PROMOTING CONTINUOUS IMPROVEMENT IN CONSTRUCTION EDUCATION: DEVELOPING CURRICULA THROUGH GRADUATE- PRACTITIONER REFLECTION

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Concern is frequently expressed by employers, amongst others, that degree courses in UK higher education institutions often give insufficient attention to the relevance of their curricula, and to key skills considered by employers to be important.

In recognising the central importance of education and its considered management to the key resource of construction activity - people - this paper reports on a Department for Education and Employment (D*f*EE) funded research project. The project investigates and develops strategy for improving the relevance and responsiveness of teaching and learning to employment through partnership with graduates.

This paper presents the rationale and methodology of the project and outlines an innovative curricula development mechanism . This mechanism provides for graduate reflection upon educational outcomes in light of professional experience, and enables curriculum development, formally and continually, to embrace professional needs.

The adoption of this curricula mechanism at Sheffield Hallam University is seen as a positive strategy in enabling continuous improvement in undergraduate provision and is considered suitable for adoption by other higher education institutions.

Keywords: continuous improvement, curriculum development, education, reflection.

INTRODUCTION

Higher education, as a provider of the construction industry's key resource - people - fulfils a critically important role in contributing to continuous improvement within the industry. The role of higher education as a 'provider' to industry and society reflects the repositioning of institutes away from being 'universities of culture' located *in* society, to being institutes *of* society (Barnet 1994, Readings 1996). In recognising that the modern day role of higher education institutions is concerned with education for the professions, it is vital that relevant stakeholder demands are recognised and satisfied (Hill 1997).

"Concern has been expressed by employers and by government that degree courses in British higher education give insufficient attention to the relevance of the curricula, and to certain skills which employers consider to be important. Current degree courses often require students to cover syllabuses loaded with detailed information, while assessments test the use of that information within a comparatively narrow academic context" (Entwistle 1992).

Such a view is supported within educational research (Hitchen 1991, UDACE 1991). Moreover, recent literature (Tate & Thompson 1994, The Association of Graduate Recruiters 1995, Harrison 1997) has highlighted the need for graduates to focus upon

developing their interpersonal capabilities, communication skills and decision making abilities in addition to obtaining sound technical knowledge within their chosen discipline.

This paper reports on a D*f*EE funded research project to further enhance the contribution of higher education to the construction professions. The paper also outlines a mechanism developed within the project to enable the continued relevance and responsiveness of higher education curricula to the construction professions.

PROJECT BACKGROUND

The School of Construction, Sheffield Hallam University, is committed to developing and maintaining courses that bring about in students' relevant professional, managerial, technical and intellectual skills. The focus of the University's mission is to work in close partnership with business, industry and the professions to develop course in line with the needs of the workplace. (Sheffield Hallam University 1997)

The effectiveness of approach in enabling the development of requisite learning outcomes is maintained by traditional feedback mechanisms built into the planning, management and review processes of the provision. Together with informal evaluative feedback, such mechanisms include: annual quality review, external examinership, course team forums, student evaluation questionnaires, industrial liaison networks. The project proffered the question, within the context of the School's continuous improvement, - could a management approach be developed that will further ensure that curriculum development benefits from continuing and value adding feedback ?'

PROJECT AIMS

The aims of the research project were:

1. to investigate ways in which the relevance and responsiveness of teaching and learning to employment can be enhanced.

2. to develop a model of good practice that can be adopted be adopted across the university and be made available to other interested higher education institutions.

METHODOLOGY

The project was managed and advised by a 'steering committee'. This committee consisted of construction industry representatives, professional body representatives, construction academics and a D*f*EE advisor. The project methodology developed by the committee was scheduled into a number of integrated phases.

STRATEGIC AND OPERATIONAL DEVELOPMENT - PHASE 1

The experiences of graduates - ex students of the School, and now participants within the construction industry were investigated with relation to their education. The data collection process was developed around the concept of graduate-professional reflection upon experience. The mechanism for this was questionnaires and participative workshops. The utilisation of reflection upon experience as a means to enable development is well recognised within literature. In the context of this project the development concerns the relevance and responsiveness of an education provision, the reflection is provided by those with experience of the provision and its outcomes.

REFLECTION, EDUCATION AND THE PROFESSIONS

The concept of reflection and the perceived necessity for developing reflective practice have in recent years become ensconced within professional education. Teachers, nurses, construction managers and accountants, to name but a few, invariably undertake 'professional' education that explicitly espouses the intention to develop the person as a 'reflective practitioner'. In educating for such 'reflective practice' the commonly accepted key interpretation of the concept is provided by Schön (1983).

For Schön (1983) the concept of reflective thought is central to competent professional practice. 'Knowledge-in-action' he proffers is a fundamental of competent professional practice. Such knowledge-in-action is though dependent upon 'reflection-in-use'.

Schön views professional practice as being shot-through with reflection. It is a subjective and value-laden phenomenon in which practitioners express 'artful ways' to

> *deal competently with the indeterminacies and value conflicts* (Schön 1983: 19).

According to Schön, professional practice clearly embraces reflective processes.

> *When we go about the spontaneous, intuitive performance of actions of everyday life, we show ourselves to be knowledgeable in a special way....Our knowing is ordinarily tacit, implicit in our patterns of action and our feel for the stuff with which we are dealing* (Schön 1983: 49).

Schön labels this 'special way' of knowing 'knowing-*in*-action', and underlines that

> *the workaday life of the professional depends on tacit knowing-in-action.*

It is 'common sense' know-how, 'the characteristic mode of ordinary practical knowledge', and can be identified by the following features:

> - *There are actions, recognitions, and judgements which we know how to carry out spontaneously, we do not have to think about them prior to or during their performance.*
>
> - *We are often unaware of having learned to do these things, we simply find ourselves doing them.*
>
> - *In some cases, we were once aware of the understandings which were subsequently internalised in our feeling for the stuff of action. In other cases, we may never have been aware of them. In both cases however, we are usually unable to describe the knowing which our action reveals (Schön 1983: 54).*

Tacit 'knowing-in-action' can be regarded as *experientially* developed artistry, expressed through 'a comfort with the matter at hand'. With repetition of a matter at hand, or

> *certain types of situations again and again...(a) case or project, account, commission, or deal...(the professional) becomes less and less subject to surprise* (Schön 1983: 60)

The developed comfort and lack of surprise with regard to the matter at hand can be considered as features of professional *expertise*.

Like tacit 'knowing-in-action', *reflection-in-action* is concerned with immediate 'thinking about the matter at hand'. Unlike knowing-in-action, it is not characterised by a person's 'comfort' with the professional matter at hand. It is characterised by *uncertainty* and a problematic dialogue between the person and the professional matter at hand.

> *(When a matter at hand) eludes the ordinary category of knowledge in practice, presenting itself as unique or unstable, the practitioner may surface and criticise his initial understanding (of the matter at hand), construct a new description of it, and test the new description by an on-the-spot experiment…When he finds himself stuck in a problematic situation which he cannot readily convert to a manageable problem, he may construct a new way of setting the problem - a new frame which…he tries to impose on the situation.* (Schön 1983: 63)

In reviewing reflection-in-action Morrison (1996) presents its characteristics as being

> *immediate, short term, concerned with technical efficiency, restructuring a specific situation in terms of a new frame....in order to devise a new strategy for approaching the situation.*

As such reflection-in action can be seen to be a *conscious* process within which a *purposive objectivity* frames a professionally-desired outcome., and is located in

> *the 'action present', the zone of time in which action can still make a difference to the situation (matter at hand),* (Schön 1983: 62)

GRADUATE REFLECTION - MAPPING PROFESSIONAL DEMANDS AGAINST EDUCATIONAL OUTCOMES

Through the data collection mechanisms graduates are provided with the opportunity to formally reflect upon their professional experiences and frame them in light of their 'academic' experiences. This reflection-*on*-action allows for recognition of graduate experience and curricular perceptions. It is an intentional, conscious activity that takes place outside of the action timeframe (Schön 1983) of their higher education experience, and is evidenced in other everyday activities such as debriefing sessions and event reviewing (Boud et al 1994).

DATA COLLECTION - PHASE 2

Initially, in March 1997, a postal survey was undertaken. The graduate database of the University's Alumni Relations Department was utilised to source relevant information. A sample of approximately 300 graduates, from 1991 to 1996, was extracted from the database, these graduates represented three discipline areas within the School - Building Surveying, Construction and Quantity Surveying.

The postal questionnaire provided for the determination of baseline data regarding

- graduate career patterns,

- post-university training, and

- perceived links between qualifications attained and employment requirements.

The mechanism of the questionnaire also provided for the identification of graduates who were willing to further participate within the study. Further data was gathered from the identified graduates, as well as from academics, representatives of

construction organisations and professional institutions through the conducting of workshops with

- a Graduate Focus Group

- a Staff and Employer focus Group

The purpose of these workshops was to gather further data relating to the links between teaching and learning and the needs of the professions. The workshops facilitated this purpose by group discuss of, and reflection upon, personal experiences.

The data from the questionnaire and the Graduate Focus Group Workshop outlined the contribution of degree studies to employment, and identified:

- useful aspects of the course

- less useful aspects of the course,

- suggestions of aspects to be included in courses in the future.

Data gathered from the Academic Staff and Employer Focus Group Workshop provided for identification of the perceived knowledge base and key skills required of construction-related graduates.

DETERMINING A MECHANISM FOR CONTINUED RELEVANT AND RESPONSIVE CURRICULUM DEVELOPMENT - PHASE 3 - THE CURRICULUM ADVISORY FORUM

Having gained an insight into the various perspectives of what graduates need in the way of knowledge and skills, a further intention of the study was to develop a management mechanism by which the School of Construction could continue to recognise requisite course outcomes and enable relevant and responsive curriculum development. The considered development and formation of a 'Curriculum Advisory Forum' provides for such a management mechanism.

A consideration in the development of the Curriculum Advisory Forum was the extent to which it could be merged and integrated with the academic organisation and management of the School. As such the operation of the Forum involves three distinct stages:

- The gathering of information from graduates on an annual basis to facilitate continuous monitoring of curriculum.

- The review of information gathered and, with reference to employers, the determination of required curricula developments so as to bring about requisite industrially-relevant learning outcomes in future graduates.

- The consideration and implementation, where appropriate, of recommendations within the organisation and structure of the existing academic framework.

In practise the continued operation of the development mechanism is translated into three management tasks, these being:

- An annual survey of graduates using a detailed alumni questionnaire, managed by the Student Services Centre as part of existing alumni record gathering.

- A review of completed questionnaires by the Curriculum Advisory Forum. The Forum constitution consisting of School programme leaders, course leaders, subject
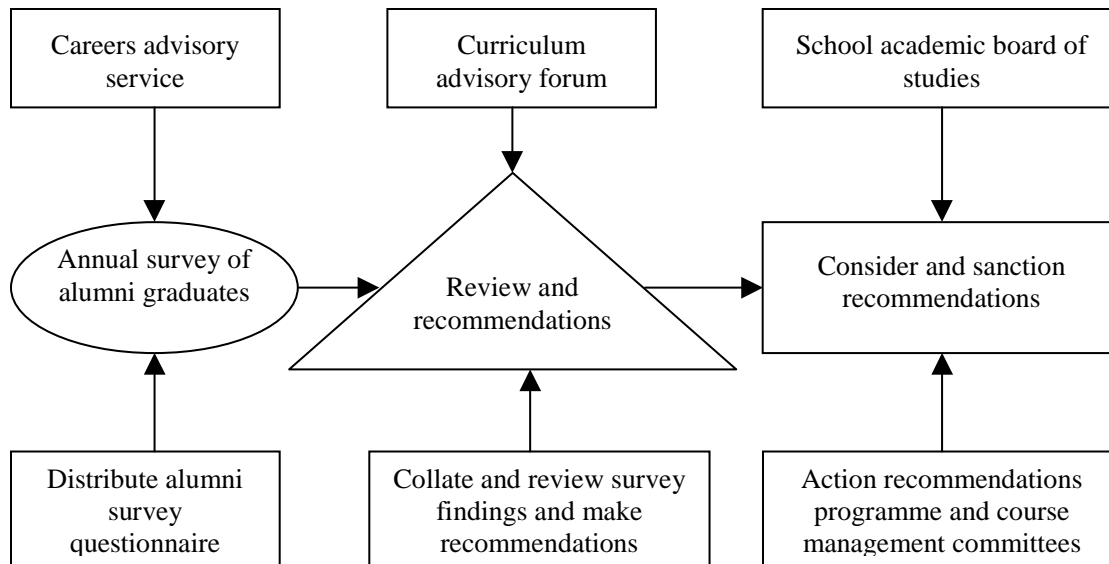
Figure 1: The conceptual stages and management tasks of establishing a curriculum advisory forum (Griffith 1998)

group managers, the Head of Undergraduate Programmes, employers and student course representatives. Information is to be referred to a selection of employers to gauge opinions and views before developments are determined and recommendations for change delivered.

- The findings and recommendations are to be presented to the School's Academic Board of Studies, a University Board of Academic Management. Consideration can then be given to the recommendations within the existing academic planning, management and review framework.

Figure 1 outlines the operational and management tasks of the Curriculum Advisory Forum

CONCLUSIONS

The principal aim of this paper has been to present the rationale and methodology of a research study and to outline an innovative curricula development mechanism. The presentation of findings and results has not been within the scope of this paper. The curriculum-relevant results are essentially of specific pertinence to the School of Construction, Sheffield Hallam University (and will be the subject of a further paper). The innovative curricula development mechanism presented is of considerable generic worth to construction-related education providers as it possesses qualities of transferability. With utilisation of such a curriculum development methodology, construction-related education providers are empowered with improved information flows and are better equipped to continually recognise changing professional needs and respond to them with informed curriculum development decisions.

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