MANAGEMENT INTO DESIGN EDUCATION: A CASE STUDY.

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Abstract
The design project set in a studio learning environment remains central to much of the under-graduate curriculum activity for the aspiring architect. Yet much recent discussion has identified the need to look beyond this design curriculum horizon and to extend into studies in management. The Burton Report, among others, has encouraged diversity in architectural education. A degree course in Architectural Design and Management has been developed at Northumbria University as a direct response to this encouragement. However, challenges continue as students tend to see supporting studies such as management as peripheral, or even irrelevant and professional accreditation authorities seek evidence of performance via an academic portfolio only. Subsequently, management and professional studies in the programme have been developed as the process within which design happens and which allows a direct link into the studio programme. So, as for the professional practitioner, student design activity happens in teams, and has deadlines, studio design programmes have group projects and deadlines and these are structured with learning outcomes such as teamwork, timekeeping, and reflective learning.

Keywords: Management and professional studies, Studio design education.

INTRODUCTION

The purpose of this paper is to provide a reflective Case Study report on the early teething problems embedding a management curriculum within the BA (Hons.) Architectural Design and Management degree course at Northumbria University. This course is modularised but with a majority of large, design based, project modules delivered in a design studio. Additional taught modules, often shared with other student cohorts, provide for supporting curriculum, including some management modules. A balance has been sought between learning effectiveness and efficiency of delivery. The intention of the course, which began life in September 1997 and now has had 5 graduating cohorts, is to prepare the graduate for a wide range of opportunities in a rapidly changing professional context. It includes principles and practice of architectural design with management studies embedded within the student experience, underpinned by cultural and historical context, technology and environment, and the theory of management. The challenge has been in the implementation of such aspirations and to meet the conflicting demands of the quart in the pint-pot curriculum syndrome of appropriate design skills and knowledge development, introduction of new skills agenda (for example, keeping pace with the increasing use of computer aided design applications), and yet still introduce, develop and mature a major curriculum thread running through the programme of management studies.

BACKGROUND

The course was introduced as a direct response to the need for an expanded architectural degree curriculum as outlined in the Burton Report (1992) on architectural education to equip students for a wider role within a changing building industry and to provide an education in architecture for less specialised careers and as subsequently reinforced in the HEFCE Report on Architecture (1994). The underlying educational philosophy of the degree therefore, is in accordance with the principle of promoting degrees with particular emphasis on design, technology and basic management skills, as recommended by the CIC (1993), and is in line with current thinking from the RIBA which has encouraged variation in course provision. Graduates are to be able to satisfy the requirements of both the ARB and the RIBA, achieve exemption from Part 1 of the professional examinations and progress to further study towards an architectural qualification.

Consequently the design of the programme has incorporated the requirements of the Prescription of qualifications: ARB Criteria (May 2002) which have also been adopted and approved by the RIBA, the QAA Benchmarking Document (2000), and the EC Architect's Directive (1985).

History of Management provision
The course was originally set up within a University modular approach, with two management modules (out of 12) in year 1, a core management module and an optional management module in each of years 2 and 3. At the time, the University ran a core plus option policy. The other options offered were computing and language, and the first cohort of students, with one exception, opted for computing. Even though the students had chosen the programme with its unique combination of management and design, it would seem that they prioritised their options for modules that they believed would be most useful in getting a good degree, and getting a job. It also became apparent that the modular approach, with little direct link, at the time, between the taught management programme and design projects, was resulting in the students having difficulty in engaging with management as a subject.

Consequently, potential links between management and design teaching were examined, and a proposal to introduce a management portfolio, assessed within the design project portfolio, was made. Management issues were initially related to design through reflection on process, and to time, cost quality and health and safety issues. First year have a reflective log, while Second and Third year are directed to consider specific issues related to projects. A key aspect of the Third year is the preparation for practice. The lecture programme deals with the process of procurement and related issues, such as planning and building regulations. The process is related to the first design project, and students have to produce a feasibility study report for their own design, to include regulation, timescale, appropriate procurement and construction process. The students gain a genuine insight into the process by which a design is realised and is invaluable for them. They also undertake a management related research paper, which gives them the opportunity to investigate a topic in some depth. Papers have varied from PFI to self-build housing.

Pressures
There have been significant pressures on the management aspect of the course:
o   Student perception: This has been addressed significantly by the introduction of the management portfolio. The introduction of portfolio sheets into projects giving details of regular interim targets also encourages the idea of architectural design as a managed process.
o   Modular programme and pressures to share modules developed for other programmes to fit timetable constraints: A module in economics was taught jointly with the construction management students in second year, but was at an inappropriate level for the architectural students, and was dropped.
o   Development of ARB / RIBA criteria. When the course was developed, there was encouragement for diversity, and Architectural Design and Management was one of a number of courses that were proposed. However, increasing concerns expressed by the ARB regarding the competence of graduates at Part I, Part II and Part III, led to the publishing of Criteria for Prescribed courses, which is constraining diversity.

Management in the Curriculum – an evolving picture
The course aims for the management curriculum have now emerged as:
o   Engage in the challenge of management in the discipline of architecture, which is conducted within a professional and commercial business environment.
o   Understand the process of design within a wider industry perspective.
o   Develop an increased self-awareness within the discipline.

These strategic aims have been articulated into specific modules as:

First Year Module
Management Principles, Practice and Communication.
- Roles within the Built Environment professions.
- Sources of finance.
- Non-visual communication in terms of research, report writing and presentation.
- Forms of communication.
- An introduction to management principles and theories.

Second Year Modules
Management Skills.
- Management skills within teams.
- Leadership styles, models of task / individual / teams.
- Team working.
- Communication – needs, styles and methods.
- Effective use of time and energy, meeting deadlines, working under pressure, understanding and managing stress.
- Decision making techniques, creative thinking techniques, lateral thinking, allocation of resources, making decisions in conditions of uncertainty.
- Negotiation and Conciliation.
- Resolving conflicts, handling disturbances.
- Selection Interviewing.

This module includes the management in action field trip, which allows the student to experience group and individual challenges of action, problem solving under pressure, design brief communication, and task management and which culminates in a raft-building task.

Structural and Spatial Design.
This module offers an opportunity to analyse the processes and products of design in the Built Environment, an integrated approach that enables the students to apply the strategies learnt in the module in their design projects. Students develop their own design methodologies based on analysis, synthesis and creative application within an assignment related to a design project.

Final Year Modules
Architectural and Design Project Management.
- Key issues in the management of a project at all stages of the development cycle.
- Procurement and administration of a project and its control on behalf of the client.
- Skills base in project management and practice management.
- Underpinning theory to design projects.
- Implications of health and safety issues on design practice.
- In-depth study which is substantially student driven, by the investigation of a defined subject area, illustrating critical analysis, evaluation, discrimination and objective balanced argument.

Professional Practice
- Project Management Overview
- Project Management Processes
- Health and Safety in Design
- Practice Management
- Contract Management

      o Feasibility study of a previous design project to include planning and procurement.

Research study
      o Structuring and writing research papers:
      o Hypothesis, aims and objectives, methodology, literature review,
      o Data collection and interpretation, case studies, analysis
      o A topic selected from a list looking at the process of architecture.

Management within the Design portfolio.

Management is also embedded within Design Project modules. The First year includes a reflective log and the Second and Final year Project modules now include a management portfolio. This is assessed as a pass / fail element – the intention being not to detract from the assessed Design content and also not to allow completion without a student passing this section of the module. The management portfolio is seen as the essential way to engage design-focussed students with management issues. It builds on the work of the first year management programme and moves from reflection to directed studies in the second and third years. Students are asked to consider issues of time, cost, quality and health and safety; personal and interpersonal issues such as team-working and time management; and brief-making, in the context of their projects. So, students may provide simple bar charts showing their own personal programme for producing their design on time, a notional bar chart suggesting a construction time-scale, a simple cost calculation, assessment of safety issues on site or within their design project, reflections on team-working, or a range of other simple exercises relevant to the nature of a specific project. These elements build up as a portfolio of material, which supports and is clearly seen as a part of the design portfolio. The third year architectural project management assignment, a feasibility report to a client written on completion of their first design project, is also seen as an important link with the portfolio.

Support

The management curriculum thread has received strong support from the validation body, students and employers. The RIBA Visiting Board Report (2004) provided recent strongly encouraging supportive comment such as:

o   "The integration of management issues into the design process, such as leadership, project management, decision making, team working between and within professions, was exemplary and should be considered as a model for future consideration elsewhere."

The Report also noted that the students were supportive:

o   "The students believe the additional knowledge and skills provided by the management component of the course are advantageous when applying for jobs and assists them greatly when in post."

and

o   "The students believed that the course prepared them well for entry into the profession. They valued the contribution made by local practitioners. Students considered that this, and the integration of the management component, effectively gave them a head start when entering practice, as they had acquired additional knowledge about the realities of practice."

The Report also commented on a meeting held during the visit with local employers of graduates:

o   "The practitioners … believed that the management emphasis of the course enabled students to enter practice much better prepared for the realities of the workplace. They were grounded in their attitude and approach, time management skills were excellent, they were quick to grasp ideas, responsible and pro-active. The practitioners stressed that none of this had been attained at the expense of design skills." One employer, a director of a

major local practice said "we have found that the students from Northumbria University demonstrate a better understanding of the building process thanks to the management aspect of the course … students from Northumbria University have skills relevant to working in practice."

UNDERPINNING PRINCIPLES

Studio based education does remain a central feature for design students. It is not the purpose of this paper to provide a defence of the design studio as pedagogical practice. We accept that the design studio provides a unique and special learning environment for the student with a "hands on, learning by doing" approach to learning. This approach is also being looked at by other subject discipline areas as an effective pedagogy and where the place and need for the traditional lecture theatre approach to learning is being challenged as only a place of transfer of information where perhaps, a surface approach to learning can only exist (the debate is much simplified to make the point). For example, Carlson and Sullivan (1999), argue the case for a hands on approach to engineering education where student involvement is a key feature, they suggest, that can lead to deep learning. Entwistle (2001) likewise suggests that student learning style preferences must be taken into account and that the pedagogical strategy chosen by course curriculum designers must match the learning needs of the student – a further argument for the design studio. It is, by definition, also providing active learning (the learner is doing), rather than passive learning and to move from just articulation of knowing and understanding into higher learner empowerment (and employment) levels of application and testing (i.e., thinking outside the box) and can with subsequent appropriate commentary and critical analysis seek innovation and improvement of practice. The conclusion being that the student can become aware of good and accepted practice but also motivated and prepared to seek improved practice – surely the need of the modern workplace?

However, it is not without its' challengers. For example, Schon (1985) has argued, and Brown and Moreau (2002) further graphically illustrate and support with their paper 'Finding your way in the dark' design students are confused and mystified to be asked to design without really understanding what it is they are supposed to do. Perhaps a mini-synopsis of the pedagogical dilemma that many course providers will struggle with – how can students be expected to design a building or an artefact without understanding the essential ingredients that come together to make up the whole?; likewise, with management in the curriculum. The difficult balance to be reached is to create a curriculum that provides necessary underpinning knowledge and understanding yet still provides context and application (with student engagement and motivation being perhaps a subsequent useful bonus!).

Stepping back from this detailed argument for the inclusion of management in a design curriculum and the subsequent challenge of how best to do this, recent conferences looking at design studio educational practice (Studio Culture: Who needs it?, 2003; Studio Culture 2; Touching the Real, 2004) have argued for a tangible, reality of learning experience that is more than just transmission of knowledge (the lecture theatre experience?). For example, Till (2004), in his keynote address to the Studio Culture 2: Touching the Real conference, made strong reference to the seminal work of Freire (1972) who argued that learning can be a set of practices which have the potential either to empower (by enabling critical analysis) or disempower individuals (by merely reinforcing existing unequal relationships within the community). If learning only involves the transmission of knowledge; that is, from a knowledgeable person to the learner then under this banking approach to education, the danger exists that (Freire, 1972) -
> "the teacher talks about reality as if it were motionless, static, compartmentalised and predictable, and fills the student with contents that are detached from reality, disconnected from the totality that engendered them and could give them significance.
> the learner brings little to the learning situation except the capacity to absorb and recall."

There is also the unavoidable materialist aspect of education from the student perspective. Investment of student effort, money and commitment will often be gauged against a return – whatever they may be – a high grade, a good job – with the student the sole arbiter! Learning, in this pedagogical paradigm is not learning out of interest, but learning for a reason – a return on investment. Perhaps a secondary, but still crucially important, issue for the student is the role and complex influence of the design-assessing tutor during critical reflection and assessment of work. Assessment criteria explicitly communicated or implicitly implied (often described as the hidden curriculum, Dutton 1991) will often drive the student agenda and as such may restrict or limit learner empowerment. There is indeed much to be applauded for the work that takes place within the design studio. The learner is placed central to the learning experience.

REFLECTIONS

It would seem that the content, style and ethos of the course receive good support. Beyond initial public domain rhetoric concerning curriculum diversity, is the unavoidable reality check that the course team of tutors and the students have to live with and accept; that is, this is a <u>design</u> degree first and foremost, a fact that cannot be escaped from. For both tutors and students, the reality is that the combined pressure from the Subject Benchmark Statement, the RIBA and ARB requirements, the student looking ahead and anticipating good employment prospects, all combine overwhelmingly to dictate that design ability is the key, bottom line essential ability that the student needs and cannot avoid. It is against this background that the course tutors firmly believe that management curriculum, if it is contextualised and integrated into the practice of design adds real value to the student learning experience and allows the student to become a more effective, more efficient and a more informed designer.

We therefore choose to treat management and professional studies in the course as the process within which design happens, which allows a direct connection into the studio programme. As in professional life, design activity happens in teams, and has deadlines. Studio design project programmes have group projects and deadlines structured with learning outcomes in teamwork and timekeeping. The management teaching supporting the course deals with interpersonal skills and teamwork, so there is a body of knowledge that the student can use to reflect upon the process.

Our experience suggests that by the Third year, the students do relate these skills to project work, and find their knowledge extremely valuable when they graduate and enter practice. By having a working knowledge of the context within which the core activity of design happens, they engage very quickly in work, and employers feel that they can contribute quickly to the office, and learn much more themselves. One employer has said of one graduate of the course "…it has been observed consistently that his effectiveness is significantly enhanced by a broader appreciation of the context of the tasks in hand combined with a proactive and enquiring mentality. Wesley has in consequence more capacity to work independently than we would usually expect for someone at his stage. We put these characteristics down to the influence of the management and real-world related aspects of his training."

CONCLUSIONS

This paper is limited in that this is a reflective report on only a single case study. It may be that experiences gained putting together and implementing such a degree course are too narrow and are not transferable into other academic environments. They are, however, real experiences which may usefully be shared with colleagues. Real lessons have been learnt and where change and modification have been seemingly never-ending over the last few years as a formula has been continuously sought in the pursuit of successfully embedding what at first sight appeared to

be a second-stream subject into main-stream activity. Our main conclusions from this case study experience are:

1. A diversity agenda will not work. Students may, from their free choice, diversify later in their careers, but for the purpose of attaining an undergraduate degree in Architecture which meets all the established criteria, the unavoidable student focus contained within the timescale of this 3 year study programme is on design capability and design employment.
2. Split or combined award undergraduate degree curriculum for such specific professional and vocational degree course does not work. It challenges the student to reach minimum threshold standard ability to successfully become a practitioner. Concentration of effort is required on core curriculum.
3. Management can be successfully embedded with a design curriculum with a careful balance between a taught and a shared curriculum. It is also essential for course tutors to *own* the management curriculum agenda, for it not to be sub-contracted out, and who as professional practitioners can understand and relate to the need to embed good management practices with the design process.
4. Management curriculum must be contextualised into the process of design.

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