An interdisciplinary approach to design at the University of Pretoria

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Abstract

This article investigates the implementation of an interdisciplinary approach to Design in Architecture, Landscape Architecture and Interior Architecture at the University of Pretoria, South Africa. Architecture, Landscape Architecture and Interior Architecture were previously offered as distinctive academic disciplines, located in separate academic departments. The process of integrating these closely related disciplines into a three year Bachelor of Science (BSc) programme as well as a Magister (Professional) by coursework commenced in 2001 and 2002 respectively. This new approach, unique in the context of South African higher education, is examined by means of a literature review and a qualitative inquiry.

INTRODUCTION

Interdisciplinarity has a long history in praxis and is increasingly being applied in academia. Interdisciplinary approaches involve reciprocity across specialisations as well as a willingness to think through one’s position in order to contribute to the larger interest of a reformulated common goal. In praxis an interdisciplinary approach is seldom unusual nor is it a matter to be defended and structured but it forms the essence of the enterprise as a whole. However, higher education has traditionally promoted increased specialisation, distinctive individualism and fragmentation, which can impede methodological collaboration. There has been a resurgence of interest in interdisciplinary studies across multiple sectors, ranging from undergraduate general education to interdisciplinary fields and schools and graduate and postgraduate research (Klein & Doty 1994; The Nuffield Foundation 1975a; The Nuffield Foundation 1975b). The relevance of interdisciplinary studies is the subject of national reports on the state of the university and in prognoses of what competence in education means in the twenty-first century (Klein & Doty 1994:2).

In this article a literature review takes cognisance of the principles of interdisciplinarity, issues of interdisciplinary curriculum design, administration of interdisciplinary programmes and strategies to avoid pitfalls, such as facile interdisciplinary studies in higher education (Kim 2001:132). Thereafter, the article traces the historical background of the three disciplines of Architecture, Landscape
Architecture and Interior Architecture at the University of Pretoria, South Africa and outlines factors, which contributed to the recent curricular reform. Moreover, an overview of the new curricula is given. A qualitative inquiry also explores the experiences of a small sample of key stakeholders with regard to the innovation.

INTERDISCIPLINARY STUDIES

Interdisciplinary studies (IDS) may be defined as a process of answering a question, solving a problem or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession. Although IDS may not be a new concept, it still continues to have a prominent role in general education and it includes a great deal more today than it did before (Klein & Newell 1997:395). Knowledge today has become increasingly interdisciplinary. This is most easily recognised in practice and thereafter in education. Often the terms multidisciplinary and interdisciplinary are used interchangeably. However, the difference between the two is important, as it designates the extent to which integration is achieved in the learning experience of students.

In a multidisciplinary course the faculty presents its individual perspectives one after another, leaving differences in underlying assumptions unexamined and integration up to the students. In contrast, interdisciplinary courses may be taught by teams or individuals. Faculties interact in designing a course, bringing to light and examining underlying assumptions and modifying their perspectives in the process. They make an effort to work with students in designing an integrated synthesis of the separate parts that provides a larger, more holistic understanding of the question, problem or issue at hand (Klein & Newell 1997:404). Most interdisciplinary courses are organised around a particular topic, theme or question. Interdisciplinary courses, like the process itself, require attaining a working balance among breadth (to ensure a wide base of knowledge of information), depth (to ensure the quality of requisite knowledge and information for the task at hand) and synthesis (to ensure integration of knowledge) (Association of American Colleges 1990:65–66). Interdisciplinary courses imply a wide range of advantageous educational outcomes for students. A well-designed interdisciplinary course should impart to the student skills such as precision and clarity in reading, writing, speaking and thinking; to confront challenges to their assumptions of themselves and their world; and to develop the habit of asking why instead of merely memorising accepted facts. Other educational outcomes appear to be the product of the interdisciplinary process itself: an appreciation for perspectives other than one’s own; an ability to evaluate work of experts; tolerance of ambiguity; increased sensitivity to ethical issues; an ability to synthesise or integrate; enlarged perspectives; more creative, original or unconventional thinking and increased humility or listening skills (Newell 1994:35). Interdisciplinary studies also have advantages for institutions. Interdisciplinary courses are inherently more interesting to study and teach. They serve as efficient
introductions to the various disciplines and can be considered a low-cost but highly effective form of faculty development.

In the light of this explanation of concepts, an interdisciplinary approach to Design incorporated in two new degree programmes at the University of Pretoria, South Africa, is described in the ensuing sections in the context of higher education reform in South Africa.

**INNOVATION IN HIGHER EDUCATION IN SOUTH AFRICA**

Higher education systems are in a state of change worldwide. Similarly in post-apartheid South Africa, external forces common to those experienced by other countries as well as factors related uniquely to the legacy of apartheid have led to rigorous appraisal and ongoing transformation of higher education (Lemmer 2001:20). The first step in the transformation of South African higher education was the establishment of a National Commission of Higher Education (NCHE) in 1995. The final report of the commission entitled *A framework for transformation* was produced in 1996. Among others, it recommended the facilitation of horizontal and vertical mobility by developing a framework for higher education qualifications, which incorporates adequate routes of articulation as well as flexible entry and exit points (Department of Education 1996:7–8). The passing of the South African Qualifications Act (SAQA) in 1995 is also of significance. The South African Qualifications Authority, the related statutory body, was established to supervise the development and implementation of a National Qualifications Framework (NQF) on which all education and training qualifications are specified in an outcomes-based format, approved and registered (Luckett 1999:8). Moreover, a new academic policy for higher education in South Africa calls for the promotion of interdisciplinary approaches in terms of which ‘wasteful overlap and duplication of programmes and qualifications’ are avoided (Ministry of Education January 2002). Accordingly, the University of Pretoria has started to phase in a new system of education and learning, which corresponds, with the required guidelines of SAQA and the NQF. The new strategic plan of the university articulates its vision, including ‘a commitment to continuous innovation . . . in the spirit of creative energy’ (University of Pretoria December 2002). In this system learning programmes are offered which are characterised by interdisciplinary, outcomes-based, student-centred and market-orientated approaches. The new paradigm replaces the rigid, content-centred and elitist approach of the previous educational dispensation (King & Van den Berg 1992).

**THE CASE OF THE DEPARTMENT OF ARCHITECTURE, UNIVERSITY OF PRETORIA**

Against this background, the article investigates the implementation of an interdisciplinary approach to Design in Architecture, Landscape Architecture and
Interior Architecture at the University of Pretoria. In the past, Architecture, Landscape Architecture and Interior Architecture were offered as distinctive academic disciplines and located in separate academic departments at the University of Pretoria. This exclusivist approach to the three disciplines has also been a reflection of professional practice in South Africa. However, the changing role of professionals has created a need for co-operation in the design and production of the built environment. This need, together with educational change, has motivated the integration of these inter-dependent disciplines. Architecture and Landscape were originally presented as separate degree programmes in the Departments of Architecture and Landscape respectively. Interior Architecture (then known as Interior Design) was presented as a specialisation in a Domestic Science degree. In 1997 the Departments of Architecture and Landscape were amalgamated in the Faculty of Science. A new curriculum was designed with Design at the core balanced equally by the Natural Sciences and Humanities. In 1999 Interior Architecture (then Interior Design) was relocated to the Department of Architecture. Subsequently, the latter Department moved (Faculty of Science dissolved) to the new School for the Built Environment. Its course work was integrated into the existing course contents of the newly formulated curriculum structures of the Department (Fisher & Steenkamp 2002).

Designing a new curriculum

The combination of these three separate disciplines required the design of a new curriculum. The need was recognised for a curriculum where the programmes were congruent, built around a core curriculum yet where subjects that distinguished the programmes could be homologous within the structure (Fisher & Steenkamp 2002). Shared premises undergirded the process and were recognised and approved by all three disciplines. These comprised the following (Fisher 2002:Interview):

- Design is the core task of the education of designers for the Built Environment
- Design is founded equally in the Natural Sciences and Humanities
- Certain skills designers require are secondary but still need to be taught
- Since students are being educated for a profession, a certain amount of professional training is required, hence the inclusion of professional practice courses.

Thereafter, modules which comprised content that formed part of a core curriculum were identified. Discipline-specific modules were also recognised, the course content of which distinguished one discipline from the other two. These structures were then set up over a matrix across five years (Fisher & Steenkamp 2002). The next step was to reconsider the actual structure for awarding degrees. This was based on systems of international accreditation. According to Fisher and
An interdisciplinary approach to design at the University of Pretoria

Steenkamp (2002), the accreditation awarded followed the so-called three-year-plus-two system, for which there is a Part One and Part Two accreditation. It was decided to adopt this as the structure for the awarding of degrees in both programmes (Interior Architecture has as yet to join the department at this stage). These proposals were approved by the necessary authorities and implemented in 1998. Furthermore, a Master’s degree by course work was proposed. After considering related models at other South African higher education institutions, it was decided to adopt the Master’s by course work for professional registration (Fisher & Steenkamp 2002). Thus the necessary authorities, including SAQA, approved the new programme. The new degree programme at the Department was structured as follows: three-year BSc degree in one of the three disciplines, with the further option of a two-year structured Master’s degree (Professional) in any of the three specialisations.

New programmes: BSc and M(Prof)

The new three-year BSc degree is regarded as an exit level that enables the graduate to register as a Senior Technologist at the South African Council for the Architectural Profession. Such practitioners provide assistance in the practices of the disciplines of Architecture/Interior Architecture/Landscape Architecture and Urban Design. Moreover, a graduate wishing to qualify as a professional architect, interior architect or landscape architect can apply for, and pursue studies, in the Master’s (Professional) degree programme, which is also marked by a high degree of interdisciplinary activity (South African Qualifications Authority, Undated). Phasing in of the BSc curriculum innovation, with all three disciplines included, commenced in 2001. A progressive phasing in of Architecture and Landscape students was possible, however, Interior Architecture students were slotted directly into the new programme at the level they had achieved academically. Architecture and Landscape Architecture were presented in the new M(Prof) format for the first time in 2002. In 2003 Interior Architecture will also be included the M(Prof) programme.

The structure of the 3-year BSc

The first year of the BSc degree is considered an introductory year for all three disciplines. Students follow the same curriculum including the major, Design, in an integrated programme. Over the subsequent two years the disciplines split up in terms of Design and certain discipline specific modules, where the course content distinguishes the profession. However, certain modules, which are relevant and of value to all specialisations, are taken by all students, for example history and theory of design in the built and made environment. Furthermore, an integration of theory and design is emphasised. Design projects are assigned where students from the various disciplines may participate together. Initial selection of students for all
three disciplines is based on equivalent entrance requirements. The requirements for application, as stated in the SAQA registration form, are a Matriculation Certificate with at least 40 per cent (E symbol) in Mathematics and Physical Science 40 per cent at Higher Grade, or at least 50 per cent (D symbol) at Standard Grade (South African Qualifications Authority, Undated). Thus all prospective students enter on the same level and in this way no room is left for discrepancies between disciplines; each discipline has equal status. However, the quota of students accepted for the three programmes differs: Architecture has the greater number of students, while Interior and Landscape Architecture accept fewer students. Interestingly, owing to the limited quota, the matriculation results of successful applicants generally exceed the minimum requirements. Thus the academic ability of students pursuing a degree in Design is very high (often the equivalent of medical students). The BSc qualification serves a number of purposes (cf South African Qualifications Authority, undated). It aims to produce graduates who have a clear, continuous and growing understanding of the discipline, who enjoy the opportunity of continued studies toward the professional status of their discipline and are able to move into related professional fields. According to the SAQA registration (South African Qualifications Authority, undated), a number of discipline-specific-exit level outcomes are identified as well as critical cross-field outcomes. These are:

- Identifying and solving problems in which design responses display that responsible decisions using critical and creative thinking have been made
- Working effectively with others as a member of a team, a group, organisation, community
- Collecting, analysing, organising and critically evaluating information
- Communicating effectively using visual, mathematical and language skills in the modes of graphic, oral and written persuasion
- Using the human and natural sciences and technologies effectively and critically, showing responsibility towards the environment and well-being of others
- Demonstrating and understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation
- Contributing to the full personal development and actualisation of each learner and the social and economic development of the society at large, by making it the underlying intention of the programme of learning to make an individual aware of the importance of

1. reflecting on, and exploring, a variety of strategies to learn more effectively
2. participating as responsible citizens in the life of local, national and global communities
3. being culturally and aesthetically sensitive across a range of social contexts
4. exploring interior design and career opportunities
5. developing entrepreneurial opportunities.
The structure of the two-year M(Prof) by course work

The M(Prof) programme is presented over a period of two years. As with the first degree, selection for students in all three disciplines is based on equivalent requirements. Applicants are required to have a first degree, BSc (Arch/LArch/Int) or equivalent (South African Qualifications Authority, Undated). The M(Prof) degree provides the graduate with a qualification to act as a professional in his or her field as well as entry point to a PhD. Alternatively the graduate is provided with credits for related qualifications and can subsequently choose to transfer to one of the two related disciplines (South African Qualifications Authority, Undated). The first year of the M(Prof), the equivalent of an Honours degree, is structured around a number of theoretical components of which students are required to complete four. These themes are addressed on three levels: formal lectures, projects and seminar style of presentation. The design projects that stem from the themes are discipline-specific. The year is organised around four quarters with three modules running per quarter. In addition to these modules the students are required to take a number of theoretical and professional practice subjects, which are the same for all three disciplines (Fisher 2002: interview). Within this structure, students of Architecture, Interior Architecture and Landscape Architecture respectively are able to make choices which cross traditional disciplinary boundaries. For example, a student of Landscape Architecture may choose to do a module dealing with product design (typically considered the domain of an Interior Architect). Moreover, students are given the opportunity to collaborate on projects. For example, when dealing with a theme the students work in teams, which comprise representatives from all three disciplines, do research and set up academic documentation. In this way the three disciplines serve to inform one another (Fisher 2002: interview). Students learn to collaborate despite differences in their respective fields. It is indirectly envisaged that this kind of compulsory cooperation will continue once students have graduated as professionals. It is further envisioned that at a later stage, members of related but more removed disciplines, such as civil engineers, town planners or quantity surveyors will be involved in these collaborative projects at the School of the Built Environment’s annual Spring School. In the second year of the Master’s degree, the student chooses and creates his or her own project. The project entails both design and dissertation components. The student assimilates, analyses and synthesises information creating a design argument. This is then consolidated into a scholarly and academically rigorous document (cf South African Qualifications Authority, Undated). The design is a response to an argument, which is resolved conceptually and then technically. It is finally presented graphically and verbally to a panel of assessors, along with the treatise document. According to the SAQA registration (South African Qualifications Authority, undated), a number of discipline-specific exit-level outcomes are identified as well as critical cross-field outcomes. These are:

- Identifying and solving problems in which design and/or research responses
display that responsible decisions using critical and creative thinking have been made

- Working creatively with others as a member of a team, group, organisation, community
- Collecting, analysing, organising, contextualising and critically evaluating information
- Communicating and creatively using visual, mathematical and/or language skills in the modes of graphic, oral and written persuasion
- Using the human and natural sciences and technologies creatively and critically, showing understanding of the environment and well-being of others
- Demonstrating and understanding that problem-solving and/or academic contexts do not exist in isolation
- Contributing to the full personal development and actualisation of each learner and the social and economic development of the society at large, by making it the underlying intention of the programme of learning to make an individual aware of the importance thereof
- Undertaking independent research. (South African Qualifications Authority, undated).

The overall value of this innovation is embedded in its interdisciplinary and inclusive approach, which aspires to break down elitist attitudes that prevail amongst the disciplines and therefore, the professions. Students have the opportunity to discover that their professional activities are enhanced by working co-operatively and that their own production of knowledge is advanced by contact with other specialists working in adjacent fields. In this way it is envisaged that mutual appreciative of each other’s contribution will be encouraged in order to achieve a better final product.

RESEARCH DESIGN

Against this background, a qualitative inquiry was undertaken to explore the perceptions and experiences of a small sample of three lecturing staff, one student and one professional practitioner, of the new programmes. The participants were selected by means of purposeful sampling. Data were gathered by means of semi-structured interviews, which were recorded and later transcribed for analysis. By reading and re-reading the transcripts tentative themes were identified. Firstly relevant extracts in the text were highlighted and then grouped without comment under themes (Delamont 2002:172). Thereafter the themes were clustered into categories. Finally, suitable extracts from the responses were paraphrased or suitable quotations were selected as rich data to illustrate the categories (le Compte & Preissle 1993:267). Consistent with the guidelines for inductive analysis all the ideas discussed in the section entitled Findings emerged directly from data produced by the interviews. The rationale for the qualitative inquiry was to allow
users of the new programmes an opportunity to express experience of the process and outcome of innovation from their own point of view.

RESEARCH FINDINGS

The following themes emerged from the data:

Early successes

Participants agreed that initial implementation of the BSc degree had been successful. There had been a concerted attempt to give equal attention to all three disciplines thus fostering communication and collaboration (cf Klein & Newell 1997:402). This was particularly evidenced by the final exam projects of first-year students where ‘the different projects focused on different aspect of design and thus the students were allowed to test all their different abilities and to identify their strengths and weaknesses in each’. Similarly in the first year of the M(Prof) degree successful implementation has been recognised. One participant mentioned that if the success of the programme could be measured by the students’ response to it, it would seem to be most successful. He remarked, ‘Students’ attitude, involvement and enthusiasm thus far have been very positive.’ The first two graduates in the M(Prof), both of whom were architecture majors, had demonstrated in their theses and final presentations a ‘richness in understanding’ as a result of their interdisciplinary experience and the structuring of the new course. However, another participant who is a practising architect, cautioned that although students now obtain a broader base of knowledge, they may have lost some discipline-specific detail.

Assessment

Participants felt that assessment practices had not yet altered with the introduction of the new programme. Use is still predominantly made of the individual oral and graphic presentation in front of a panel of examiners, comprising of both lecturers and practitioners. Students are graded according to percentages and receive verbal comment during the examination. Two participants, influenced by the new outcomes-based approach to education being broadly introduced in South African education, had attempted to introduce self-assessment and peer assessment. However, this was not a direct outcome of the new programmes. It is felt that alternative strategies of assessment would enhance the learning experience.

Graduates’ contribution to practice

The participants felt that the overall aim of the innovation, that is to produce professionals that have a grasp of the different fields and interact effectively with one another in practice is being realised. A participant commented that ‘future
graduates will be better able to understand their designs in their overall contexts’. It was felt that graduates would be more mature in their understanding of Design and would have a better understanding of how practice operates in each of the three disciplines: Architecture, Landscape Architecture and Interior Architecture. The reaction to the new programmes, particularly the M(Prof) as observed among practitioners has been somewhat mixed. There has been ‘a sort of wariness, concern’ among practitioners who fear that the M(Prof) may produce graduates that are ‘too academic’. Moreover, some even appear to be ‘threatened that their own qualification is being undermined’. However, this perception is possibly due to a lack of understanding and familiarity about the new programmes. Participants felt that this will hopefully be addressed in future when the new graduates move successfully into practice.

Practical implications

Casey (1994:63) mentions that interdisciplinary initiatives also have practical implications. They can place a strain on resources even physical facilities such as lecture rooms and need to be carefully coordinated. Similarly, the introduction of the new programmes in the Department of Architecture, University of Pretoria, has had practical implications. The first-year (generic) group of the BSc is now much larger. This means that the lecturer-to-student ratio during studio time is less favourable. It is in these sessions that students are engaged in practical design and lecturers interact, advise and critique work. The presence of larger groups requires ‘more time for management and administration’ as well. Moreover, lecturers cannot consult with each student on a daily basis. This has led to some frustration among students and there is a risk that the weaker student may ‘disappear’ in the larger groups. Moreover, lecturers mentioned that the final design examinations (comprising verbal and graphic presentation) ‘are a nightmare. It now takes four days of examining to get through all the students. This is draining and sometimes quality of the assessment suffers.’ These implications are less crucial in the M(Prof) degree where the numbers are more limited.

CONCLUSION

New legislation has instigated the transformation of higher education in South Africa, which has also led to the general restructuring and adoption of an innovative approach at the University of Pretoria. However, change and innovation within faculties and schools has largely been own initiative. When Architecture, Landscape Architecture and Interior Architecture found themselves amalgamated as the Department of Architecture the need for these disciplines to co-operate and overcome their differences arose, causing a reappraisal of learning programmes. The resulting interdisciplinary innovation in the department has led to a programme and degree structure unique in South Africa. The result of the new
approach, as it has evolved to this point, has been positive. Students and staff alike are enthusiastic. It is envisioned that the marked interdisciplinary nature of the new course and degree structure will result in graduates who are creative, appreciative of multiple perspectives with the ability to synthesise or integrate design in professional practice.

REFERENCES


Fisher, R. 2002. Interview conducted with Professor R Fisher, Department of Architecture, on 05 December 2002 at University of Pretoria, South Africa.


