construction Management course at Sheffield Hallam University has a good record of sandwich placements. Relationships with employers on a regional and national level are well established. Recently the course has developed the industrial placement into an assessed unit which contributes to the overall academic award. The assessment is made using the Chartered Institute of Building Professional Development Programme as a guideline for Learning Outcomes. Students have first to identify Learning Outcomes and then to demonstrate their accomplishment.

Good Practice Points:

- Seminar presentations by final year students to second year students - allowed good sharing of information, preparation for students about to enter the placement, and the opportunity to assess the students' abilities to make a formal presentation of their experience.
- Assessment of the portfolios of experience by a team of academics. This ensured all submissions were double marked, and that the grades awarded were agreed by different members of staff applying the same criteria.
- Inclusion on the assessment panel of academic staff from outside the School - but with experience of assessment of experience (Independent Study Units).
- Inclusion on the assessment panel of staff with experience of professional assessment - CIOB certified assessors.

Introduction:

In this case study I reflect on the introduction of a new unit in the final year of the BSc (Hons.) Construction Management sandwich course which is based solely upon the assessment of the students' reflection upon industrial experience. Alongside this, the part time students on the same course will have the opportunity to be assessed on their reflection upon industrial experience on three occasions. Problems with the existing course included:

- The accreditation of industrial experience fell outside the standard academic framework and policy of the University.
- There was a fall in enthusiasm for the placement period, which indeed the proposal was specifically intended to address.
- There were some reservations held in academic quarters of the academic value, and the academic rigour, of work based learning.

The BSc (Hons.) Construction Management (previously Construction) course has been running at Sheffield Hallam University, and formerly Sheffield City Polytechnic, since 1973. The course has been accredited by the Chartered Institute of Building since 1984. As such, the course is one of the most established of the discipline in the UK, and has maintained a good reputation both with employers and prospective recruits.

The course is run along standard University guidelines, which cover the vast majority of Undergraduate provision. These guidelines include:

- A two-semester academic year, with individual Units being delivered entirely within one or other semester (with few exceptions).
- Undergraduate Degree courses having a standard 360 total credits, with 120 credits in each year, 60 credits in each semester.
- Units having a value of either 20 or 10 credits.
- Students enrolled on named courses take two 20 and two 10-credit units per semester.
- The course is part of a programme, the Built Environment Programme, which includes other degree courses: Quantity Surveying, Building Surveying, and Architectural Technology.
- Some Units are common to all courses (core), some are dedicated to specific named routes (designate) and some are options.
- All units are offered to students on generic (non-specific routes) courses and combined studies courses, subject to pre-requisites. In practice, few units after the first year may be available without pre-requisites.

Theoretical/conceptual Issues

The theoretical and conceptual issues of assessed industrial experience have attracted considerable attention in recent years. Several terms are used, such as Work Based Learning, Experiential Learning and Learning at Work. It is fair to say that there is a range of definitions of these terms, some of which concur, and some of which would draw distinctions between each category (Boud and Garrick 2000).

For the purposes of this case study, it is necessary only to acknowledge this ongoing and extensive discourse, and to direct readers to the original sources for further enquiry (for example Boud and Garrick 2000, Impact of Work Base Learning Conference Proceedings 2000). Significantly, successful examples of work based learning adopt a definition of the term which is most appropriate for their use.

Politically, the enquiry into Higher Education in the UK headed by Sir Ron Dearing made specific reference to the value of learning in a work context:

“The strongest single message which we received from employers was the value of work experience. This is particularly emphasised by small and medium enterprises who need new employees to be able to work effectively in the workplace from their first day. Further development of work opportunities requires action by both employers and institutions.”

(Dearing R. 1997 p 16)

This remark had impact on government policy for funding Higher Education, in that the Higher Education Funding Council for England (HEFCE) specifically included reference to employability in its requirements for quality assurance.

Whilst employability, as a property or attribute of graduates is not specifically dependent on work experience, it is reasonable to propose that a straightforward way of satisfying both Dearing and HEFCE was through industrial placement.

Tensions have been identified between the concepts of education, seen as the province of HE institutions, and training, seen as the province of industrial employers (Hill and Howarth 2000). The resolution of this tension is provided by the re-emphasis on the vocational aspect of the course, and on the development of generic attributes in students, which can be labelled ‘employability’.

Further reservations have been voiced over the lack of academic control and influence over the learning process – this process taking place outside the Higher Education Institution environment. This issue was addressed by acknowledging that the HE Institution is responsible for the rigour of assessment and facilitation of the learning process, and not for the process itself in every instance (Hill and Howarth 2000). This argument holds true within many courses, for example with dissertation work. The

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process of facilitation and the rigour of assessment are explained in more detail later in the Case Study.

Fundamentally, from many different research sources, it is becoming noticeable that the distinctions between learning and work are becoming blurred:

“The nature of work is changing with ‘knowledge’ being regarded increasingly as the primary resource, thus giving rise to unprecedented demands for learning – delivered flexibly and in authentic work settings.”

(Boud and Garrick p3 2000)

The notions of ‘knowledge in action’ (Barnett 1997) or active intellectual reflection (Schon 1996) have begun to break down the barriers between what is academic and what is vocational. From the perspective of innovative management, Nonaka and Takeuchi argue that such barriers are false and should be ignored (1995).

“Logically, work based learning argues, if learning is work-based then work is learning-based because learning-based work is the other side of work-based learning”

(Portwood p56 in Costley 2000)

One of the outcomes of this ongoing discourse, which has specific resonance for this Case Study is the notion of contextual knowledge. Simply stated, contextual knowledge is that knowledge which has some relevance to, and reference in, experience. More specifically, that knowledge has practical relevance in explicating and communicating the perspectives of participants in a particular experience. The corollary of this is the notion of purely abstract knowledge which can only have relevance or reference to itself. It is extremely difficult to give precise examples of abstract knowledge, however, I would suggest pure mathematics, or Ancient Greek grammar as possible examples.

It is obviously possible to enter into a debate about the relative merits and characteristics of abstract knowledge and contextual knowledge, but that is not going to be attempted here. If the ‘value’ – in terms of its link to employability - of contextual knowledge is accepted as being greater than abstract knowledge, and for vocational courses it is fair to support that argument, then the means by which that knowledge may be learnt becomes an issue of concern. Lave and Wenger (1991) introduced the notion of legitimate peripheral participation, in which initiates learnt the expert skills or ‘craft’ of those already considered ‘skilled’ through controlled and limited participation in a community of expert practice. This proposition emphasised the social context of learning which is central to the proposal of the case study.

Development

The value of the industrial placement element of the BSc (Hons) Construction Management course has long been accepted and reinforced by the academic staff at SHU. This value has been emphasised to students in three ways:

- Graduates with sandwich experience find it easier to get permanent employment opportunities
- Graduates with sandwich experience usually have a higher starting salary in permanent employment
- Sandwich students usually improve their academic performance in the final year

It is possible to add to this that in the current climate of student fees, loans and other economic pressures, the opportunity to earn significant income for a period is also a strong incentive.

Commonly, students will earn £9,500 for a twelve month period, plus living or travelling expenses and bonuses (current value at 2001). The minimum period for industrial experience stands at 38 weeks, but many students will work for a longer period (up to fifteen months). This minimum period is effectively a compromise between some employers who will not take on placements until late in the summer, and subject to specific contracts being awarded, and between the University policies on placement periods.

Many employers visit the University on an annual basis both for sandwich placement and graduate recruitment. This year (2001) Carillion, Norwest Holst, hbg, Taylor Woodrow, Kier, and Waites have all recruited, together with many smaller regional and local employers such as Wheatley, Weavers and Totty.

Professional Development Programme

The Chartered Institute of Building, through which the course is accredited, has in the late 90's embarked on a significant development: the Professional Development Programme. This development is intended to provide a clear and unambiguous path through further and higher education to full chartered status. Importantly, the development is intended to address the issue of discrepancies in the treatment of candidates at professional interview. This is achieved largely through the publication of an identified list of professional competencies, which the chartered member should achieve. These competencies in turn were identified by the CIOB in their role as representatives of employers in construction activities. The School of Environment and Development has direct links to the CIOB, and the current PDP manager has assisted in the development and running of this unit.

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The publication of the Professional Development Programme in 1998 provided candidates, education and employers with a guide to the relevant competencies for construction.

This publication provided a catalyst for the proposed development as well as the basis for the assessment. Further, the identified competencies provide a good example of the notion of contextual knowledge noted earlier.

CIOB Professional Competencies:

1. *Decision Making*
2. *Communicating*
3. *Managing Information*
4. *Planning Work*
5. *Managing Work Quality*
6. *Managing Health and Safety*
7. *Managing Resources*
8. *Assess Environmental Risk Factors*
9. *Managing Costs*
10. *Personal Management at Work*

(CIOB 1999)

For the development of the assessed industrial placement, the competencies provided an equivalent to the academic learning outcomes, and were used as such.

One of the advantages of the Professional Competencies which was immediately apparent was their flexibility and transferability.

When embarking on the proposal for the introduction of accredited industrial experience, it was obvious that students' experience would vary considerably: from working with an international contractor on the Millennium Stadium in Cardiff, to working with a small local specialist subcontractor in Rotherham. The generic quality of the competencies provided reassurance that all students should get a good opportunity to satisfy development in the majority of the competencies, irrespective of their employment circumstances. It is not necessary for students to complete all the competencies. This will reflect both the nature of the placement experience and the stage in the students' career. A vital consideration was that the assessment of a student should not be influenced by the 'quality' of the experience.

It must be stressed that the assessment is made upon the students' reflection on their experience, not on the experience itself. This is explained in further detail in the next section.

Implementation

Essentially, the assessment of the industrial experience is in two elements: a portfolio of evidence (currently 70%) and a presentation (currently 30%).

Second year students, prior to their industrial placement period, attend three or four seminar presentations given by final year students. In these seminars, the returning students will talk generally about their work experience, and more specifically about the learning outcomes gained from the placement. The students are all provided with the full guidelines for the Professional Development Programme, and the Professional Competencies provide a guideline in the identification of learning outcomes. Further, the students presenting give guidance on the collection of evidence and authentication required for the portfolio.

Final year presenting students are encouraged to use visual aids including slides, OHPs or computer based visual aids as appropriate. The presentation is assessed by a team of tutors (currently five including academics from outside the School, and the PDP manager of the CIOB). All students have had, by this stage, some experience of presentations, further guidance is given through the Key Skills On Line package which is accessible to all SHU enrolled students both on and off-campus.

Second year students then gain a placement position, and in some cases enter into a learning contract with the employer. Many employers will have considerable experience of placement students from SHU and from other institutions. In this case, the expectations of each party are likely to be met without any problems. Often, students will be assigned a mentor who has been through the same process some years previously.

Some employers have direct knowledge and experience of the CIOB Professional Development Programme at graduate training and sandwich experience level. In this case, this provides a further incentive and encouragement to the student. It also helps to ensure the compatibility of expectations on the parts of both the employer and the placement student.

The student has to be proactive in seeking the correct 'types of experience'. Although most employers have a good training experience programme, the process of negotiation for a student is a learning experience in itself.

"The competencies provided by the CIOB in their Professional Development Programme can provide a basis for each student undertaking industrial experience. The process is largely student driven, with each student being responsible for gathering evidence for each of the competency areas."

(Hill and Howarth 2000)

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Students are encouraged to reflect upon and identify 'bad' experiences as well as 'good'.

Once learning outcomes have been identified in a particular work experience, the student collects a portfolio of evidence of that competence. This evidence can include notes of meetings, sketches, minutes, letters, photographs, copies of levelling books and so on. The students are encouraged to be imaginative in their collection of evidence. The student is required to get verification of the validity of the evidence from a superior in the employers' organisation. This verification confirms that the details of the evidence are the work of the student concerned, a process identical to the requirements of the CIOB.

"The student will demonstrate the ability to:

- *Identify the relevant competencies or learning outcomes*
- *Gain experience in a range of competencies or learning outcomes*
- *Record necessary information about the competency or learning outcome*
- *Demonstrate that competencies or learning outcomes have been developed in the period"*

(Hill 2000)

This process addresses the issue of authenticity associated with assessments made of work prepared outside the control of the institution. In addition, the process conforms with the standards of rigour required by the University Assessment Regulations, and hence the Quality Assurance procedure.

The students are required to show not just that an activity has been performed, but that development of competency has taken place. The quantity of evidence should be limited to that which is most appropriate, and quality is of far greater importance than quantity. Further, the student provides a clear cross-reference system or matrix of which competencies are achieved by which evidence. One item of evidence may support the claim for a number of competencies.

Again, the student is very proactive in this process, emphasising the fundamental intention of encouraging the student to carry out active reflection on the experience and the associated learning which is taking place.

The students are visited by an academic tutor normally twice during the placement period. These visits include guidance with identification of learning outcomes/competencies and with the compilation of portfolios. The students are encouraged to talk with other placement students on the course, and a list of telephone contacts is developed.

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If the student experiences any further problems this may require a further visit, or in extreme circumstances, alternative placement if appropriate.

On return to University for the final academic year, the students compile and edit their portfolios in preparation for submission. Again guidance is given both directly by tutors and by reference to the Key Skills On Line package. Also students are encouraged to view one another's work, but with the understanding that a variety of submission is encouraged, rather than conformity to a strict model.

Once the portfolios are submitted, the assessment of the complete cohort is undertaken in one day by a group of assessors (currently five academics including representatives from outside the School of Environment and Development). This strategy was chosen as it addresses several issues:

- Quantity of work to be examined – could be daunting for an individual
- Maintaining equity of treatment – all submissions will be double marked (at the least) and by different combinations of tutors.
- Continuous updating of criterion referencing for classification

Two of the assessors are also professional assessors for the CIOB, thus maintaining an active link with the professional body.

After submission of the portfolio, the students give a seminar presentation which is assessed against standard final year presentation criteria. Second year students are present at this seminar, in preparation for their own industrial placement, and thus closing the circle of dissemination of knowledge and experience.

Costs

The Unit is currently costed on the standard University scale for a 20 credit Unit. The practise of visiting students twice during placement is well established, and continues for other courses which are not currently accredited. Whilst this is time consuming and requires significant travelling, the continued good relationship with employers, together with the success of the assessed Unit and non-assessed placement opportunities is dependent on such practise.

Considerations

In preparing this case study and being closely involved with its running, a number of considerations have come to light, which may well be helpful to other courses considering this proposal:

- The value of industrial experience against the value of University delivered topic knowledge. Other Units may have to give way for the new Unit, but the intellectual and empirical support for the value of

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industrial experience – contextual knowledge, is compelling. Particularly, the notion of the half life of ‘topic knowledge’ and the need to maintain currency in the course was taken into consideration.

- The value of the experience and the value of the assessment. It is possible to produce an excellent portfolio – and get a first class mark from a ‘mediocre’ experience. Likewise, it is possible to produce a poor portfolio – and get a poor mark, or be referred from a ‘good’ experience. This realisation is more to do with the assessment of the students’ ability and performance, the reflective process and the development of a portfolio, – which is of course correct – than the assessment of the conditions of the experience itself.
- It is useful to involve academics from other disciplines with experience of work based learning if appropriate, this adds to the Quality Assurance of the process. Currently, a principal lecturer from cultural studies who has considerable experience of assessing work experience in the voluntary sector, is assisting in our unit. The possibilities for cross fertilisation of this sort across the university is also being explored.
- Inviting employers to presentations and/ or assessment is difficult. In some circumstances the student would benefit from this but in others, the student may be quite critical.

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