The changing role of universities and flexible course re-development

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Abstract

This paper reflects upon the development of a suite of new courses in the Faculty of Built Environment and Engineering at the Queensland University of Technology in Australia. It describes the theoretical framework upon which these courses are founded and the broader pedagogical and structural implications and opportunities. It relates a model of transformative learning to the large scale issues of course design and contemporary course relevance. The paper illustrates such a relationship with a suite of courses in which the student takes a greater lead in the shaping of his or her own education. Notions of change and transition are presented as opportunities for continued renewal of course offerings, and as the catalyst for transformative learning wherein students become more active members in the teaching and learning process. What we find is that good pedagogical course design aligns with the changing role of universities in contemporary society.

Keywords: Cross-disciplinary, Curriculum, Design, Education, Multi-disciplinary

1. Introduction

“Universities are products of the late 19th and early 20th centuries… The question is how do you break them up in some way… How do you make them free to do something new and different?” Everett Hughes [1].

This paper explores and illustrates how university undergraduate courses can be designed and developed to respond to the changing role of universities within the broader social context. Further to that, it illustrates how a model of transformative learning [2] can be used to inform such course design and development. Universities need to prepare students for the real-world demands of professional practice, and classroom knowledge is increasingly seen as only a part of the knowledge needed to operate in practice. New courses need to adapt and embrace a broader more flexible approach to what constitutes disciplinary scholarly knowledge.
2. The changing role of universities

“Current changes in Western universities which are attributed to global and other international economic, social and cultural developments are variously referred to in a number of different ways including new managerialism, academic capitalism and academic entrepreneurialism” [3].

The purpose for the existence of higher education is changing. The role of universities within society has changed. One of the significant issues about this is that different stakeholders still have different perceptions of that changing role. For example, university is no longer seen as being as elitist as it once was, it is much more ‘normal’ to attend university with an increasing percentage of the population now studying at tertiary level. Higher education is now seen as an expected part of the process of getting a job or developing a career. This has not only affected the types of courses that universities offer, but more significantly the ways in which those courses are delivered. There is also increasing influence from industry and professional bodies with respect to student graduate attributes (employability skills), and within the disciplines of design, engineering and built environment, many courses are externally accredited by such professional bodies, whose influence on curriculum development is significant.

Many practitioners in the design, engineering and urban development industries require a period of formalised workplace training, either during or after university study, before being eligible to apply for statutory registration. This arrangement sees three significant stakeholders involved in, and influencing, education in these fields:

- Governments who are responsible for registering professionals, and administering registration examinations, and who control higher education policy and funding
- The professional industry bodies, who increasingly lobby governments and have their own education policies
- The higher education sector itself, responsible for curriculum development and delivery, often within guidelines provided by government and industry

This complex arrangement is fraught with all of the expected conflict between academia and industry and the ongoing differing visions of the role of professional education. In the example of architecture, the industry and professions have a vocational view and see the architecture course as “training for operation in the profession” [4], while many academics still see their role as “developing individual star architects as unique and gifted designers” [5].

2.1 Changes within society and Government

Until fairly recently university was considered as one stepping stone on a life-long career path. More recently however the notion of multiple careers in any one lifetime has emerged and university education is thus seen in a range of different ways, with multiple entry points, exit points and reasons for attending. This change in societal attitude has been driven by, among
other things, significant changes in skill level in the workforce. Increasing internationalisation and automation in the 1980’s saw increasing numbers of students attending university to raise their skill levels and improve their employability [6]. The new post-industrial society of that time was experiencing the rise of the information industries and the service sectors and Richard Florida’s “creative class” were on the rise [7].

This increase in student numbers was primarily within the professional and technology sectors, not the arts and pure sciences, as students trained for changing career opportunities. This shifting focus towards employability also saw increasing concern among governments about the quality of higher education, and the balance of academic knowledge and practical (employability) skills. Many higher education providers, prompted by government, revised courses to incorporate graduate capabilities (employability skills) such as communication, teamwork, creativity, problem solving, and life-long learning [8].

2.2 Changes within the professions

On a professional level the building industry, and the roles of professional within it, has changed dramatically in the past few decades. What was once seen as a series of hierarchical industrial relationships, has changed to a team based industry with patterns of shared responsibility. These changes in professional practice have resulted in building industry professionals who need different sets of capabilities and skills, and more importantly who have a different view of themselves within their professional context. Such professionals must now see the value in participatory teamwork, client involvement, cross-disciplinary activity, multiple perspectives, and the capabilities for lifelong learning.

Problems in contemporary society are characterised as complex and not limited to one discipline, and our graduate must similarly work in multi-disciplinary or trans-disciplinary ways [9]. In particular our graduates need to be: outward-looking and connected, enterprising and innovative, community and society responsible, and providing and focussing on leadership [10]. This need for our graduates to be more focused on societal values rather than technical solutions means that university courses must respond to develop mode deeply a broader range of capabilities in our graduates. Together universities and the professions must develop policy and direction to assist in the development of higher education in this direction.

Professional organisations, as representatives of employers, “have been remarkably successful in influencing government policy on higher education” [11]. Such professional bodies develop education policies that rely heavily on performance criteria, employability skills, or graduate capabilities; all of which are permeating higher education. It is clear that such policies seek to make graduates more immediately employable, often at the expense of a more liberal education.

2.3 Changes within the higher education sector

Contemporary universities are “rapidly changing legal, social, economic and technological environments” characterised by the conflict they are experiencing between corporate and
academic cultures [12]. With significant changes in the past few decades to society’s attitude to higher education, universities have changed their management structures to become more entrepreneurial, competitive, strategic and bureaucratic [13]. The contemporary university-as-business may however be more concerned with responding to market demands than with the public good [14]. The need to capture a fair share of the student market is now a significant driving force. As long ago as 1980 David Riesman was investigating the effects of rising student consumerism on the higher education sector [15]. He talks of the decline of faculty (academic staff) dominance and the corporatisation of universities. More recently Sharon Beder [16] has noted the external demands on universities, and an increasing need to form partnerships with corporate employers, resulting in “university education… being increasingly turned into vocational training”.

Such partnerships in BEE have been used to develop new commercial postgraduate courses, but such partnerships also manifest themselves in activities within the undergraduate program. Integrated projects may see undergraduate students working on research projects for external community groups, or commercial clients. Students may gain academic credit for workplace learning with any of the Faculty’s commercial partners.

3. Building a new Faculty framework

Within this complex and changing context, the Faculty of Built Environment and Engineering (BEE) embarked on a major process of renewal in the latter half of 2004. The process was guided in part by the works of two significant scholars in the field of higher education; Ernest Boyer’s [17] work on scholarship and Burton Clarke’s [18] work on successful entrepreneurial universities. The Faculty identifies its activities within the scholarly fields of teaching, discovery, and application. The Faculty conceives of Boyer’s scholarship of integration as the role which academic leaders bring, at all levels of the faculty’s organisation, to working these fields together (see Figure 1) [19].

Within the Faculty of Built Environment and Engineering at QUT, such partnerships have become an increasingly common mode of operation as guided by the Faculty White Paper [20] which draws much overt inspiration from the work of Burton Clark. The features of entrepreneurial universities identified by Clark, and reviewed by Deem [21], have been used to steer the Faculty to a more global, entrepreneurial, and integrated future, with industry partnerships, international activities, transdisciplinary courses, and a developing third funding stream.

We find that our courses must also fit this model of a contemporary faculty, sitting at the integration of teaching and learning, discovery, and application.
The role of the contemporary university is to deliver education that responds to the changing needs of society, so different to just twenty years ago, within an increasingly global and entrepreneurial higher education environment. We must balance commercialism with social responsibility, while seeking the answer to “how an institution can be publicly funded, accountable and independent” [22].

4. Building a new course model

4.1 Up-scaling good practice

Closing the gap between outdated learning experiences and the changing societal expectations of the professions, and the changing role of universities, requires a shift from an educational model based on persuasion to one based on dialogue [23]. Where in the past, education has been seen as a process of doing it to them, to turn them into practitioners, it must now be about enabling them to become professional life-long learners by their own processes. This notion of ‘becoming’ suggests a transformative pedagogy as exemplified in the work of Jack Mezirow [24] [25].

The value of dialogue as opposed to persuasion is well explored by Mezirow in his work on transformative learning. Among other attributes, the communicative and participatory learning
that Mezirow proposes is learning in which a student will be “free from coercion, distorting self deception or immobilizing anxiety... open to alternative view points... and have equal opportunity to participate in the various roles of discourse” [26]. This form of transformative learning involves critically questioning the assumptions of the professional and educational contexts around us, therefore a new educational context that embraces transformative learning will require students to have opportunities to question, and to play a greater role in shaping and forming their own educational environments, and this can certainly extend to large scale curriculum design.

BEE’s course development concepts stem from an understanding that Mezirow’s ideas of dialogically based learning environments can be used to conceive whole courses as well as classroom encounters. Within such a model of educational dialogue, students and teachers develop an understanding through conversation. The Faculty of Built Environment and Engineering has, in order to conduct that dialogue at a course scale, designed course structures that are not imposed upon students but rather developed individually by students, through their own choices, such that students can respond to changes in society, the professions, the higher education context in general, and changes in the role of universities.

The value of such student choice is not limited to transformative learning and professional alignment. Students who make their own choices are also more likely to use a “deep approach” to learning [27] due to higher levels of motivation and feelings of ownership. Such a deep approach, as opposed to surface learning, is one of improved understanding and application.

Engaging with transformative learning and preparing students for contemporary professional practice in the building industry will require an educational context with the following characteristics [28]:

- Divergent learning and teaching
- Dialogical learning and teaching
- Transformative learning
- Participation in practice
- Perspectivalism
- Revisability
- Creativity, inventiveness and innovation
- Self-construction and self-reliance
Courses in the contemporary university should therefore offer students opportunities for divergence, dialogue, and self-construction, along with opportunities for participation in practice and flexibility. Such courses will allow students to become different types of graduates with different types of capabilities more suited to contemporary circumstances.

### 4.2 Building course structures for dialogue

With these goals in mind, one of the major parts of the Faculty’s transformative process was the development and introduction of a suite of new undergraduate courses to replace all existing ones. These courses broadly cover the fields of design, engineering, and urban development. Further to the pedagogical goals described above, these new courses were designed to integrate the scholarly activities of teaching, discovery and application, as described in the new structure of the Faculty. No longer would teaching and learning activities sit in isolation, rather students would engage with discovery (research) and application (external service) as structured parts of their programs of study.

![Figure 2: Model of the course structure of the Faculty of Built Environment and Engineering.](image)

With a coming together of these Faculty goals, and ideas of transformative learning, it was possible to develop a common course structure (model) that would allow for the individuality of the disciplines to prevail, while also providing, and indeed encouraging, transdisciplinary activity. These two notions of discipline focus and flexibility/choice exist as shared possibilities that promote self-constructed, divergent learning. The courses (Figure 2) would provide the students with:

- Opportunities for self-construction and divergence
- Opportunities for integrated transdisciplinary study
- Opportunities to learn through and in practice (work place learning)
• Opportunities for articulation

• Opportunities to engage in discovery (research) and application (external and community service) activities through a thematic approach to faculty activities

The new courses all share a common model of a four year full-time structure (Figure 2, note that this diagram is not temporal but simply proportional), in which students self-construct one quarter of their studies to suit their own divergent paths. Further to this all students share a further quarter of their course with students from cognate disciplines, to enhance their broader professional capabilities. This commonality allows such groups of cognate disciplines to come together within single courses within which they share common subjects while still retaining individuality and diversity. This allows the Faculty’s nineteen disciplines to form just three undergraduate degrees:

• Bachelor of Design (with majors in: Architecture, Industrial Design, Interior Design, and Landscape Architecture)

• Bachelor of Engineering (with majors in: Aerospace Avionics, Civil, Civil and Environmental, Civil and Construction, Computer Systems, Electrical, Infomechatronics, Mechanical, Medical, and Telecommunication)

• Bachelor of Urban Development (with majors in: Construction Management, Property Economics, Quantity Surveying, Spatial Science, and Urban and Regional Planning)

One useful way to think about the general model of these undergraduate courses is that they will contain three types of knowledge, or three types of units or subjects (Table 1).

Table 1: Three types of knowledge/unit within the undergraduate degree.

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<thead>
<tr>
<th>#</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shared Core</td>
<td>A coordinated group of units (8 units in a 4 year degree) done by all students in the course. These are units of common content that are ‘core’ to all disciplines and therefore shared. Two of these units are also shared across the entire Faculty (Introducing Professional Practice, and Introducing Sustainability).</td>
</tr>
<tr>
<td>2</td>
<td>Major</td>
<td>A coordinated group of units done only by the students of one discipline, to obtain a focused view of that field of knowledge.</td>
</tr>
<tr>
<td>3</td>
<td>Self-selected units</td>
<td>A selection from a range of coordinated groups of units (8 units in a 4 year degree). Students elect at the completion of their first year, a secondary field of specialisation (second Major), or two fields of specialisation (two</td>
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two Minors, or Work Integrated Learning

Minors), or Work Integrated (workplace) Learning, or some combination of these. Students self-create their own divergent education, and career path.

The options for students to self-construct their course are wide and varied. They may select from as divergent areas as, cognate fields (within the Faculty), non-cognate fields (from other Faculties), work-integrated learning (learning in the workplace), research activities (engaging in the themed discovery activities alongside academic staff), and external services (community service and commercial application activities). Students are therefore able to construct courses in which they themselves also integrate the Faculty’s scholarly activities of teaching and learning, discovery, and application (refer to Figure 1).

While this structure has been developed around nineteen existing majors (or disciplines) it is expected that new majors in emerging fields will be comfortably accommodated within the model proposed here. New disciplines of Design, Engineering, and Construction will be easily accommodated within the existing model. While notions of what such future disciplines might be will be led by changes in the professions, our students will also take an active role in such development.

New course Majors (disciplines) can be firstly tested, before full implementation, as Minors or Second Majors in which our students may take an active role in developing our education context, already characterised as ‘innovative, creative, dialogical, and revisable’. The pathways that our students make for themselves, pathways that many of them will develop while participating in professional practice through workplace learning, will show us desirable and sensible course options for further development. Such pathways will not be restricted within the Faculty, but may stretch across the whole university to explore new professional career paths such as Sustainable Environment Design, Chemical Engineering, Design Education, Social Project Management, and Built Environment Law.

This larger scale flexibility, at a course level rather than at a student level, positions the Faculty where it can respond to an uncertain future, in the professions, in the higher education sector, and within the broader society.

5. Conclusions

The courses described here can be seen as a direct response to the changing role of universities, while implementing sound practices of transformative and dialogical learning environments. These courses have been running for two years now, and all evidence suggests that the aims of self-construction and divergence have been well received. The courses have been recognised by a university award for curriculum development; the model described here is now being copied by other faculties; student demand is high and rising in a climate of falling demand; and anecdotal evidence from student recruitment events shows that prospective students are highly
interested in, and attracted to, the flexibility and self-directed possibilities that these courses offer.

Self-directed flexibility on this scale is not usual for ‘professional’ degrees, such as engineering and architecture; courses where so many stakeholders drive the agendas of curriculum, content, graduate capabilities, and course structure. This model shows however that the most important stakeholder, the student, can be given greater levels of involvement in their own course development with both desirable and successful outcomes. These courses offer students the opportunity to develop into different types of graduates, appropriate to changing professional and social context. “Adults do not learn for the sake of learning; they learn to perform a task, solve a problem, or live a more satisfying way” [29]. These courses seek to provide educational possibilities for the broadest range of tasks, problems, and ways of living.

References


